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CONSERVATIVE OPERATIVE TREATMENT OF LONG-STANDING INVERSION OF THE UTERUS *

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From the time of Hippocrates, who wrote clearly of this condition, to the modern era, inversion of the uterus was treated principally by elevation of the lower part of the body and pressure on the protruding mass—that is, by posture and taxis. At first, posture seems to have been most emphasized, while later taxis, in its various forms, was more largely depended on.

In the long-standing cases, however, this treatment was only occasionally successful. Most of the women who survived the primary shock and the hemorrhage of the first few months dragged out a miserable existence, and finally succumbed to anemia or chronic sepsis. The repeated and prolonged taxis, so persistently employed, often aggravated the symptoms and hastened the end.

As early as 50 B. C., Themison suggested amputation of the bleeding and sloughing corpus uteri, stating that he did not believe that the uterus was essential to life. One hundred and fifty years later the suggestion was put into practice by Soranus, who amputated a gangrenous uterus and the patient survived. From that time on, amputation of the bleeding corpus uteri was the usual treatment in those cases which resisted non-operative measures. In more recent years complete hysterectomy (by vagina) was substituted, in the comparatively clean cases, for the simple amputation of the corpus uteri. At present hysterectomy is, I think, the treatment most commonly employed in the long-standing cases. In some of these patients, particularly in those past the age of 35, amputation or hysterectomy is the best treatment. In other patients, however, especially in younger women, sacrifice of the uterus is not the best treatment. In such patients, preservation of a functioning uterus is very important and may be attained through a conservative operation. It is this phase of the subject that I wish to emphasize.

Conservative operative measures, that is, measures for the reduction and preservation of the uterus in the cases that resisted pressure replacement, have been developed only within the last half century. Aran, in 1858, and Marion Sims a few years later, suggested incision of the fibers of the constricting cervical ring, but it is not certain that either of them actually used the method. The first recorded use of this treatment

is by Robert Barnes, in 1861. In a case of inversion of six months' duration, he made three incisions in the constricting cervical tissues. The incisions extended deeply enough into the tense cervical ring to relax it, when taxis was applied and the inversion easily reduced. In this method, as used by Barnes and others, the peritoneal cavity was, of course, not opened. On account of the danger of sepsis in those days, much care was exercised to avoid cutting through into the peritoneal cavity—hence the employment of multiple incisions to avoid too deep cutting at any one point.

The next radical step was the attempt to stretch the constricting ring by means of a dilator introduced through a median abdominal incision. In 1869, Thomas reported a case so treated. He experienced great difficulty in executing the work in the friable infiltrated tissues of the long-standing inversion, and in a second case the attempt proved fatal. The method was exceedingly dangerous and only fairly successful, as indicated by failure in nearly half of the cases. In employing this method in 1899, Everke aided reduction by superficial incisions into the constricting ring from the peritoneal surface.

In 1883, Browne employed an equally effective and much safer method of dilating the constricting ring. He made an incision through the posterior wall of the inverted fundus uteri, into the inverted peritoneal pouch. Through this opening, about 1½ inches long, a dilator was passed up into the constricting ring which was then dilated. After careful and full dilatation, the uterine incision was sutured and then the inverted fundus uteri was replaced by taxis.

Kiistner (1893) made a long incision in the posterior uterine wall from near the fundus to near the external os. He first opened the posterior culdesac by a wide transverse incision, broke up any adhesions present and then incised the posterior uterine wall as just mentioned.

Following a suggestion by Piccoli in 1894, Morisani, in 1896, extended the incision up the posterior wall through the external os, thus giving complete division of the posterior uterine wall, which facilitated reduction, in the old cases with infiltrated, sclerotic walls.

Spinelli, a few years later, incised the anterior vaginal vault, opened the vesico-uterine peritoneal pouch, and then divided the anterior uterine wall from the external os to the top of the inverted fundus. This anterior division gives as much facility in reduction in difficult cases as the posterior division; and, being anterior, it possesses certain distinct advantages.

Haultain, in 1901, attacked by the abdominal route an inversion of nine months' duration; but instead of depending on dilatation of the ring, as did Thomas, Haultain incised the constricting ring posteriorly. The

* Read at the annual meeting of the Western Surgical Association, St. Louis, Dec. 20, 1913.

incision was gradually extended in the corpus uteri, as more and more of the inverted portion was pushed up within reach, until finally reposition was effected. The replaced uterus presented a posterior incision about $1\frac{1}{2}$ inches in length, which was securely sutured from the peritoneal surface. The patient made a rapid recovery.

A few years later, Dobbin employed anterior incision of the constricting ring. It was a recent inversion com-

7. Division of constriction ring posteriorly through an abdominal incision (Haultain, 1901).

8. Division of the constriction ring anteriorly through an abdominal incision (Dobbin, 1905).

Vaginal operation is by far the safer plan. Complete division of the anterior wall of the cervix and corpus uteri (Spinelli method) is altogether the most satisfactory method and the one I would strongly recommend in long-standing cases. The details of the method are conveniently shown by describing a case. The case reported is of interest also because of the seriousness of this affection and its extreme rarity.

REPORT OF OPERATION BY METHOD OF SPINELLI

Mrs. B., aged 23, operated on Feb. 7, 1913, for complete inversion of the uterus, of a year's duration, had been delivered of her first child Feb. 2, 1912. The labor was normal except for adherent placenta, which was removed manually. There was free bloody discharge and much cramping pain, which became less after six weeks. Bloody discharge continued off and on during the summer. The patient, though weak, nursed the baby and was up and about most of the time. In the fall the bleeding became worse and finally, in the winter, the patient consulted Dr. H. S. Brookes, who examined her and made a diagnosis of inversion of the uterus. When I saw the patient, in consultation with Dr. Brookes, she was weak



Fig. 1.—The inverted uterus, showing the changed relations.

Fig. 2.—Beginning the operation for reposition (Spinelli method).

plicated by sepsis. Taxis failing, he opened the abdomen and endeavored to dilate the constricting ring after the method of Thomas. This failed completely. Then an incision was made in the anterior margin of the inversion funnel. This passed through the entire thickness of the uterine wall and was extended sufficiently to permit replacement of the corpus uteri. The patient died some days later of the progressive sepsis.

In brief the conservative operations for inversion of the uterus have been as follows:

OPERATIONS FOR REDUCTION OF AN INVERTED UTERUS

1. Multiple incisions into the constricting cervical ring (Aran, Sims, Barnes, 1861).

2. Dilatation of constriction ring by dilator introduced through an abdominal incision (Thomas, 1869; with incisions, Everke, 1899).

3. Dilatation of constriction ring by dilator introduced through incision in fundus uteri (Browne, 1883).

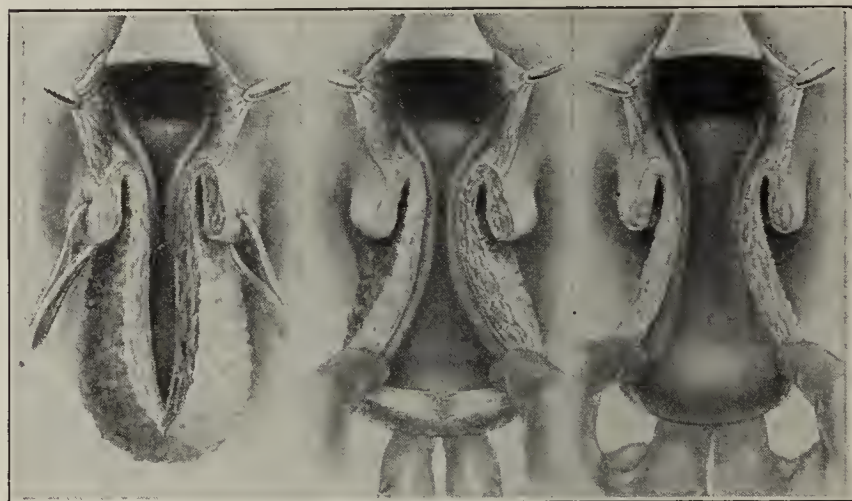


Fig. 6.—The incision extended to the fundus, as found necessary for reposition.

Fig. 7.—Turning the uterus inside in again. First step.

Fig. 8.—The turning almost completed. Peritoneal surface becoming external and mucous surface becoming internal.



Fig. 3.—Separating the bladder from the cervix.

Fig. 4.—The peritoneum opened, exposing the inversion-funnel. Division of the cervix begun.

Fig. 5.—Cervix and constriction divided, and the incision being extended down the inverted corpus uteri.

4. Division of constriction ring and adjacent uterine wall and cervix, posteriorly (Küstner, 1893).

5. Complete division of posterior uterine wall and cervix (Piccoli, Morisani, 1896).

6. Complete division of anterior uterine wall and cervix (Spinelli, 1900).

from chronic loss of blood, and presented the exsanguinated, waxy appearance so characteristic of profound anemia.

After preparatory treatment, to improve the patient's condition as far as possible, the inversion was operated on by the Spinelli method, as follows:

1. After disinfection of the vagina and inverted corpus uteri, the anterior vaginal fornix was incised and the bladder separated from the uterus (Figs. 1, 2 and 3). The vesico-uterine peritoneal pouch was then opened and the opening was widened laterally by the fingers, thus exposing the inversion funnel, as shown in Figure 4. Here there were numerous adhesions binding together the peritoneal surfaces, but the adhesions were easily separated.

2. The cervix was then divided anteriorly up to the constricting ring (Figs. 4 and 5), and the incision was continued down the anterior wall of the corpus uteri (Figs. 5 and 6). At various stages of the incision the attempt was made to turn the uterus inside in, but this could not be done until the incision was extended to the fundus.

3. The mucous surface of the uterus was then turned in by hooking the forefingers into the incision and rolling the peritoneal surface out while the two thumbs, making counter-pressure, indented the mucous surface and pushed it in, as indicated in Figures 7 and 8. Considerable stretching of the shrunken and infiltrated peritoneum was necessary at this stage of the work.

4. The thickened uterine wall was then trimmed away sufficiently to permit approximation of the peritoneal portion of the uterine incision. The turned-out endometrium and adjacent muscular wall had become greatly infiltrated and thickened, and consequently a considerable portion of this wall, amounting to about one-fourth of the entire uterus, had to be cut away as indicated in Figure 9. This reduced the bulk of the uterus so that the shrunken peritoneum could be approximated around it.

5. The incision in the uterus was then closed by deep and superficial sutures (Figs. 10, 11, 12 and 13). The deep sutures included most of the thickness of the muscular wall, but missed the endometrium and the peritoneum. Over these deep sutures and burying them, was placed a superficial suture which approximated the peritoneum, care being taken to fold in the peritoneal edges.

6. Drainage was instituted. Free drainage is important in these cases because the chronically infiltrated and infected uterine wall cannot be wholly disinfected, and hence the incisions and manipulations spread contamination about the field. Marked absorption and fever for some days after operation is the rule in these cases, and in some cases the temperature is alarmingly high and persistent.

In this case tube-drainage was employed posteriorly, through a culdesac opening (Fig. 14), and a rubber-tissue drain anteriorly. In a similar case I would now use a tube-drain anteriorly as well as posteriorly (Fig. 14), to afford immediate exit to any contaminated fluid that otherwise might accumulate in the vesico-uterine peritoneal pouch.

7. The vaginal-section opening was closed, with drainage, and a vaginal packing put in to keep the cervix well back and the fundus forward. It is important to take steps to keep the uterus forward during the healing process. If the tendency toward backward displacement is marked in the replaced uterus, it should be fastened forward by one of the vaginal operative methods. If there is no special tendency backward, a packing or pessary for some days will be sufficient.

Following operation, the patient had considerable fever. The first day the temperature was 103 F., the second day 102.4, the third day 102.6.

This persistent fever was of course disquieting, on account of the possibility of a spreading peritonitis or of generalized venous infection (pyemia). These dangers had been taken into account when I decided to save the uterus, and I had then determined that if serious infection developed after operation I would do a vaginal hysterectomy, to remove the infected organ and establish free drainage. It looked for a time as though a serious infection might be developing, but it did not develop. The fever was the only disturbing symptom. There were no evidences of serious peritoneal irritation,

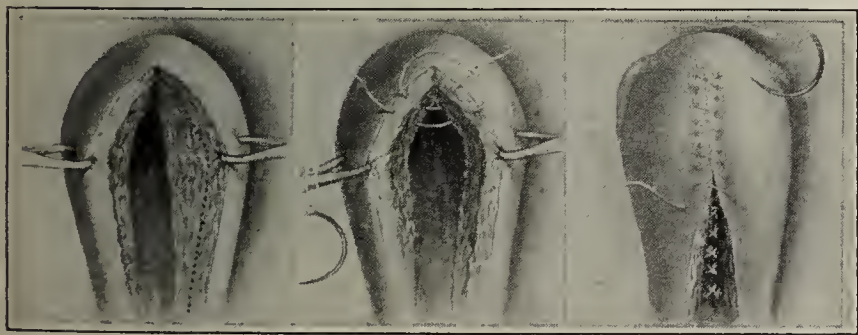


Fig. 9.—Turning completed. Dotted line indicates portion it was necessary to excise on each side, to permit approximation of peritoneal edges.

Fig. 10.—Closing the uterine incision. One of the deep sutures for the muscular portion.

Fig. 11.—Closing the uterine incision. The superficial suture for the peritoneal portion.

so I felt safe in waiting. The fever gradually subsided in the course of ten days, and the subsequent convalescence was uninterrupted.

The high temperature was probably an absorption-temperature, due largely, if not entirely, to the disturbance of the infiltrated uterine wall. There was not only an incision through the infiltrated wall but also a general shifting of the

relation of the elements of the wall by the forcible turning of the uterus inside in again. That this general shifting of the elements of the wall is an important factor is indicated by the fact that marked rise of temperature has been noted in cases of reduction by taxis without incision.

The patient gained strength rapidly, iron of course being given to overcome the marked anemia due to the previous chronic blood-loss. Menstruation began in April, the second month after the operation, and has been regular since. The first two or three times the flow lasted only two or three



Fig. 12.—Closing the cervical incision.

Fig. 13.—Closing the vaginal incision.

Fig. 14.—Free drainage. Tube-drain in posterior peritoneal pouch and in the anterior pouch.

days and was scanty. Since then it has been normal—from three to four days and a good flow, but not excessive. The patient states that the menstruation is the same now as it was before she became pregnant, except that the pains she formerly had do not now appear. The general health is good and the patient feels well and strong and is as active as ever. On examination recently, the uterus and other pelvic organs appeared practically normal.

ADVANTAGES OF THE METHOD

The advantages of the method employed are the following:

1. Being vaginal, it minimizes the amount of peritoneal contamination, a most important consideration when dealing with an infected structure.

2. As the reposition is accomplished by incision, there is not the bruising and perforation of the friable uterine wall which has so often accompanied attempted reposition by dilatation of the constriction-ring.

3. Division of the anterior uterine wall is preferable to division of the posterior wall, because the work is thus more easily and accurately accomplished. The anterior uterine wall and anterior fornix lie toward the operator, and hence are less deeply situated and more easily reached. Again, when the operation is anterior, the bladder may be lifted away, giving a wide space for investigation of the inversion-funnel and of the various pelvic structures, and also more room for the operative manipulations of incision, reposition and suturing. Again, if there is a marked backward tendency, effective forward fastening of the uterus may be carried out through the anterior incision. Again, a suture-line on the posterior surface of the uterine wall extending to the fundus is more likely to form troublesome adhesions—to the intestines, leading to obstruction, or to the posterior pelvic wall, leading to adherent retrodisplacement.

The points in favor of the posterior incision are that it eliminates the extra opening for drainage and that the sacro-uterine ligaments may be more conveniently shortened; but these minor advantages of the posterior incision are outweighed by the more important advantages of the anterior incision.

Metropolitan Building.

SPINAL TRANSPLANT *

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This article was suggested by Dr. E. Wyllys Andrews, and is a plea for fair judgment, favorable or unfavorable, of the autobone transplant of Dr. Albee for tuberculous spondylitis.

The treatment of tuberculous vertebrae by the non-operative method in the hands of most orthopedists terminates satisfactorily to the patient and to the sur-



Fig. 1.—Patient bending and touching the fingers to the floor. Notice the stiffness and absence of gradual even curve in this back. Compare with Figure 2, a normal back.

geon in those cases which he can keep under control for a long period of time — say two or three years. There are cases, however, in which future health and bread-earning ability depend on:

1. Such control as the operative method seems in some instances to give.

2. A shortened period of recumbency which in a number of my cases has apparently been due to the added support of the bone splint. It is only fair to give the facts regarding the results, good and bad, of the work in this field, to those who may help to judge of the merits and disadvantages of such treatment, and it is hoped that those who have operated in one or two cases with unfavorable results will not consider worthless this new, under-the-skin splint before they have the data of many cases, based on observations extending over some years.

Many adults frequent the hospital at ages ranging from 30 to 45 years whose history is much like the following cases and whose condition is due to what I call lack of control sufficient to establish and continue treatment to firm ankylosis, which means a working physical condition.

CASE 1.—A woman aged 39, who appeared much older, gave a history of painful and deformed back since girlhood, and related many periods of illness which confined her to bed and prevented school attendance and work. She always insisted that she was well as soon as the recumbent position, cast or brace had eased the back pain, and it was impossible to continue treatment at any one time more than two months. Extreme emaciation and multiple sinuses are the results. We should ask ourselves if operative measures would have established control in this patient in her youth and prevented, at least in an indirect way, the invalidism she has carried for life.

A second case will further illustrate what I mean by control.

CASE 2.—A girl aged 14, who had been under treatment in recumbence, cast and brace, at various times for two years, each time left the hospital, discarding cast and brace in the face of every effort to the contrary, and returned each time only after she was unable to work longer. During one stay in the hospital she developed a condition diagnosed as tuberculous meningitis, but recovered, and I therefore doubt the diagnosis. At her last appearance at the hospital, she was prepared for operation the day she entered, the operator reasoning that her only hope to escape the fate of Patient 1 was in this procedure. Otherwise, the comfort of a Bradford frame would have influenced her to walk out of the hospital prematurely. Chest examination revealed pulmonary tuberculosis. The Roentgen ray showed caries of the bodies of the sixth and seventh dorsal vertebrae, and there was slight



Fig. 2.—Normal back showing the gradual, even curve, unlike that in the grafted spondylitis, as in Figure 1.

angular kyphosis and very painful, rigid back. She was operated on, kept in bed three months, and allowed to be up and about without support at the end of four months.

Technic of Operation.—An iodine preparation was followed by an 8-inch elliptic incision including the fourth, fifth, sixth, seventh and eighth dorsal spinous processes, which were split and fractured at the base with knife and chisel, about one-third their thickness being turned down. The soft interspinous tissues were hollowed out, so as to form a groove $5\frac{1}{4}$ inches long, $\frac{3}{4}$ inch deep and $\frac{1}{2}$ inch wide for implantation of a section of the tibia. Bleeding was controlled by means of hot sponges.

* Read before the Chicago Medical Society, Jan. 30, 1914.

An elliptic incision was made over the left tibia about 5 inches in length, the anteromedial surface of the tibia bared, and the tibialis anterior muscle pushed outward $\frac{1}{3}$ inch. Incisions were made through the periosteum lengthwise for $5\frac{1}{4}$ inches on each side of the anterior border of the tibia, the periosteum included, and a wedge-shaped section of the bone $5\frac{1}{4}$ inches long by $\frac{1}{2}$ inch deep was excised. This transplant was then cut transversely in three or four places to allow it to be bent easily, and a hole was drilled in both ends.

Strong catgut on an aneurysm needle was introduced through one side of the split fourth spinous process, then



Fig. 3.—Case showing knuckle in high dorsal region, but on account of the prominent knuckle best adapted for Albee's method of operation.

through the drilled hole in one end of the transplant, and thence through the other section of the spinous process, thereby securely anchoring the upper end of the transplant between the split spinous processes. The other end of the transplant was secured in the same manner, and made to fit into the groove between the split spines. This groove was made slightly to the left of the median line. The transplant was then covered over by the paraspinous tissues, the suturing material being heavy chromic catgut. Tension sutures of silkworm gut were used to close the wound and the skin approximated with Michel clips. Dry dressings were applied with a circular pad of felt, preventing pressure on the incision. The leg incision was closed by means of fine catgut for the periosteum and black silk for the skin. As soon as the patient was removed from the operating-table, and before she recovered from the effects of the ether anesthesia, she was placed on a Bradford frame.

VARIATIONS IN TECHNIC

The elliptic incision over the tibia should not be used for the back operation. It has obvious advantages, but, over the tibia, it has no place. Here, the best technic, for comfort, shortness of incision, least disturbance of muscle and perfect healing, is to incise directly over the anterior border of the tibia, dissect the muscle back slightly on the outer border, protecting the periosteum, mark out the size of the bone by cutting down on it through the periosteum, according to the measure obtained from the back; then this bone should be either

sawed or chiseled out, leaving the periosteum intact. It will be found that, in the young patients, one accustomed to chiseling the bone out finds this a quicker and more satisfactory way than sawing. The ends and that part of the graft—usually the middle—which is embraced by the split halves of the most prominent process in the knuckles, should be very deeply and firmly fixed to secure the best results; otherwise, the ends spring up so that in some of the cases the finger could work the skin of the back under the ends of the graft. This aids absorption to take place before bone formation begins. The best fixation I have succeeded in obtaining has been by kangaroo tendon passed through the holes bored in the ends and middle of the graft. Pegging with autobone or ivory pegs has not been so satisfactory. Silk may, in the end, cause increased ankylosis by the irritation following slight infection and expulsion, and the kangaroo has given the best results in this series of cases. Regarding the postoperative position, the Bradford frame has been used with satisfaction in all but two cases. Patients, however, are comfortable on the chest-abdomen, but do not get the same tendency toward hyperextension, reduction of the kyphosis and relief of the vertebral pressure. The addition in the back position of a well-fitted felt pad around the kyphosis adds the advantages of the chest-abdomen position.

CASE 2.—*Later Report of Condition.*—Following the operation, the patient's condition, probably because of the lung tuberculosis, was very uncomfortable; the pulse was fast and weak at first; later, better, and after two days the prospects were gratifying. From now on her condition could be compared favorably with that of most patients following a major operation. The absence of pain, considering the double operation and the length of incision, was noticeable. Each wound healed perfectly; the slight kyphosis is now absent, and motion is painless and increased above and below the graft, so that, standing with stiff knees, she puts the fingers of both hands on the floor (Fig. 1).

Again we must ask ourselves, is not this patient, at five months after operation carrying a bone splint which she cannot remove, and having increased fixation, a better risk than she would be with only the recumbency treatment for the same length of time?



Fig. 4.—Case with prominent knuckle in lower dorsal and lumbar region, best suited for the Albee method of operation.

SHORTENED PERIOD OF TREATMENT

Albee, to whom great credit is due in this work, disregards mechanical support after the operation, and gets his patients up early. This may be a safe procedure when a heavy bone splint has been deeply and securely placed between the split spinous processes, and the bodies of the vertebrae thus held apart without the aid of callus between and around them; but the trunk is so heavy, the splint so small in comparison with the weight it

must bear, and its leverage at such a disadvantage, that in this series of cases the splint has been looked on only as a temporary support, aiding the recumbent, brace-east treatment, while heavy callus fills in about the vertebrae, supplying the finishing touch to ankylosis. Therefore, the patients whom I mention and whose cases I report have been given from three to ten months' support after the operation, on the supposition that if the treatment is continued for even as long as eighteen months, the time of the average non-operative treatment has been cut down about one-half.

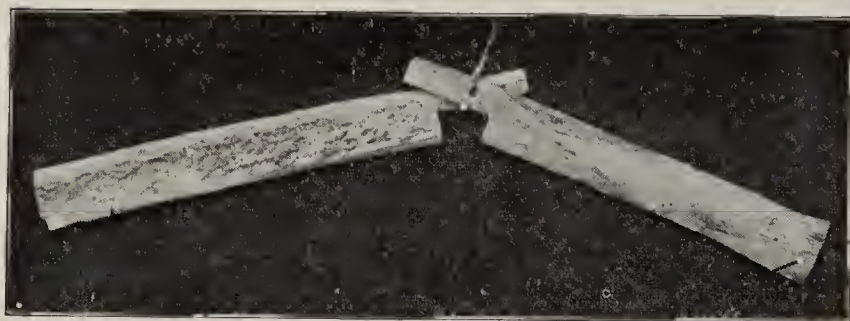


Fig. 5.—Broken transplant (Case 6) tied with kangaroo. The kangaroo should go through holes made in each side of the split spinous process of the most prominent diseased vertebra.

SELECTION OF CASES

In this series of cases, no attempt was made to choose the good risks, operation being performed as each case was presented for treatment.

Factors which should be considered in selecting cases for operation are:

1. The general vitality of the patient.
2. The age.
3. The position of the disease in the vertebral column.
4. The amount of bone destruction.
5. The amount of callus formation.
6. The control of the patient.
7. The eagerness of patient and parent for shortened duration of treatment.

1. The more vigorous in constitution, the better the risk, but it has been surprising how nicely, with the exception of one, each patient, among those whose condition was considered hopeless, stood the operation and convalesced to an improvement in the general condition.

2. The age of the patient is considered an important factor by some who fear that the graft *per se* may not grow, and may thus tend to deform the backs of those young patients whose spinal columns will continue to grow and, therefore, bow backward when held by an unyielding, non-growing graft. Believers in this theory would select only the adult spine for operation. Experiments are in progress to determine the growth or non-growth in length, of the graft, and reports are in preparation for June, 1914.

3. The position of the disease in the vertebral column is a contra-indication to operation: (a) in those cases involving the high dorsal and low cervical region if the knuckle is so sharp and high that the occiput touches it and prevents the necessary space for work, and (b) in those cases in which the disease is in the middle and upper cervical regions.

Selection of that operation which will best lend itself to the particular region diseased.—I am inclined to

select the lower dorsal, lumbar and sacral regions as the most favorable field for the Albee operation, and the middle and upper dorsal and lower cervical regions for the Hibbs operation, on account of the advantage given by the length, thickness and angle of projection of the spinous process in the different regions. Probably the most favorable position as offered by the spinous processes for the Albee operation, as far as ease of preparing the bed and firmly placing the transplant are concerned, is that of the lumbar and twelfth; sometimes, also, the eleventh dorsal vertebra. In the Hibbs operation, when the base of a spinous process is fractured across, the end denuded and turned down into the space caused by the fractured base of the neighbor below, best results are obtained when the sixth and seventh cervical, and all the dorsal spinous processes, with the exception of the eleventh and twelfth, are selected. This is because their length and relative position to their neighbors makes them yield easily to the desired technic. When the kyphos is sharp and large, separating the spinous processes, the condition becomes more favorable for the Albee operation, even though the kyphos is in the dorsal region (Figs. 3 and 4).

4. When the amount of bone destruction is great, such help in ankylosis as comes from the graft is indicated more than in those cases in which the small bone destruction can more easily be replaced from the bodies of the vertebrae.

5. The amount of callus formation and its ankylosing effect is the greatest element in the cure of these cases, and when it is large and strong enough to hold the back firmly, there is no need for placing a bone graft.

6. The control of the patient, as already indicated in this article, should be an indication for operative treatment in those cases in which the patients themselves or through their parents persist in discontinuing treatment early, much before the callus from the bodies of the vertebrae has had time to back up the support of the bone graft.

7. Other things being favorable, the desire of the patient or the parents to cut down the mechanical treatment a year or even a year and a half should be an indication for the operation and the aid it gives in accomplishing this wish.



Fig. 6.—This patient is resting on a frame in hyperextension. The scar on the leg can be plainly seen. Michel clips were used but remained in place too long.

Among those cases, of this series of twenty-seven, which were so bad that the patients might have been denied operation were the following:

CASE 3.—A boy, aged 4, with an active tuberculous hip complicating a tuberculous spondylitis which included the fifth, sixth and seventh dorsal vertebrae, and a discharging sinus $2\frac{1}{2}$ inches to the left and on a line with the tenth dorsal vertebra, progressed splendidly. Following this operation he had only slight after-pains, no complications, clean wounds not damaged by the nearby sinus, and marked improved general condition. His kyphosis decreased in promi-

nence because of the hyperextension on the frame, but no more than would have occurred without the operation. The patient was dismissed from the hospital early, and was allowed up with no support. Nine months after the operation, the kyphosis is increased; the sinus is closed.

CASE 4.—A boy, aged 16, poorly nourished, with marked spasticity of the legs, an ulcer about as large as the palm of the hand at the middle third of the right leg, eczema of the back, and incontinence of urine, was operated on in the manner described, except that the ends of the graft were anchored with silk instead of catgut. The wounds healed nicely in the presence of the eczema; the bladder condition improved, and the spasticity appeared at first not so marked. Later, pieces of silk came away, and five months after the operation he continues a bed case; spasticity is not improved; the general condition is improved.

CASE 5.—A man, aged 35, came to the hospital with lumbar Pott's disease, and while there, fell and injured his back. Later, he developed a spasticity of both legs, but was operated on in the usual way. The wounds healed by first intention; the pain in the back has continued; the kyphosis has decreased, but has been pushed to the right, producing a scoliosis. A prominence over the left ribs, resembling the bulging which accompanies the rotation of the vertebrae in scoliosis, has developed. Diagnosis of complicating sarcoma, following the fall, has been made in this case. The patient continues confined to bed, six months after the operation, and is worse.

CASE 6.—A boy, aged 14, with a very marked kyphosis and much lateral bending, unable to stand or sit unaided, was operated on in the usual manner, with this difference: the heavy splint was accidentally sawed through at its middle point, while weakening it with saw cuts so as to bend it to fit the knuckle. The graft was long enough to allow each end to be shaped for mortising, then a hole was drilled through the split sides of the spinous processes and through the mortised ends of the graft, and fixed by kangaroo tendon (Fig. 5). A small pressure sore developed over the most prominent part of the knuckle and graft, but healed in two weeks. Three weeks after the operation a nephritis developed which cleared up nicely on a milk and lime-water diet. The kyphosis is reduced, but hardly more than would be expected from the hyperextension maintained after the operation; there is more support in the back, and the patient can sit up better than he did before the operation. Considering the loss of bone in this case, the operative support should be given its share of credit for the improved condition.

CASE 7.—A girl, aged 9, with a positive neisserian infection, and a marked knuckle of the upper dorsal vertebrae, was operated on in June, 1912. She did badly from the beginning, was unable to stay on the frame, was uncomfortable all the time in any position, and finally, two months after operation, contracted sore throat, followed by pneumonia, and died at her home, after being removed from the hospital by her parents without hospital consent. An examination was refused.



Fig. 7.—A dry transplant holding five dry vertebrae together. The saw cuts allowed some bending of the transplant. This picture gives a good idea of what we try to do in the Albee method of operation.

CASE 8.—A man aged 32, with a marked kyphosis, treated for months in recumbency at a hospital, and discharged when spasticity of the legs developed, was received as a stretcher case and operated on in the usual way. When he was turned to examine the back on the third day after the operation, a bed-sore was discovered over the sacrum. This case was not improved, six weeks after the operation.

CASE 9.—The oldest patient operated on was a man aged 49 who had been unable to work for thirteen months. He experienced remarkably slight pain, and was more comfortable after the operation than before. This patient was kept on a frame for three months, wore a cast for seven weeks, and left the hospital and returned to work, with no support, six months after the operation.

CASE 10.—The youngest patient operated on was a boy aged 2, with involvement of the upper dorsal vertebrae, the graft including the sixth and seventh cervicals. This patient is doing well, and is up and about with a cast one month after the operation. The kyphosis has decreased, and the general condition and the prospects for a firm and early ankylosis are better, in my judgment, than if the operation had not been performed.

The favorable cases, with the exception of Case 2, have not been reported.

TENTATIVE CONCLUSIONS

Experience with this group of cases justifies the following tentative conclusions:

1. The operation is not severe. It is a double operation, and the length of incision is longer than in most operations, yet the recovery from the immediate effect is quick and the suffering is small.

2. Cases with discharging sinuses near the field of operation should not be refused operative treatment on account of the sinus, unless it lies within the field of incision.

3. Complicating pulmonary tuberculosis is not a contra-indication in all cases.

4. If the ends of the transplant are loose, they absorb. If they extend beyond the spinous process, that portion not attached will absorb back to the firm attachment.

5. Loose ends and broken ends, as in the middle of a bent graft, grow, when later, through fixation by position and quiet, they become attached.

6. The three cases complicated with Pott's paraplegia have not markedly improved. The longest time elapsing since the operation of a paraplegia case has been six months. During this time the position has been good, and such as to give hyperextension.

7. The young patients do better than the adults.

8. The operation has a distinct place in the treatment of selected cases of tuberculous spondylitis.

9. Albee's method of operation is preferable in the large majority of cases on account of the location of the disease and the size of the kyphosis.

10. Operative treatment should be followed by months of perfect quiet for the transplant.

Credit is due Drs. Stoland, Packard, Boren, Callentine and Dawson for aid in histories and operations, some of which were performed by them; and to Drs. Hartung, Hubney, Van Horn and Case for painstaking work with roentgenograms.

31 North State Street.

Before Asepsis.—Sir Hector Cameron gave the following brief description of the days when Lister first went to Glasgow: "Every wound discharged pus freely, and putrefactive changes occurred in the discharges of all"; and again: "Secondary hemorrhage, tetanus, erysipelas, septicemia, pyæmia and hospital gangrene were never all absent from the hospital wards, and at times became alarmingly epidemic.—Wrench, G. T.: Lord Lister, His Life and Work.

METHODS OF EXAMINATION OF ILLITERATES FOR MENTAL DEFECTIVENESS

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The examination of an illiterate person for the purpose of determining his mental capacity is often difficult. To distinguish between ignorance and feeble-mindedness is by no means easy. Many of the elaborate and complicated tests for measuring the intellectual ability are clearly inapplicable and we cannot use them. All mental processes which obviously depend on education or special training for their development are at once ruled out, and by a careful analysis we find that many of the usual tests recommended require these educated and trained faculties on the part of the subject. We are here working on what, from a pedagogic point of view, is virgin soil, which, no matter how rich or how poor it may be, has never had the benefit of any cultivation.

There are two general methods of examining uneducated mental defectives: 1. Ascertaining the amount of acquired knowledge which their minds contain. 2. Attempting actually to test their various mental activities.

EXAMINATION FOR ACQUIRED KNOWLEDGE

In the first we go on the assumption that a normal person in a given environment will in spite of himself, so to speak, acquire and retain a certain amount of knowledge concerning the ordinary affairs of every-day life. Thus a farmer's boy ought to know the seasons for sowing and reaping of crops, the amount of yield from an acre, the quantity of milk a cow can give, how long it takes a chicken's egg to hatch, the process of making butter, etc., and whether or not he has been to school. On the contrary, it would be unreasonable to expect a city-raised seamstress to be familiar with any of these things, but she ought to know the price of cloth, the amount needed to make a dress, the names of colors and materials, and to be able to figure the amount of her weekly wages. There would, however, be other matters with which both would be conversant, such as the number of hours in a day, the months of the year, the days of the week, etc. There are many facts which may properly be considered as items of common knowledge in all civilized communities, even among the most ignorant of the population. Among these are the name of the ruler, the seat of the government and the date and significance of the great religious festivals like Christmas and Easter. It is also to be expected that all persons who are employed should be able to solve the simple problems in arithmetic which arise in making purchases and giving change, and that they should know the value of the different coins and bills used in the community.

By such questions we gauge a man's mental capacity by what he has absorbed and retained, and it is a perfectly reliable and accurate method; but it is open to the great objection that in many instances we cannot even approximately estimate what his environment has been. This is especially true of foreigners. What we are likely to consider matters of universal knowledge may be absolutely unknown to them on account of the extreme limitations of their surroundings. Thus we are surprised to find that a half-grown Irish peasant-girl cannot tell the time by a watch until we learn that the

only article of the kind she had ever come in contact with was the clock in the village school which she had attended for a few weeks only. It is almost impossible for us Americans, living as we do in the most highly developed country in the world, to realize the narrowness of the lives of some of the poorer classes of the countries of Europe, much less that of districts still less favored. Some of these people live a life of sordidness and hard-working monotony almost beyond belief, and it results in a mental equipment which is correspondingly limited and stunted. Some of them cannot even repeat the names of the days in the week, and know the passage of time only by the ringing of the village church-bell on Sunday morning, which for them is the signal not to go to work. We find that many of the Irish immigrants from the remote districts do not know what year it is; yet how can we expect them to know the date when they have never owned a calendar? The farmer of southern Italy, tilling a few acres of land and living in a hut, whose bare walls contain only one ornament, the unframed picture of the Madonna, whose only possessions are a bed, a table, a chair or two, a few kitchen utensils, and a little bedding, can hardly be expected to define the word "charity." He has never been 50 miles from his place of birth. He could not go into a room in any of our houses and give the name in his own language for even a small part of the things he would see there, because he has never seen or heard of them before. His possessions, his ideas, his vocabulary and his experiences are all extremely limited, and he must be judged and measured accordingly. He is badly off, it is true, but yet more fortunate than some of the Porto Ricans or Filipinos.

Thus in determining feeble-mindedness in foreign races by measuring the amount of their acquired knowledge, a great deal of time and energy must be expended in deciding what are normal standards for each race and also for the various social and geographical classes in each country; and at best such standards are only relative.

EXAMINATION OF MENTAL ACTIVITIES

Confronted by this dilemma, we instinctively turn to some other method of examination and take up the other line along which an investigation of this nature may be carried out; that is, to test the actual mental ability of the individual independently of the amount of knowledge he may have acquired. Here again we at once encounter difficulties. The tests devised for measuring the higher faculties of the mind in the examination-room are largely academic and rather unsatisfactory evidence as to the way the subject will use his judgment or reason in solving the problems of every-day life. He may do better or he may do worse, and the "acid test" of intellectual endowment is not how skilfully he can talk, remember, reason or think in the abstract, but how wisely he will act when the real emergency arises and when fear, desire, greed, appetite and a host of other emotions are clouding the judgment. There was once a famous professor of therapeutics who year after year taught his classes not to pass a stomach-pump in cases of suspected strychnin poisoning; and yet when the case was at last actually brought before him in the presence of the class, he deliberately ordered the stomach-tube passed, and the patient immediately died of cramp asphyxia. Every one knows how unsatisfactory school examinations are to test the real ability, and the same thing is true of mental examinations as regards the

higher faculties. Indeed, the division of the normal mind into its different parts has not as yet been perfectly accomplished by psychologists. Some of the mental faculties cannot be properly described or defined and many of the well-recognized divisions overlap and intermingle to a confusing degree and we cannot always decide exactly what powers are involved in performing certain acts.

With this understanding of the limitations which must of necessity apply to our results, some of the methods which may be employed will be discussed.

METHODS USED IN THE TESTS

The superficial memory and attention may be readily tested by repeating figures slowly and evenly to the subject and seeing how many he can remember after hearing them once. Normal adults can generally repeat seven disconnected digits without trouble.

The cube test is also very useful for this purpose. It consists in placing four or five ordinary wooden blocks of the same size and color in a row on the table before the subject. The examiner then touches the different blocks in a certain order and has the subject repeat the process. A large number of combinations may be made, testing the power of the attention and memory to a greater or less degree. Obviously, these are the only two elements involved in this test other than the semi-automatic train of mental processes which must of necessity accompany any purposeful act, but which are so elementary that they need not be considered as a part of the test; and the only information we get from the trial with the blocks is concerning the memory and attention. All writers on the subject are agreed that inability to control the attention is a marked symptom of most defectives; hence the cube test is an important one and, on account of its cheapness and simplicity, always available.

Judgment and reason are so interwoven that they are best examined together, and for this purpose a great number of tests have been devised.

In this connection it seems pertinent to make a few comments on tests in general. Every worker in this field has originated a number of devices of this order and all have earnestly sought for some one test by which it would be possible to separate quickly and accurately the defective from the normal. All investigators at one stage or another of their careers have hit on something which they thought was conclusive only to find that sooner or later cases appeared which upset their preconceived ideas on the subject. The human mind is too complex and intricate to be measured by such simple methods. Like an irregularly shaped solid, its total bulk cannot be limited by any one of its dimensions, and it is the sum total of the mental faculties which we must determine.

The purposeless multiplication and reduplication of tests and puzzles, without a definite and intelligent idea of the psychologic basis on which they are founded, cannot be productive of good results and only complicates our armamentarium and consumes time without giving any real additional information on which to form a judgment. The number of these tests is rapidly increasing, but the examiner will be wise if he uses only those for which an adequate explanation can be given and which plainly are not a repetition of the same thing in a slightly different form.

One or two puzzles which depend for their solution partly on the appreciation of different geometric forms

and the comparison of the dimensions of empty spaces with solid bodies, as the Healy frame and the Fernald board, are distinctly useful, as the manner in which the subject attempts to solve them may throw considerable light on his general intelligence and also on his capacity to profit by previous errors.

Such puzzles (Healy) may be solved by using a very pure and high form of reasoning; but it is doubtful if ordinarily they are attacked entirely in this manner. It requires less mental effort actually to try the blocks in the frame in different positions in a haphazard fashion than to think out a plan of solution, and often the correct arrangement appears to be discovered by repeated trials rather than by reason. A very low grade of reasoning is required to complete the frame in this manner, the subject simply remembering the previous unsuccessful combinations so as to avoid repeating them. After it has once been worked out in this fashion, it is not difficult to repeat. In any event, too much stress should not be laid nor too much time spent in giving different puzzles of this sort, as some normal persons cannot do them in the allotted time and a few defectives seem to be able to handle them with ease. In conjunction with other data, they are quite valuable, however, and I think that they should be included in every examination as a routine measure.

To determine the ability of the subject to reason abstractly, to form correct judgments and to draw logical conclusions, a considerable number of methods may be used. All of these overlap, so they will be taken up together. It is intended merely to mention certain lines along which the examination may be conducted. Each investigator will modify them to suit his own individual ideas and the case before him, but the suggestions will show the principles involved.

The examiner may describe an imaginary situation, calling for a decision in which the subject is supposed to find himself, and then ask him what his probable action would be. Two examples will suffice:

The subject is told that he is shipwrecked and alone in a small boat many hundred miles from the shore. He has with him in the boat two boxes, one containing 50 pounds of bread, the other 50 pounds of gold. The sea is very rough and it is necessary to throw one of the boxes overboard to keep the boat from sinking. He is then asked to tell us which box he would discard.

He is told that his house is on fire and burning fiercely. There is time to make but one trip to the second story. When he gets upstairs he finds but two articles worth saving. One is a mattress, the other a large lamp. He must throw one out of the window and carry the other down. Which one will he carry down?

Certain premises may be stated and a false conclusion drawn and the subject asked if he concurs. For example, he is told that a young woman's body was found in a room cut into eight pieces. The police say that she committed suicide. Does he think that this is likely?

His ability to follow a simple syllogism in logic may be tested as follows:

I am taller than my sister. My sister is taller than my brother. Who is the taller, my brother or I?

In all hypothetical questions, it must be remembered that the imagination of the patient is in all likelihood extremely limited, and he may make the wrong reply because he is unable to picture the actual situation; but if the thing actually happened to him he would in reality take the proper course. This lack of the constructive

imagination is very significant of feeble-mindedness, but its existence is rather difficult to prove. A test along this line may be attempted by carefully drawing an imaginary picture in which something not actually mentioned is perfectly obvious to any one who really can form the mental picture at all and then by indirect means ascertaining if he realizes the condition which has been purposely left out of the verbal description.

For example, he is told that he and a companion are shipwrecked in a small boat and floating on the sea. When they left the vessel which was destroyed they took with them two buckets of fresh water. Several days have elapsed since the accident and they have consumed all of the water in one bucket and it is empty. The other bucket is still full of the fresh water, their only supply. He suddenly discovers that his companion's coat is on fire. Will he pour the bucket of fresh water over him, or what will he do?

Obviously, if he can picture the situation at all, he will state that he will reach over the side and fill the empty bucket with salt water and use that, or he will take the coat off and souse it in the sea.

Another good question is to ask if in scrubbing a flight of stairs, he would begin at the top or at the bottom.

In all questions like the above in which two alternatives are offered, the reason of the choice must be given, because by simply guessing, the right answer should be given at least half of the time. It is also important to avoid all details which might add an element of confusion. Thus if we say: "I am taller than my brother and my brother is taller than my father. Who is the taller, my father or I?" we are very apt to get the reply, "Your father"; and if we ask why, the subject will say, "Because he is the head of the house," jumping to that conclusion without paying any attention to the conditions laid down.

The power to count and figure to a limited degree is extremely important and should be thoroughly investigated in every case.

We ask the alien to count from one to twenty and then backward from twenty to one or ten to one.

One can count backward by four different mental processes:

1. By successively subtracting one from the preceding number.
2. By reverse association of the numbers in their regular order.
3. By drawing a mental picture of the numbers in their regular order as they would appear on a printed page and then reading them from right to left.
4. By learning them backward and repeating them by rote.

Counting backward by any of the first three methods is a somewhat complicated mental act and shows considerable degree of mental development. If the subject fails at first but can be taught readily, it is very much in his favor, as the capacity to learn is the most important point in the diagnosis of ignorance from feeble-mindedness.

Counting backward by rote can easily be detected by extending the process, as the subject fails when taken beyond the point he has learned.

Simple sums in addition and subtraction should also be given, and if they cannot be solved in the abstract they should be given concretely as, How many legs have two horses? Two horses and one man? etc.

The copying of simple geometric figures as the square, triangle and diamond are excellent tests for illiterates.

The attention, comprehension, memory, judgment, reason and muscular coordination are probably all involved in this simple and convenient test, and it explores the mind from a rather different angle than any of the others and is an important factor, therefore, in the sum total of evidence which we must review in doubtful cases.

It would be impossible to discuss this subject without some reference to the Binet-Simon scale. The work of these investigators was very complete and the results extremely valuable for the population which they examined. A critical examination, however, of the tests employed will show that many of them depend on the ability to use words in definition and in stating comparisons. Such a power depends largely on training and not solely on native ability. In this respect the scale is clearly not applicable to illiterates, and experience in applying it literally to ignorant immigrants has amply demonstrated this fact.

A careful study of the Binet-Simon scale is extremely useful, and every one who undertakes to make examinations of mental defectives should be thoroughly familiar with it, as it forms an important foundation on which to build up a plan of examination suitable and especially devised for those who have had no educational training or the advantage of association with educated persons.

All the foregoing applies to the purely mental symptoms of amentia. There may be present in these cases disorders of the special senses, facial and other physical deformities, speech defects and muscular incoordination. These conditions are so frequently found in persons who are sound mentally that they have but little value in making a diagnosis in the milder degrees of defectiveness. Of course the idiots and some imbeciles generally present some physical signs which immediately suggest their mental condition, but this is not the rule in the feeble-minded.

The low narrow forehead, receding chin, closely set eyes, protruding and misshapen ears, and other facial irregularities so often referred to as the "signs of degeneracy" have not the importance in indicating mental deficiency which was at one time supposed. A great many feeble-minded persons on ordinary inspection present no physical signs whatever which would indicate real lack of intelligence, and but little importance can be placed on facial appearance as a means or aid to diagnosis.

It is well known that some workers in this field assert that they can pick out the defective from the normal by visual inspection alone; but when interrogated as to just what the signs are their answers are vague, uncertain and unconvincing. The statements that the suspects "lack soul in their eyes" or that "there is a something about them which it is impossible to describe, but which we can readily recognize," are too unscientific and absurd to merit serious consideration. It has long been recognized and proved by many amusing errors that the facial appearance is not a real guide to the true character, and it is unfortunately, for our purposes, equally true of the mentality. Furthermore, when these observers were actually put to the test, it was found that they were not able to select cases any more accurately than physicians who frankly confessed that they laid claim to no such special ability.

It is true that the aments may be divided roughly into two classes. Some are dull, apathetic, slow in their movements, and do not pay the usual attention to their surroundings. These, by their air of preoccupation and obvious lack of normal interest in what is going on around them may in some instances excite suspicion as to their mental soundness. The others who are overstimulated, always in motion and whose attention is easily aroused but cannot be held, would certainly afford no clue on casual inspection, but often, on the contrary, impress one as being unusually bright.

Muscular incoordination is so common and so marked in many of these cases that there is reason to hope that at some time it will be an important aid to diagnosis. At present we have no way of telling ordinary awkwardness and clumsiness from the incoordination of amentia; but in the future as these conditions are more carefully studied, points of difference may be discovered which will enable us to separate the two.

It would seem to be unnecessary to warn the medical examiner against mistaking the mental confusion and muscular incoordination which sometimes occurs in acute febrile disorders like pneumonia, typhoid fever, tuberculosis, uremia, etc., for some permanent mental disability; but since the error has occurred, it is well to be on one's guard against it.

SUMMARY

There is no one test for feeble-mindedness, and only by a routine examination of all the mental faculties can we make an accurate diagnosis.

The amount of acquired knowledge and the capacity of the mental functions should both be measured.

Physical signs and facial appearances are of but little use in picking out defectives.

The examination should be conducted along scientific lines with a clear comprehension of the psychologic basis of all the tests employed.

NOTE: Some of the stories given above are original. The remainder were obtained from various sources.

THE PRACTICAL APPLICATION OF THE ROENTGEN METHOD TO GASTRIC AND DUODENAL DIAGNOSIS *

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What we wish to bring to attention is not so much the theoretical aspect of the Roentgen diagnosis of gastroduodenal lesions, or a complete review of what others have done in this field, but just what we have found of practical value in our study of this part of the tract. We are frank to confess that there has been, as in all pioneer work, considerable criticism as to the value of this method. Undoubtedly many errors have been committed, and much discredit has thereby been cast on this procedure. This state of affairs has largely been brought about by several conditions.

In the first place, the pioneers in this work developed a technic which relied largely, if not exclusively, on fluoroscopic examination. By this means they worked out a system of diagnosis which may be called "diag-

nosis by symptom-complexes"; by this, we mean basing the diagnosis chiefly on the presence of various functional disturbances, hypermotility, hypomotility, exaggerated peristalsis, spasm, etc. This method, the "inferential or indirect method," is definitely opposed to what may be called the "positive or direct method"; that is, an attempt to demonstrate, if possible, the actual anatomic lesions themselves. This is the method which Dr. L. G. Cole of New York has so brilliantly developed.

We do not say that the fluoroscopic method is of no value. It certainly has its valuable applications, as we shall later show; but the careful production of serial plates frequently gives important evidence, especially positive evidence, in regard to gastric and duodenal lesions, that no one can find on the fluorescent screen.

The second source of trouble has been that many clinicians, largely internists, have visited busy clinics abroad, and have become enthusiastic over the possibilities of Roentgen diagnosis. They have returned to this country, prepared as they thought, to make their own Roentgen examinations. In the vast majority of cases, however, they have not had sufficient technical experience or a proper acquaintance with all the various sources of error, which comes only from doing the work continually. As a result, their chief productions, aside from errors of diagnosis, have been in enlarging the literature with comments on the inefficiencies of the method.

The third source of error, and one which is quite serious, is due to allowing the clinical diagnosis to bias the Roentgen diagnosis. This condition necessarily exists when clinicians make their own Roentgen examinations; but outside of this, many Roentgen specialists allow themselves to be persuaded by their consultants into making positive diagnoses when the Roentgen evidence is very slight or entirely negative. We should refuse to make a Roentgen diagnosis unless we have what can be considered positive Roentgen evidence.

What we mean by this is the presence constantly, on a series of plates, of a definite abnormality in the contour or structure of the bismuth mass. In connection with this, we wish to mention here that probably the greatest value in the Roentgen diagnosis of the gastrointestinal diseases lies in the possibility of classifying cases into medical or surgical categories. It is only in the cases which may be classed as surgical that we feel we are able to obtain really positive Roentgen evidence.

We shall now proceed to a consideration of the various pathologic conditions in which the Roentgen examination can be of definite help to the clinician. First we shall take up the question of gastric ulcer.

With regard to acute, simple, peptic ulcers, if we rely on the Roentgen evidence alone, either fluoroscopic or by means of plates, we are sure that a considerable number will be overlooked. When we say acute, simple, peptic ulcer, we mean simply mucous membrane erosion, with no invasion below the submucosa, and no considerable cicatrix. If we have good luck we may find the so-called "incisura," or sharp incutting of the bismuth contour. This is due to the reflex tonic spasm of the circular muscles. If, however, this is not found, and the size, shape and position of the stomach are normal, then there is no positive basis left for diagnosis. Some investigators are willing in such cases to make an inferential diagnosis of gastric ulcer from the presence of tender points and six-hour residue alone.

The more we have accumulated evidence on this subject, the more we have become convinced that six-hour

* Read before the New York Academy of Medicine, at the annual meeting, Jan. 15, 1914.

gastric stasis is the least important factor in Roentgen bismuth diagnosis. The investigators who developed the idea of bismuth residue as a diagnostic factor always used the standard Rieder meal, consisting of 40 gm. of bismuth salts in 300 c.c. of cooked cereal. The workers who have attempted to transfer these conclusions bodily to their own cases have used a variety of test-meals, ranging from 300 to 600 c.c., and containing from 40 to 100 gm. of bismuth or barium. As a basis they have also used water, plain milk, malted milk, buttermilk, mashed potato and a variety of other mixtures. It is quite obvious that conclusions based on thousands of cases carried out under a similar technic cannot be transferred without change to a dozen other methods of investigation.

Besides this, however, and really what is much more serious, six-hour stasis is in itself merely a symptom. It depends on so many causes that any attempt to make a diagnosis from its presence alone is nothing more than inferential.

It is just this method of inferential, or indirect diagnosis, that we wish to protest against. In our attempt to outline what positive aids can be obtained from the Roentgen diagnosis, we feel that we must, to be fair, lay very little stress on six-hour stasis as such.

The same criticism can be applied to the more or less general spasms which are frequently seen in various parts of the stomach. The presence of gastric spasm is one of the most potent sources of error with which we have to contend. It may be due to gastric or duodenal ulcer, gall-bladder disease, appendicitis, renal calculus, pelvic inflammation, diseases of the nervous system such as tabes, chronic morphin, nicotin and lead intoxications, the clinical symptom-complex known as vagotonus, and still other causes not yet clearly defined. With such a variety of causes it is obvious that spasm is likewise merely an inferential bit of evidence.

We must repeat then that the positive diagnosis of acute, simple, peptic ulcer is frequently impossible; but even here, when there is merely negative evidence, the value is still great in placing the case in the medical and not in the surgical class. We do not believe that there are many surgeons who will operate on an acute, simple ulcer, apart from perforation or extreme hemorrhage, when there is no mechanical or other disturbance shown by the Roentgen method.

When we come to a consideration of chronic gastric ulcers, the situation in most cases is quite different. Here there is usually a production of scar tissue, or the presence of considerable erosion and penetration. In these cases the bismuth outline will show the presence of excrescences, outpocketings, niches and hour-glass contractions.

We must always be on guard against a purely spastic pseudo-hour-glass formation. Usually, repeated examinations will clear up the diagnosis. The evidence of perigastric adhesions is usually best obtained by fluoroscopic examination.

Likewise the fluoroscopic method is of value in observing the chronic ulcers when found in the cardiac or median portions of the stomach. When we come to the region immediately adjacent to the pylorus, positive pathologic changes which are too small to be detected on the fluorescent screen can be seen constantly on the plates. By means of plates taken in the lateral position, views may be obtained of the anterior and posterior walls of the stomach, and a lesion detected which cannot be observed in any other way.

In all of the cases that we have examined up to date, we have failed as yet to find a single case of absolutely proved gumma of the stomach. Still we do not question that such a condition can exist, and we must guard against its possibility. We have, it is true, examined several cases which showed evidence of a tumor of the stomach, and had positive Wassermann tests, with evidence of a luetic involvement of the long bones as well; yet with no one of them was there any later proof against the assumption of coexistent carcinoma and syphilis. Likewise we have had several cases in which there was Roentgen evidence of chronic ulcer and a history of syphilis with positive Wassermann. In none of these cases, however, was the Roentgen evidence itself positive enough to be of differential diagnostic value.

Cancer of the stomach, in spite of improved methods of clinical diagnosis, and the wonderful surgery of to-day, is still the most deplorable condition known in the gastro-intestinal tract. The responsibility for this condition must be placed on the shoulders not only of the general practitioner, but of the special internist as well. Patients are often made so comfortable by medical means under a diagnosis of gastric neurosis or some similar diagnosis, that they easily go far beyond the operative stage. But even when all the modern methods of diagnosis are called into play, and careful examinations are made of the gastric contents, stools and blood, when a diagnosis of carcinoma is made, it is by no means early. In these cases the carcinoma is really well defined. This is not what we mean by early diagnosis of carcinoma. We must try to discover it when there is some hope for cure by radical surgery; that means before a positive diagnosis can be made by clinical methods alone. It is in the employment of the bismuth-Roentgen method that we know we have a positive aid. This method is especially important in that large number of cases in which the carcinoma is situated in the fundus of the stomach. Here there is no pyloric obstruction, and positive clinical evidence is usually entirely lacking. We are already discovering many of those overlooked early fundal cases, and as our technic advances we expect to discover more and more. The early diagnosis is based partly on the presence of irregular defects of filling, and partly on abnormalities of peristalsis as observed both on the fluorescent screen and on the plates.

Although one cannot be positive of the differential diagnosis, in every instance, between old ulcer and the malignant degeneration of old ulcer, still, in the majority of carcinomas, the defect in the bismuth mass is usually so suggestive that we feel it is our duty in such cases to advise strongly for surgery of the radical type, such as resection, and against that so much abused, palliative operation of gastrojejunostomy. Frequently the lesion is so small and so early that there is no marked change in the gastric secretions.

The next important, and probably the most easily diagnosed condition of the gastro-intestinal tract, is duodenal ulcer; yet even to-day the statement is continually made by roentgenologists that the positive diagnosis of duodenal ulcer by means of the Roentgen ray is impossible. This is true not only of investigators in this country, but especially of European observers. With the latter, it is again the fault of too much reliance on the fluoroscopic method. Cole of New York, by his methods, was the first to really make the positive Roentgen diagnosis of duodenal ulcer. Briefly, we can epitomize our ideas about this subject in a few propositions:

1. Ninety-five per cent. of all duodenal ulcers appear on the superior surface of the duodenum with the cicatrix extending either posteriorly or anteriorly or both, but rarely on the inferior surface.

2. Anatomically, the first portion of the duodenum is a constant entity; that is, in healthy, normal persons it will always present the same smooth, regular appearance.

3. This normal condition can be demonstrated by bismuth in every normal person as a regular, smooth bismuth shadow, of a characteristic shape and outline, the so-called "bishop's cap." Failure to obtain this cap in a normal person is due either to improper technic or to improper bismuth mixtures.

4. If the normal duodenal cap can be demonstrated in every normal person, then the presence on plates of a constant defect in the cap means a real pathologic condition. Right here let us mention that this again means the differentiation between medical and surgical cases. In no case of duodenal ulcer, apart from perforation or extreme hemorrhage, should operation be performed unless the bismuth examination shows a definite, constant deformity of the bishop's cap. The cases in our experience in which this warning was disregarded have mostly proved to be surgical failures.

5. Every duodenal ulcer which is more than a simple peptic erosion has a sufficiently deep cicatrix to deform the bismuth contour. The simple ulcers are clinically negligible in this connection, since every case which finally comes to the physician for help already has an abundant cicatrix.

6. In this connection the negative diagnosis is as valuable as the positive. Every patient in whom a normal duodenal cap can be demonstrated has no indurated or surgical ulcer of the first portion of the duodenum. This fact has been demonstrated to our satisfaction time and time again. We do not believe that any internist, with clinical methods alone, can make as positive a diagnosis of the presence or absence of indurated duodenal ulcer, in every case, as the Roentgen method can; but we reserve this one exception, that unless the roentgenologist is thoroughly trained and carries out the method that has been demonstrated by Cole, this statement might be disproved.

The last condition which we have to speak about is that of gall-bladder disease. In most cases, when there have been repeated infections of the gall-bladder, adhesions will usually form. Frequently these can be demonstrated by their attachments to the antrum of the stomach, the first or second portions of the duodenum, the hepatic flexure or the transverse colon. Occasionally, but not often, the shadow of an enlarged gall-bladder can be seen. This, however, is not definite enough to warrant any positive diagnosis. About the most positive condition we have is the actual demonstration of gall-stones themselves. It is well known that pure cholesterol stones absorb the Roentgen rays very little, and consequently are rarely detected on the plate; but when there has been infection and inflammation, calcium is deposited in characteristic lamellae, and the shadows of gall-stones consequently can be seen.

With our improved methods of technic for soft tissue study, we are at present finding more and more cases in which gall-stones are demonstrated. We believe that in the future, with more attention devoted to this part of the tract, we shall be able to demonstrate stones in nearly every case in which there has been repeated infection.

We have thus far purposely omitted from this paper any consideration of the problem of gastropotosis, or of ptosis in general. Such a discussion has no place in a paper on the practical application of the Roentgen method. Too many assumptions of pathologic conditions have been based on Roentgen evidence that might well have been construed as absolutely normal. Many observers have even gone further and attempted by the Roentgen examination of the alimentary tract to find a cause for various nervous disorders, among them epilepsy. The published results of these investigations show a heaping up of theoretical conclusions on a very shaky base of still disputed Roentgen evidence. We therefore do not feel warranted in discussing this problem further.

To sum up, we believe that by means of the Roentgen bismuth examination of chronic gastro-intestinal diseases we can often obtain positive diagnostic evidence which is unobtainable by any other means. By this method we can usually separate these chronic cases into medical and surgical classes.

Before closing, however, we wish to emphasize that this method is merely one kind of physical examination. It is by no means an independent method, although it frequently gives evidence not shown otherwise. The Roentgen examination should always be preceded by a thorough general physical and laboratory examination. Then, and then only, can we achieve what is after all the ultimate aim: the treatment and possible cure of the patient.

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THE SURGICAL TREATMENT OF SPINAL CORD INJURIES WITH REPORT OF CASES *

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Traumatic injury of the spinal cord, from either fractured vertebrae or bullet-wounds, is of frequent occurrence, and the proper management of these cases is of great importance both to the medical practitioner and to the surgeon. A proper interpretation of the history of the accident, together with a careful clinical examination, will usually afford such an adequate conception of the nature of the lesion that a prompt decision may be reached as to the efficacy of surgical interference. Several roentgenograms should be made whenever possible, but unless the reading is clear, more credence should be placed on the clinical finding and the history of the accident, if it can be obtained.

In fractures and dislocations of the spinal column, statistics show that in about one-third of the cases the cord escapes injury. The displaced bones, however, may immediately spring back into place, leaving the cord contused, compressed or lacerated. If the force is less severe, the canal may be but slightly narrowed, and the cord only moderately contused or compressed.

The history of the onset and development of symptoms is of great importance. When the spinal column has been violently bent, wrenched or twisted, the onset of paralysis may be immediate. It is at once important to determine then, whether the cord has been partially or totally severed, or whether there is only suspension of transmission.

* Read before the Chattanooga Academy of Medicine, February, 1914.

With complete laceration of the cord, the patient at once becomes paraplegic; anesthesia involving all types of cutaneous sensibility is immediate and absolute; there is retention of urine until the overdistended bladder gives way to dribbling; there is total loss of reflexes; retention of feces occurs, and decubitus may develop within twenty-four hours. When the injury is to the cervical or upper dorsal regions, abdominal distention may appear early and be of serious import.

Whenever this picture is presented following trauma, bullet-wound or stab-wound of the spine, surgery offers no rewards. The axons of the true cord are without neurilemma, and whenever it is cut or lacerated, it never regenerates. These patients must forever depend on the kindly offices of the general practitioner, who will prolong life and comfort by carefully guarding against systemic infection from cystitis, ascending infections of the kidneys and bed-sores.

Surgical interest centers chiefly about those cases which do not present unequivocal evidence of complete severance. In these the results are often most spectacular.

Partial lesions frequently occur which are due to incomplete laceration with contusion, and to compression, either by splintered bone, displaced bone or by clot. With slight or partial lesions, the paralysis may at first be complete, but soon improve, or it may amount to mere muscular weakness.

When the lesion occurs in the cervical region there will be a paraplegia involving both upper and lower extremities. In the dorsal region, there appears a paraplegia involving both legs. Minor lesions may produce a monoplegia, diplegia or spinal hemiplegia (Brown-Séquard type). In lesions of the cervical and dorsal regions the central neuron type is present, but in the lower lumbar and sacral regions the paralysis is always flaccid. In the upper lumbar, the lesion may at first be flaccid and later show a combination of central and peripheral neuron types (Johnson).

The diagnostic and prognostic significance of the zones and areas of anesthesia are at once apparent. The distribution of the areas of anesthesia correspond to the affected segments of the cord. In many lesions their definite location becomes almost a mathematical certainty.

In general, with transverse injuries to the cord, the sense of touch marks the level of the lesion, and both the epicritical and protopathic sensibilities should be determined. In transverse lesions the epicritical faculty is lost at a higher level than the protopathic, and the epicritical loss of tactile sensation usually marks the level of the lesion very accurately (Mix).

In partial lesions the anesthesia may be incomplete, of limited or dissociated distribution, or it may be confined to areas considerably below the lesion.

The reflexes of greatest importance are the plantar and knee-joint. A positive Babinski gives positive evidence of injury to the lateral columns of the cord, in the motor tract. The plantar reflex is absent in lesions of the sacral region, with total destruction of the cord, and the reflexes below that level are abolished. They may be increased in partial cord destruction, or in cord compression, signifying that normal brain inhibition has been interfered with. In several dorsal lesions, the knee-jerk may at first be absent, and later become exaggerated.

An electrical response from the various muscles involved, if present at all, is of importance when considered with other findings.

The operative possibilities in these cases are, of course, limited; but a discriminating diagnosis of the site and nature of the lesion should be made with all promptness, and whenever feasible, operative interference should be resorted to before there is permanent damage to the cord. The inevitable sequence of decubitus and bed-sores becomes almost a real contra-indication because of the danger of contact and metastatic infection.

When gunshot wounds inflicted from the side or front penetrate the spinal canal, visceral injuries must of course receive first attention. Wounds from behind offer the more favorable cases for immediate operation. No case should be considered hopeless until after repeated roentgenoscopy and the study of clinical symptoms, from which it is evident that the cord has been severed or that the location of the bullet precludes a safe operative risk.

Dislocations of the vertebra are not infrequent, and their treatment by extension and mechanical appliances has proved as disappointing as it has hazardous.

A simple laminectomy affording decompression to the impinged or compressed cord has within the past few years given startling results. It has been shown repeatedly that several laminae and spinous processes may be removed with but little detriment to the individual, and with but slight danger of trauma to the cord. The removal of spiculae of bone which penetrate the cord, or compress it, and the early removal of the extradural clots before Nature has attempted to remove them and extensive adhesions have formed, is without doubt a commanding duty of the surgeon. The prognosis with and without operation should be carefully weighed and the subsequent course promptly determined.

Laminectomy is without great operative or postoperative hazard. An incision is made over the spinous processes; the laminae are freed by blunt dissection from the overlying musculature and thoroughly exposed. By means of a chisel, saw or forceps, the laminae are freed close to the transverse processes and removed. An aperture somewhat more than the diameter of the cord must be insured to give free and unrestricted decompression. Care should be taken not to wound or open the dura unless special indication presents.

In separating the muscles from the laminae there is often considerable venous bleeding, which is best controlled by freeing one side and packing with hot saline sponges while the other side is being dissected. Bleeding from the bone after removal of laminae is easily controlled by plugging with a fragment of loose muscle.

A wide exposure of the canal is necessary, and when a decompressive laminectomy is made, the angulation of the cord must be relieved completely by the removal of a sufficient number of laminae. Occasionally it becomes necessary in cases of old fracture to open the dura and examine the cord. Hematomyelias or cysts may be opened and drained.

When the necessary surgical measures have been instituted, the dura should be closed carefully with catgut, the muscles and aponeurosis approximated and the skin closed with linen, reinforced, if desired, with silkworm gut. As a safeguard both to cerebrospinal fluid leakage and to meningeal infection, laminectomy wounds should not be drained. The upper and lower edges of the dressing should be sealed with wide strips of adhesive plaster to prevent contamination.

The scar tissue which forms between the resected laminae is exceedingly fibrous and at times shows reformation of bone (Cushing). The protection of the cord is thereby found entirely adequate. Local rigidity, stiffness and muscular weakness usually disappear within a

few months; after laminectomy, the spine needs no special support, except in cervical fractures, and within a few days the patient may be changed from side to side, bolstered with pillows. Hexamethylenamin should be given for several weeks, the bladder and bowels should receive careful attention, and dependent parts of the body should be padded to prevent decubitus. Some surgeons do not catheterize, depending on overdilatation to produce incontinence; while others fear overdilatation as favoring cystitis. Laminectomies in the lower dorsal and lumbar regions are often followed by a pronounced abdominal distention, unrelieved by enemas or cathartics, and best managed by small doses of morphin and atropin. As soon as the patient will permit, faradism and light massage may be given once or twice daily, increasing as the condition and improvement warrants.

Elsberg¹ believes that the surgeon should be very conservative in his recommendation of operative interference for recent fracture of the spine with serious injury to the cord. Yet, with bone-pressure threatening destruction of the cord, some of the most startling results are obtained by prompt interference. The following case is illustrative:

CASE 1.—Floyd G., aged 16, while picking chestnuts fell from the top of a tree, striking on his back across a heavy limb. When he reached the ground he was able to walk part of the way down hill, when his legs gave way and he crawled a few yards further. He could make no more progress because of pain in the back. He was carried to his home in an ambulance, and when seen by me two hours later, Oct. 8, 1913, presented a complete paraplegia from the waist down. There was great pain on pressure over the lower dorsal region. Examinations October 9, 10, 11 and 12 showed flaccid paralysis of both legs, with absence of knee-jerks and ankle-clonus; superficial sensation was absent, but deep sensation was slightly present in both legs. There was complete retention of urine and feces. Pressure over the spine on the eleventh and twelfth dorsals caused the greatest pain. Edema in that region prevented the detection of any deformity. The patient was removed to Baroness Erlanger Hospital October 11, where roentgenograms were made; as no deformity could be recognized in the bodies of the vertebrae, a fracture of the arch was diagnosed.

The history of the patient's having walked several steps after striking the ground showed that the paralysis was not immediate and therefore precluded a complete or serious severance of the cord. The destructive effect of pressure was feared, and after localization of the lesion from the upper boundary of the zone of anesthesia, a laminectomy was done. An incision was made from the eighth to the twelfth dorsal vertebra and a fracture of the eleventh dorsal lamina was found with almost complete depression on the cord; the spinous process of the tenth vertebra was crushed and the lamina partially broken. These two laminae were completely excised and a long extradural clot was found, which extended from the tenth to the twelfth dorsal vertebra. This was carefully removed with fine dissecting-forceps, and the cord was seen to be free and uninjured. The dura was not opened. The muscles and aponeurosis were carefully drawn together with catgut, and the skin closed with linen.

There was no postoperative shock. A few hypodermics of morphin and atropin were necessary to control pain and restlessness. On the third day sensation began to return. In one week the patient could move the toes on each foot. Urine was voided consciously on the sixth day. With faradism and massage the patient continued to improve and went home on the eighteenth day. In seven weeks he could walk with crutches, and in eight weeks he went unassisted across the room. He is now fully restored without cystitis or other evi-

dences of the paraplegia except slight prominence of the ninth dorsal spinous process.

Early operation in these cases undoubtedly gives the most satisfactory results. Improvement would probably occur in the course of time and a partial restoration of function, but a laminectomy done before the development of cystitis or decubitus, and before permanent pressure-changes have occurred in the cord, gives opportunity for a more complete and prompt recovery, without the danger of death from intercurrent infection during an expectant course.

In gunshot wounds of the spine with paralysis, if the condition of the patient will permit, and there is no visceral injury to contra-indicate, an immediate operation may often be of advantage. Whenever possible, roentgenograms should be taken, giving both the lateral and the anteroposterior location of the bullet. The wound of entrance should be painted with iodine and a protective dressing applied without probing, until the operative or expectant course is determined.

The following cases which have occurred in my service during the past year will illustrate briefly the question of conservatism.

CASE 2.—John L., aged 29, was brought to the hospital with a gunshot wound at the eighth dorsal vertebra. He was unable to use the body below the hips, but complained of intense pain in both legs, the muscles of which jerked spasmodically. Touching or attempting to move the legs caused intense pain and muscular spasm. Roentgenoscopy showed a flattened bullet lying to the left of the cord at the eighth dorsal vertebra. An incision was made from the seventh to the tenth dorsal vertebra. The aponeurosis and the muscles were retracted. The fractured laminae of the eighth dorsal vertebra were removed and the flattened bullet, embedded in the transverse process, was removed. The dura was slightly lacerated and some extradural clot was present. The cord, however, was not exposed and was uninjured. The wound was closed without drainage, and the patient having made an uninterrupted recovery, was discharged on the twelfth day.

CASE 3.—Maggie S., aged 38, was brought to the hospital with a gunshot wound at the twelfth dorsal vertebra. Roentgenoscopy was not available. There were motor weakness in both legs, intense pain in the back, and hyperesthesia in both legs, particularly in the feet. An incision was made over the lower dorsal region with the wound as a center. The left transverse process of the twelfth dorsal vertebra was shattered and the bullet lay loose in the fragments. The bullet and the fragments of bone were removed. The wound was swabbed out with 2 per cent. phenol (carbolic acid) and closed. It was not deemed advisable to do a laminectomy as the symptoms were rather more irritative than suggestive of pressure. Within three weeks the patient had completely recovered and was discharged.

CASE 4.—Mrs. H. M., aged 22, had an accidental gunshot wound through the midsternum, ranging downward and backward, May, 1912. The patient was not seen by me until September, when a complete paraplegia was found. There were absolute motor paralysis of both legs and complete anesthesia. Knee- and ankle-jerks were lost. Constipation yielded to enemas and cathartics. The bladder acted unconsciously. Operation at this time was refused, and galvanism, faradism and massage with potassium iodid and strychnin were given. Gradual improvement began, and in eight months the patient could elevate and rotate the legs, and control both bladder and bowels. Hip-braces were fitted and it became possible to walk about the room with crutches.

In November, 1913, a laminectomy was done by Dr. A. S. Taylor, New York Hospital, with the following findings, for which I am indebted to him:

"The cord about the first and second lumbar was much constricted and narrowed; pressure seemed greater at the

1. Elsberg: Surg. Gynec. and Obst., February, 1913, p. 125.

upper level of first lumbar. The lamina of the first lumbar was very much thickened and hard, considerable callous formation causing constriction of the cord.

"Laminae of the twelfth dorsal and first and second lumbar completely removed. Dura was opened and moderate adhesion of dura to cord at point of constriction. Right side under first lumbar laminae not extensively separated, all pressure on cord removed. Dura and wound closed."

After operation there were further improvement in sensation and an apparently gradually motor strengthening.

The question of early operation must be determined with each individual case, but spinal decompression by means of an adequate laminectomy should not be postponed without good and sufficient contra-indication.

ECZEMA MARGINATUM OF THE TOES

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AND

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SAN FRANCISCO

Sabouraud has shown that a number of cases that used to be regarded as eczema of the toes are not eczema, but a dermatitis caused by the same cryptogam that causes eczema marginatum of the crotch. This cryptogam, called by Sabouraud the *Epidermophyton inguinale*, is, as its name indicates, a fungus, and resembles but is not identical with the ordinary ringworm fungi. It, however, does not attack the hair, but lives exclusively on the epidermis, hence the name that Sabouraud has given it, the epidermis "phyton" or plant. The locality in which it at least gives rise to its most characteristic skin disease is the inner side of the thighs of the male, especially the left side, against which the scrotum rests. The disease may spread farther down the thigh, and it may also occur in the arm-pits, and in women under the breasts; but Sabouraud has shown, as before indicated, that a frequent situation is the region of the toes and forepart of the foot, where it gives rise to a disease resembling intertrigo or eczema of the toes, and it is usually so diagnosed. Rarely, also, the plant may grow on or between the fingers.

The precise diagnosis of this disease has more than a purely scientific interest: it lends precision to the therapy. In fact, these patients used to go from physician to physician seeking relief and finding none; and even with an accurate diagnosis and an efficiently worked-out treatment it will be seen by the present case how difficult it sometimes is to cure the affection.

History.—Feb. 28, 1913, a draftsman presented himself with an eczema-like affection of the toes of the right foot. The skin between and under the toes was reddened and scaly, but not moist. Along the ball of the foot the skin was roughened and slightly reddened, and in this rough area there were a few bright-red dots which he said itched, and out of which he had the previous evening squeezed a little serum. The margin of this area on the inner edge of the great toe was wavy, red and desquamating. As this margin ran backward along the ball of the great toe and around across the sole to the outer side of the little toe, it was not wavy, but was rough and corneous. On the outer surface of the little toe the marginal line was rough and red. On account of this marginal line, and because only one foot was affected, our suspicions were aroused. The value of noting this margin in arriving at a diagnosis cannot be overestimated: the shrewd Hebra called the disease eczema marginatum, and both Sabouraud and Dudumi speak of the margin as a special feature. On observing the condition we inquired of the

patient if he had any trouble in the crotch. He then proceeded to give us the following history:

He roomed with a man who had been a patient of ours for an affection of the crotch and axilla due to the *Epidermophyton inguinale*, which he had acquired presumably in an athletic club. This young man's trouble cleared up under a salicylic acid-sulphur salve. At about this time the present patient also acquired a dermatitis of the crotch, which cleared up under the same ointment as that used by his room-mate. About this time also the present eczema of the toes of the right foot appeared, and this absolutely refused to budge with the treatment that had cured the affection in the crotch.

Culture of the Epidermophyton Inguinale.—In accordance with the advice of Sabouraud, the rough margin on the sole was curetted, and the deeper scales were boiled, not simply warmed, in liquor potassii hydroxidi in a watch-glass, and were then examined with the one-sixth objective. The thick-branched spore-bearing mycelium of the epidermophyton was demonstrated. Other curettings from the deeper lesions were placed in 95 per cent. alcohol in order to kill associated bacteria and fungi. After five and ten minutes, respectively, fragments were placed on 2 per cent. glucose agar. Of those curettings left in alcohol ten minutes none produced any growth, but one of those left in five minutes gave rise at room temperature to a typical growth of the epidermophyton. This culture had a dark-colored center and a citron-colored border, and was umbilicated. After about a month the growth apparently stopped spreading. About two weeks later a new growth, of a perfectly white cottony appearance, sprang up quickly and nearly covered the original culture. A portion of this very tenacious mold, when teased apart and examined with one-sixth objective, showed the many branching club-shaped or fruit-like bodies so characteristic of the *Epidermophyton inguinale*. Subcultures showed these club-shaped bodies precisely as described by Sabouraud, and this type of mycelium with its branching degenerate forms continued constant through further transplantations, until it was finally killed out by an overgrowth of penicillium, its usual fate.

The curious degenerative form with the branching club-like fruit bodies distinguish, as Sabouraud¹ has pointed out, this fungus from the ringworm fungi. It is therefore not a ringworm fungus, as used to be thought, but a mold in a class by itself.²

If the preceding had been all this man's history it would have been only the usual one, but there was a personal part that was very interesting. The skin affection of the toes was remarkably stubborn, but before we describe the treatment a short account of the behavior of the fungus on the skin will be given.

BEHAVIOR OF EPIDERMOPHYTON INGUINALE OF THE SKIN

The fungus most frequently occurs in the crotch, especially in men in the left scrotal thigh fold, where the scrotum lies against the thigh, and in women under the breasts, and in the axilla or in any other cutaneous fold, and between the toes in both sexes. Shortly ago we had under observation a woman with the affection under the breasts and in the crotch, an unusual location in her sex. It has even been found in the retro-auricular fold.² Eczema marginatum is a disease almost confined to fleshy persons or to the young who are naturally active and perspire freely, and it occurs, as we have seen, in situations in which perspiration is abundant.

The infection begins in the depth of an integumentary fold and spreads outward to where the folds separate,

1. Sabouraud, R.: Sur l'eczéma marginatum de Hebra et de sa très fréquente localisation aux pieds, Arch. f. Dermat. u. Syph., 1912, cxlii, 924.

2. Dudumi, V.: Beitrag zur Kenntnis des Eczema Marginatum (Hebra) oder der Epidermophytie inguinalis (Sabouraud) Dermat., Ztschr., December, 1913, 1109.

dying out as it advances, and leaving behind a dirty, brownish, discolored surface, so that it is only at the active margin that the fungus may be demonstrated. The disease rarely spreads above Poupart's ligament, but it frequently runs back along the fold that exists in fat persons between the perineum and the thigh, and thence up along the internatal fold. These situations are favored evidently because it is in them that the fungus finds warmth and moisture, and also sufficient air for it to flourish. That it requires air as well as moisture is shown by the fact that it is at the edges of the integumentary fold, and not in its depth that the disease remains for years localized. It may even form patches down the inner side of the thigh where the irrigation from the sweating in the groins is often abundant. On the foot the disease tends to remain active between the toes, and to spread by a margin on the forepart of the foot. This activity between the toes is probably due to the warmth and abundant moisture of this region, and also to the circumstance that much air is pumped between the toes in walking, so furnishing the abundant supply both of moisture and of oxygen which the plant seems to require. It is likely that in the present case the disease began, as the history indicates, in the crotch, and that spores or particles of the fungus fell down inside the drawers and stockings, and so reached the forepart of the right foot, where it found a soil suitable for its growth. We shall later discuss why this foot was susceptible.

Castellani's observations in Ceylon on eczema marginatum are interesting as showing the effect of heat and moisture in the development of the fungus—the popular name for the disease there is "dhobi itch," and the patients become spontaneously free on going from the warm humid plains to the cool mountains, to reacquire the trouble on returning to the plains.³

In order to cure the disease this fungus had to be destroyed, and Sabouraud has pointed out the drugs to be used, and what is more important, their mode of application. The main reliance is to be placed on chrysarobin ointment, in the strength of 1 or more per cent.

THE TREATMENT OF ECZEMA MARGINATUM

The treatment was begun in the present instance by curetting up the edges of the lesion and the hard scales, and then painting well and intimately into the skin once a day:

| | |
|-------------------------|----------|
| Tincture of iodine..... | 10 parts |
| Alcohol | 90 parts |

After painting on the iodine an ointment was employed consisting of:

| | |
|------------------|----------|
| Zinc oxid..... | 10 parts |
| Lanolin | 10 parts |
| Almond-oil | 10 parts |

In some places on curetting the sole and toe the epidermis came off in a fine white powder, like wheat flour. In one situation, that the night before had felt uncomfortable and where there were a few pustules, the iodine was seen to stain quite deeply, as it does when a fungus is present (Allan's sign).

A few days after this we began the chrysarobin-salicylic acid application. We had the patient rub well into the toes and fore part of the foot in the morning an ointment consisting of:

| | |
|----------------------|----------|
| Salicylic acid | 1 part |
| Ointment | 50 parts |

We had him also butter this ointment on a piece of cloth and attach it to the toes by a loop of thread, and flap the buttered side of the cloth against the sole in drawing on

the stocking. The loop around the toe prevented the cloth from slipping back on the foot, and the walking which the patient did during the day massaged the ointment into the skin. At night, after any loose epidermis had been removed, the chrysarobin ointment was rubbed in. It consisted of:

| | |
|-------------------|------------|
| Chrysarobin | 0.3 part |
| Lanolin | 15.0 parts |
| Petrolatum | 15.0 parts |

The affection still persisted but lost its specific character and resembled more an uncomplicated eczema, which we for a time supposed it to be. In fact it is not so uncommon to find an eczema to persist after its immediate cause has been eliminated, as scabies, for instance, may start an eczema that will endure after the itch-mite has been destroyed. We therefore stopped the use of chrysarobin as being irritating, and treated the affection as an eczema.

It was about this time that we noticed another peculiarity in this man's case. He was anemic (blood-color 74 per cent. on the Dare instrument), the skin over the right shin pitted, and the veins of the right leg were larger than those of the left. It was thought that this condition of affairs was keeping up the eczema. For some time the affection seemed to improve, and then pustules began to appear as when the patient first came under treatment, and a thorough search in the deep scales again demonstrated typical large mycelial threads with large spores. The treatment, therefore, had not been effective in killing out the fungus. The fungus is by no means easily found when it is present. Many negative examinations were made in this case, for example. The under surface of the deep scales should be examined, and, as before mentioned, the scales should be boiled in liquor potassii hydroxidi in order to make the mycelium spores visible.

Seeing that we had failed to destroy the fungus, we determined to use more energetic means to clear off the hard thick epithelial covering of the sole. We also decided to use a much stronger chrysarobin ointment.

At night the patient was instructed to apply a lotion consisting of:

| | |
|---------------------------------------|-----------|
| Solution of aluminum acetate..... | 60 parts |
| Saturated solution of boric acid..... | 600 parts |

This was applied soaked in a cloth, which was wrapped around the fore part of the foot, and then the whole was enclosed in a rubber-lined bag such as is sold in drug-stores to hold sponges. A bandage was then applied over all to keep the dressing close to the foot. The next morning after an all night application of the dressing the epithelium was sodden and soft, the acetic acid in the solution of aluminum acetate naturally contributing to this result. In the morning a strong salicylic acid ointment was applied that was well rubbed in during the day in walking about. The salicylic acid ointment employed was:

| | |
|---------------------|----------|
| Salicylic acid..... | 6 parts |
| Petrolatum | 44 parts |

When in this way a good denudation of the epithelium was secured a strong chrysarobin ointment was well rubbed in:

| | |
|-------------------|------------|
| Chrysarobin | 1.5 parts |
| Lanolin | 15.0 parts |
| Petrolatum | 15.0 parts |

It is noteworthy that even after the skin was denuded of its hard epithelial covering, the application of this chrysarobin ointment did not trouble the patient. It effectually killed the fungus, however, and cured the disease.

Sabouraud⁴ says that he finds this disease of the feet to be very frequent, having noted twenty-three cases in a year and a half as opposed to two cases of true eczema of the same region and one case of ordinary ringworm of the plantar region of the type described by Mouktar. This phase of the disease does not seem to be nearly so frequent with us, as we have found only this case of the foot and one of the hand. In the crotch and in the

3. Alexander, Arthur: Beiträge zur Kenntnis des Eczema marginatum, Arch. f. Dermat. u. Syphilis, May 1912, p. 22.

4. Sabouraud. R.: Arch. f. Dermat. u. Syph., 1912, cxiii, 930.

axillae it is much more frequent, occurring occasionally as epidemics. Its comparative rarity may be due to the cool climate of California—our winters are not cold but cool, and our summers are cool and even cold, so that we have a temperate climate the entire year.

In view of the clinical findings, the occurrence and unusual persistence of the disease on the right foot is interesting, as showing some of the factors contributing to susceptibility to this disease. It will be remembered that the young man was anemic, that the skin over the right shin pitted on pressure, that the veins of the right leg were larger than those of the left, and that the patient was a draftsman, so that he had to stand a great deal. We could not elicit from him by question or by observation that the right foot was more sweaty than the left. The anemia and the circulatory imperfections would tend, however, to increase the carbon dioxid in the blood of the foot above the carbon dioxid optimum, and therefore would lower the tissue resistance. We also know that anemia, increased pressure in the blood-vessels as in standing and in varicose veins, and increase of carbon dioxid in the blood above the carbon dioxid optimum all favor increased transudation of serum.⁵ We also know that an increased amount of serum in the mucous layer of the skin tends to increase the thickness of this layer (acanthosis) and also causes hyperkeratosis of the horny layer (parakeratosis). The affected region in this case was parakeratotic and hyperkeratotic, and this constituted the chief difficulty in treatment. This hyperkeratosis had to be softened down by increasing the energy of our keratolytics, and we here wish especially to draw attention to the employment of solution of aluminum acetate as a keratolytic, and to its prolonged application as a compress enclosed in a rubber bag. We also in this case had to increase the strength of the mycocide. The actual contact of the chrysarobin with the fungus brought about by the denudation of the deep epithelial layers is of the first importance in the treatment. The strength of the chrysarobin ointment must also be of importance. Sabouraud, as above indicated, employs a 1 or 2 per cent. ointment. Whitfield⁶ uses a 10 per cent. application composed of:

| | |
|-------------------|-----------|
| Chrysarobin | 3.6 parts |
| Chloroform | 10. parts |
| Alcohol | 10. parts |
| Acetone | 10. parts |

We employed in the case here reported a 5 per cent. chrysarobin ointment. A 5 per cent. ointment would have a much stronger effect on the deeper layers of the skin than a 5 per cent. solution in acetone.

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5. Fischer, for instance (*Physiology of Alimentation*, 1907, p. 628), is of the opinion that an increase of carbon dioxid markedly increases the affinity of the colloids for water.

6. Whitfield, Arthur: *Eczematoid Ringworm of the Extremities and Groin*, *Brit. Jour. Dermatol.*, December, 1911, p. 385.

The Careless Midwife and Ophthalmia.—Between the months of June and September, 1913, the commission [Ohio Commission for the Blind] investigated in one city cases in the care of seven midwives, six of whom were licensed, in which nine infants were found to have ophthalmia neonatorum and for which a microscopic diagnosis showed the presence of gonococcus infection. In no case did the midwife make any attempt to report or secure treatment for the condition. In every case, however, information concerning the condition reached a nurse in time to secure expert treatment and save sight in eight and partial sight in one case.—Marian A. Campbell, in *Ohio State Med. Jour.*

PARATYPHOID FEVER

WITH REPORT, INCLUDING POST-MORTEM EXAMINATION,
OF A FATAL CASE OF THE "A" TYPE

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Since fatal cases of paratyphoid fever of the "A" type are apparently of rare occurrence, while because of this the pathologic anatomy is founded on a very few cases, and since the differentiation of this disease from true typhoid is of considerable importance, it would seem that anything which might contribute to the clinical history, bacteriologic findings or pathologic anatomy of this infection is of value. With this in mind, the present study was undertaken.

REPORT OF CASE

Patient.—A teamster, aged 34, American, widower, was admitted to the Hospital of the Good Shepherd, Oct. 30, 1913, complaining of a "general weakness" which had existed for three or four weeks prior to his admission.

Previous History.—The patient's family history is unimportant. He had had the usual diseases of childhood. When a young lad, as a result of a blow on the head from a large iron bar, his skull was said to have been fractured, though it was not operated on. According to patient's sister, he has since not been normal mentally, and because of this was unable to obtain an education. The patient says that at the age of 14, as a result of smoking cigarettes, he had a "cigarette" cough and since has not used them. He is temperate of habit, using tobacco, tea, coffee, beer and wine in moderate quantities. He denies venereal history.

Present Illness.—The patient says that three or four weeks ago, he had a hemorrhage from the nose though he did not spit or vomit blood. During the last two weeks, a cough with a slight expectoration, which he has had for some time, has grown worse and, although not severe, has caused more trouble during the day than previously. During his illness, patient has had much stomach trouble attended with nausea and poor appetite, but no vomiting. No pain has been present in the stomach or abdomen. He is able to walk only a short distance and can stand but for a few moments without great exhaustion. October 26 the patient complained of chilly sensations followed by sweats, which lasted all that day and part of the next. The sister of the patient says that for two or three days before admission he had had a morning temperature of about 102, rising to 103 in the evening.

Physical Examination.—Patient is thin and emaciated (thinks he has lost weight in the last two weeks), has an anxious look and does not seem to comprehend easily or answer questions readily.

Head: Normal in shape; no scars. A slight depression all the way across forehead. Pupils equal and moderately contracted; react to light and accommodation. Face flushed and skin dry and rough. Nose apparently normal, but mucous membrane covered with dry crusts. Mucous membranes of the lips and cheek pale and dry, with many cracks on the lips. Tongue protruded in the midline without tremor; dry and covered with a thick white fur; a number of deep fissures on the upper surface. Teeth in poor condition and covered with sordes. Gums and mucous membranes bleed easily. Throat red and dry. Facial expression dull and apathetic.

Glandular System: No palpable glands.

Circulatory System: Pulse soft and regular and easily compressible. A slight degree of arteriosclerosis present. Heart-borders, upper in third interspace; right at the left margin of the sternum, and left 4 inches from the mid-sternum. Apex-beat palpable in the fifth interspace, 3½ inches from the mid-sternum. Sounds weak and fairly rapid, but regular. No murmurs heard.

Respiratory System: Lungs are normal to percussion and auscultation on the anterior surface. Posteriorly, right apex and left apex are normal to percussion and auscultation. Below the angle of the scapula, the right side is somewhat higher pitched, and a few fine mucous râles are heard below the scapula and over the base. A few râles are heard also over the right axillary region below the seventh rib. The left side, below the angle of the scapula, is normal to percussion and auscultation, but a higher note and a few moist râles are heard over the left base. This does not change with the change of position of patient. Tactile and vocal fremitus seem to be somewhat diminished over the back on both sides.

Liver: Relative dulness from the fourth to the sixth rib; absolute dulness from the sixth to the free border of the ribs. Not palpable, and not tender.

Spleen: Extends from the seventh to the tenth rib in the midaxillary line and is not palpable.

Abdomen: Soft and tympanitic. No evident masses and no points of tenderness on palpation.

Skin: A general erythematous blush on chest and back, fading on pressure. A few rose-spots on the abdomen and chest.

Provisional Diagnosis.—Typhoid fever.

Daily Notes.—November 3: Temperature higher, and patient seems weaker and more dull. Tongue dry and tremulous, and abdomen tense. Heart-sounds are weak, but regular. Widal negative for typhoid agglutinins.

November 6: Temperature lower. Patient dull and disinterested. Abdomen distended, but not hard. Blood-culture negative.

November 7: Temperature still continues high and even. Sponges are used to reduce the temperature if above 101 F. Patient says that he feels much better. No point of tenderness over the abdomen.

November 8: Patient is delirious and picks at the bed-clothes.

November 10: Apices of both lungs are high-pitched. Right lung posteriorly is dull below the spine of the scapula, and coarse mucous râles are heard over the greater part of the lower lobe. Left side is apparently normal.

November 11: Temperature 101; pulse 120; respiration 36. Abdomen somewhat distended, but no finger-point tenderness and no rigidity. Widal positive, with *Bacillus paratyphosus A*. Widal negative, with *B. paratyphosus B*.

November 12: Patient apparently worse. Temperature about the same; respirations fast and labored. Some rigidity of the neck muscles. Abdomen still somewhat distended. Blood culture positive for *B. paratyphosus A*.

November 13: Localized area of dulness about the size of an orange present over the right lung below the angle of the scapula. Bronchial breathing over this area, and a few fine râles heard. Left lung dull along the spine and breath sounds are blowing in character. No râles heard. Abdomen the same as previously. Patient apparently better.

November 14: Patient was restless and delirious all night. He had seemed somewhat improved for the last two or three days, but toward morning, the pulse-rate increased, respirations increased and became labored, and quite suddenly about 7 a. m., the patient died, it being approximately the twenty-ninth day of his disease.

Temperature, Pulse-Rate and Respirations.—The record of these is obtained from the chart.

Urine Examinations.—October 30: Amber color, acid reaction, specific gravity 1.030, trace of albumin present, no sugar, Diazo reaction positive.

November 7: Dark amber color, alkaline reaction, specific gravity 1.020, no albumin, no sugar.

November 8: Dark amber color, acid reaction, specific gravity 1.020, trace of albumin present, no sugar, few pus cells present.

Blood Examinations.—October 30: Leukocytes 7,000, of which 50 per cent. were polymorphonuclears, 43 per cent. small lymphocytes, 5 per cent. large lymphocytes, 2 per cent. unclassified.

November 3: Widal negative (*B. typhosus*).

November 6: Blood-culture negative.

November 10: Leukocyte count 6,800.

November 11: Widal negative (*B. typhosus*). Widal negative (*B. paratyphosus B*). Widal positive (*B. paratyphosus A*).

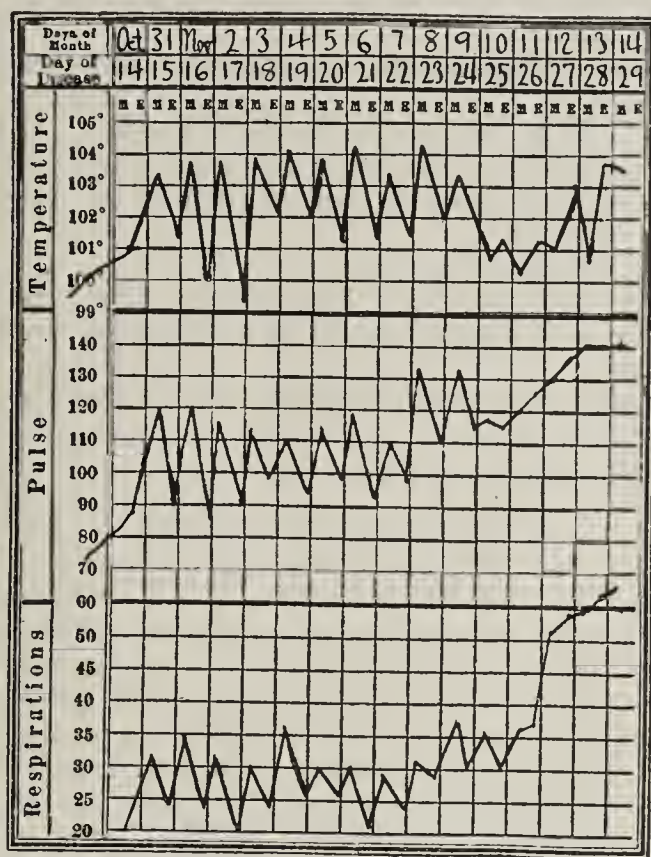
November 13: Blood-culture positive. *B. paratyphosus A* isolated.

POST-MORTEM EXAMINATION

Necropsy done by Dr. Parsons, under the direction of Dr. Waldorf, pathologist to the Hospital of the Good Shepherd, three hours after death. Head not opened. Body that of a poorly nourished man 163 cm. long. Rigor mortis very marked; livor mortis in dependent parts. Pupils dilated and equal.

Peritoneal Cavity.—No free fluid. Peritoneum smooth and glistening. Mesenteric lymph-nodes enlarged. Appendix normal in position and appearance, no adhesions. Foramen of Winslow open. Spleen apparently normal in size and position.

Pleural Cavities.—No free fluid. Lungs apparently normal in position and lobulation. Numerous small adhesions on right side at apex and base and on left side laterally and at



Record of temperature, pulse-rate and respiration of patient who died on the twenty-ninth day of disease.

base; so firm at base as to strip the pleura from diaphragm when lungs were removed.

Pericardial Cavity.—About 80 c.c. thin, straw-colored fluid.

Heart.—Weight 285 gm. Left ventricle in systole, right ventricle in diastole. Heart muscle brownish-red. Wall of left ventricle measures 1.2 cm., right ventricle 0.5 cm. in thickness. All valves without evident lesion. Mitral orifice measures 9.2 cm., aortic orifice 6.2 cm.

Lungs.—Right, weight 960 gm. Crepitant throughout, decreased posteriorly and deep red. On section, bloody fluid exudes from cut surface. Tissue very friable. When pinched there is uniform crepitation although this is much less marked than usual. Odor of tissue is foul. There are several areas from 0.5 to 1.5 cm. in diameter where tissue seems to have disintegrated.

Left Lung: Weight 700 gm. Tissue deep red, though everywhere crepitant. On section, condition much the same as in right lung.

Spleen.—Weight 160 gm., not apparently enlarged. Organ somewhat deeper red than usual. On section tissue friable, usual markings not distinct.

Gastro-Intestinal Tract.—Stomach, duodenum and jejunum are without evident lesion. In the ileum there are many

rather superficial ulcers opposite the mesentery which have greenish-gray necrotic bases and raised hyperemic margins that extend 2 to 3 mm. from the outer edges of the bases. These ulcers are elongated and their long axes are parallel with that of the gut. None has perforated the bowel. They are most numerous about 1 meter from ileocecal valve. There is one area about 9 cm. long where there are nearly continuous ulcers. Peyer's patches do not seem to be particularly involved. Nearly entire ileum seems more hyperemic than usual. There are numerous pin-point hemorrhages in many areas.

Liver.—Weight 1,720 gm. It is somewhat more red than usual. On section, markings distinct.

Kidneys.—Each weighs 140 gm. They are apparently normal in position and somewhat deeper red than usual. Capsules strip readily. On section, markings are distinct.

Anatomic Diagnosis.—Ulceration and hyperemia of ileum; enlarged mesenteric lymph-nodes; bilateral pneumonitis; bilateral pleuritic adhesions; congestion of spleen, liver and kidneys.

Microscopic Description and Diagnosis.—Ileum: Ulcers involving mucous surface. Apparently do not involve muscle. Peyer's patches not involved. Mucous membrane not undermined by ulcers.

Mesenteric Lymph-Nodes: Hyperplasia. Many endothelial cells present.

Spleen: No hyperplasia of lymphoid elements. Acute congestion present. A few ill-defined areas about 0.1 mm. in diameter in which there is disintegration of the cells and of most of the nuclei.

Lungs: Bronchopneumonia.

Bronchial Lymph-Node: Hyperplasia; many endothelial cells; evidence of phagocytosis of black pigment by endothelial cells.

Liver: Beginning central necrosis. Cloudy swelling of cells near center of lobule.

Kidneys: Cloudy swelling.

BACTERIOLOGIC EXAMINATION

From the blood two days before death and from the spleen, gall-bladder, mesenteric lymph-node and intestine, at necropsy, a rather short, Gram-negative, actively motile bacillus was cultivated and isolated. On agar a fairly abundant gray growth is seen. Bouillon is uniformly clouded. Gelatin shows a gray growth along the stab, and there is no liquefaction present. Litmus milk inoculated with this organism shows an early and permanent acidity. On potato the growth is invisible. No indol is produced in Dunham's peptone solution. Acid and gas is formed in glucose, but no fermentation is evident in lactose or saccharose. Subjected to the agglutination test with the patient's serum, this organism, as well as a "stock" paratyphosus A culture used for control, is agglutinated in dilutions of 1:40, 1:200 and 1:1000.

The patient's serum tested with "stock" cultures of *B. typhosus* and *B. paratyphosus B* shows no agglutination power in any of the preceding dilutions. Normal serum controls were negative.

Because of its morphology, staining characteristics, and active motility, and the results of growth on ordinary mediums (especially in sugar broth, in litmus milk and on potato), and because of its specific agglutination, the organism isolated in this case is identified as the *B. paratyphosus A*. This identification, in connection with the clinical history and pathologic findings, serves to make possible a diagnosis of paratyphoid fever of the "A" type.

COMMENT

The pathologic anatomy of these paratyphoid infections is interesting and important. Because the mortality rate is low the pathology of the condition is founded on a few cases. In a study of the literature paratyphoid B infections seem to have been the more fatal, conse-

quently more is known concerning the pathologic anatomy of this type, and the post-mortem report in the above described case of the "A" type will be an important addition to the literature, inasmuch as only a few such necropsy reports on paratyphoid of the "A" type have ever been published.

In true typhoid the most evident lesions are confined to the lymphoid tissues. The intestines usually show an involvement of Peyer's patches ranging from a slight swelling to a marked proliferation and even ulceration. The mesenteric lymph-nodes show all grades of proliferation and swelling. The spleen is also involved and shows swelling and congestion. The toxins of the bacilli may cause lesions in various other organs. These specific lesions of true typhoid are not as a rule found in paratyphoid.

From the small number of post-mortem examinations of paratyphoid (only a few of which have been of the "A" type) reported in the literature, it would seem that there are no specific anatomic lesions associated with the disease. The mesenteric lymph-glands are usually unchanged. The intestinal lesions vary from a simple, mild ileocolitis to definite ulceration. These ulcers are usually superficial and as a rule do not involve the Peyer's patches. In fact the Peyer's patches and solitary follicles have shown little or no change in practically all of the cases reported.

On the other hand, splenic enlargement has usually been present and did not differ from that seen in true typhoid. Wells and Scott, in their work on the "Pathological Anatomy of Paratyphoid Fever,"¹ founded on five cases, conclude that "the anatomic changes are simply those of a septicemia, with splenic swelling, and occasionally non-specific ulcerations in the intestine." In the light of our case this description must be changed to include the possibility of no change even in the spleen.

SUMMARY OF INTERESTING AND ATYPICAL FEATURES OF CASE DESCRIBED

1. Fatal result (most patients recover).
2. Similarity of lesions in intestine with those found in other reported cases, namely, non-specific ulcers, and lack of involvement of Peyer's patches.
3. Enlargement and great increase of endothelial cells in mesenteric lymph-nodes. (These showed little change in other cases.)
4. Normal spleen so far as size and lymphoid elements are concerned. (In practically all necropsied cases, so far reported, the spleen has shown considerable enlargement and change.)

CONCLUSIONS

From a study of this most interesting case, and of the important literature,² the following conclusions seem permissible:

1. Paratyphoid is considered rare and not usually fatal. Both of these ideas might be changed with closer scrutiny and study of "Clinical Typhoid" without positive Widal tests and blood-cultures.
2. The spleen is not necessarily enlarged or involved in paratyphoid of the "A" type.

1. Wells, H. G., and Scott, L. O.: The Pathological Anatomy of Paratyphoid Fever; Report of a Fatal Case, with Bacteriological Findings, Jour. Infect. Dis., 1904, 72.
2. Longcope: Am. Jour. Med. Sc., August, 1902. Swan: Am. Jour. Med. Sc., May, 1906, p. 883. Fox: Univ. Penn. Med. Bull., 1905, xvii. Hunt, C. J.: Paratyphoid Fever: A Serologic Study in Relation to the Epidemiology, Arch. Int. Med., July, 1913, p. 64. Proescher, Frederic, and Roddy, John A.: Bacteriological Studies on Paratyphoid A and Paratyphoid B, Arch. Int. Med., March, 1910, p. 261.

3. In health laboratories, or in other places in which these examinations are made, a serum should be tested for paratyphoid agglutinins, both A and B, after the serum has been pronounced negative three times so far as the true typhoid Widal is concerned.

4. More accurate blood studies and cultures should be made in all cases which resemble typhoid.

5. An antiparatyphoid vaccine should be tried in the treatment of the disease, and as a measure of prevention such vaccines should be used either alone or in combination with typhoid vaccine.

Finally, I desire to thank Dr. W. D. Alsever, in whose service this case occurred, for the privilege of making this study and report; to Drs. Waldorf, Preston and Parsons of the Hospital of the Good Shepherd, I am indebted for valuable records of the clinical and pathologic features.

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FURTHER SIMPLIFICATION OF QUANTITATIVE DETERMINATION OF CHLORIDS IN THE URINE*

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AND

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Recently Bayne-Jones¹ has published a simplified method for the determination of the total chlorids in the urine, the only apparatus necessary being a stoppered graduated cylinder. His method is an adaptation of the method of Strauss,² and does away with the necessity of a specially made and graduated chloridometer. The method depends on the precipitation of the chlorids with a tenth-normal silver nitrate solution containing nitric acid, and ferric ammonium sulphate as an indicator, and titrating back the excess of silver nitrate with a twentieth-normal solution of ammonium sulphocyanate, the whole process being carried out in a stoppered graduated cylinder, and the amount of the chlorids being determined from the amount of fluid in the cylinder at the end of the process, with the aid of a special table computed for that purpose. Bayne-Jones has shown the accuracy of the method, when compared with the Lüttke-Martius modification of the Volhard method, and has shown that the presence of the silver chlorid in the mixture does not affect the final titration. He has also shown that the method is accurate when applied to albuminous urines, without filtration of the albumin.

The method can be still further simplified by adjusting the strength of the solutions to the graduations on the cylinder, so that the reading at the end is practically a direct reading of the number of grams of chlorids per liter of urine, without requiring the use of any tables. The modification also has the advantage of allowing the estimation of any amount of chlorids up to 20 gm. per liter, without requiring dilution of the urine. In this modification the strength of solutions used is the same as of those used in the Arnold modification of Volhard's method.³ One c.c. of the silver nitrate solu-

tion is equivalent to 0.01 gm. of sodium chlorid, or to 0.00606 gm. of chlorin.

For the method as used at present by us the following solutions and apparatus are required:

1. A standard solution of silver nitrate, containing 29.055 gm. to the liter. According to Webster, the chemically pure silver nitrate found on the market is perfectly reliable, and requires only an accurate balance to weigh the exact amount. The formula of this solution is as follows:

| | |
|--|------------|
| Silver nitrate (C. P.) | 29.055 gm. |
| Nitric acid (25 per cent.) | 900 c.c. |
| Ferric ammonium sulphate (iron ammonia alum) cold saturated solution | 50 c.c. |
| Distilled water to | 1,000 c.c. |

2. A solution of ammonium sulphocyanate (NH_4SCN) of such a strength that 2 c.c. are equal to 1 c.c. of the silver nitrate solution. This is made by dissolving about 7 gm. of the sulphocyanate in 1,000 c.c. of distilled water, and by titration against the standard silver nitrate solution adjusting it by dilution until 2 c.c. are exactly equal to 1 c.c. of the silver solution.

3. A certified, stoppered, graduated cylinder of 50 c.c. capacity. By a series of tests we have found the calibration of the ordinary 50 c.c. stoppered graduated cylinders to be extremely inaccurate. Furthermore, they are graduated only in 1 c.c., and the variations in calibration are too great to allow of accurate results. Bayne-Jones has reached the same conclusion, and we recommend that only the certified cylinders, which are graduated in 0.2 c.c., be used. These are of about the same caliber as an ordinary buret, and the graduations extend over a scale length of about 25 cm., so that differences of 0.2 c.c. or even of 0.1 c.c. are as easily read as from a buret.

The method is carried out as follows:

The urine is allowed to flow from a pipet into the cylinder, which has previously been cleaned and dried, until the bottom of the meniscus is exactly at 5 c.c. The silver nitrate solution is then run in carefully in the same way to the mark 15 c.c. The cylinder is then stoppered, inverted gently several times and allowed to stand for five minutes. If it is not allowed to stand at least five minutes, precipitation of the chlorids will be incomplete, and the reading will be too low. The pinkish color produced by the action of the nitric acid will generally disappear as the following solution is run in, but if the urine be highly colored it is well to decolorize by adding 3 drops of a 10 per cent. potassium permanganate solution, the amount of fluid added in this way being allowed for in the final reading. After standing, the sulphocyanate solution is now run in, preferably from a siphon or from an aspirating bottle with an opening at the side. In this way the sulphocyanate solution may always be kept easily available on a shelf in the laboratory. The sulphocyanate is run in gradually, the cylinder being stoppered and inverted several times after each addition. The rapidity with which the sulphocyanate may be added may be gaged by the rapidity with which the color produced by each addition disappears; the addition being made about 3 drops at a time toward the end of the reaction. This is continued until the pinkish color produced by the sulphocyanate just fails to disappear when the tube is inverted and remains permanent. The stopper is then removed, the cylinder allowed to stand for a few moments, until all of the fluid has run down from the sides, and a reading of the amount of fluid in the cylinder is then taken.

* From the Laboratory of Pharmacology, Medical Department, University of Oregon.

1. Bayne-Jones, Stanhope: Simplified Methods for Quantitative Estimation of Chlorids in the Urine, Arch. Int. Med., July, 1913, p. 90.

2. Strauss: Praktische Winke für die chlorarme Ernährung, Berlin, 1910.

3. Webster: Diagnostic Methods, 1909, p. 193.

If no correction is to be made, as for the addition of potassium permanganate, the number of cubic centimeters of fluid in the cylinder subtracted from 35 now gives the number of grams of chlorids per liter of urine, expressed in terms of sodium chlorid. If V be taken as the final volume of fluid, the result may be expressed by this equation:

$$35 - V = \text{grams of NaCl per liter of urine.}$$

The calculation of this is simple. The 10 c.c. of silver nitrate solution added to the urine is capable of precipitating 0.1 gm. of sodium chlorid. If no chlorid be present it will require 20 c.c. of the sulphocyanate solution to precipitate the silver nitrate, and we have in the cylinder 5 c.c. of chlorin-free urine, 10 c.c. of silver nitrate solution, and 20 c.c. of sulphocyanate solution, totaling 35 c.c., which is the maximum that V may attain. When chlorids are present in the urine, as they invariably are, their amount is indicated by the amount of silver nitrate they precipitate, this being determined indirectly by titrating the amount they fail to precipitate. As each cubic centimeter of silver nitrate requires 2 c.c. of sulphocyanate for precipitation, each 2 c.c. less than 20 of sulphocyanate solution needed for the final titration represents the presence of 0.01 gm. sodium chlorid in the urine used, or each cubic centimeter represents 0.005, or $1/200$ gm. As 5 c.c. of urine, or $1/200$ liter of urine was originally used, each cubic centimeter of sulphocyanate less than 20 represents 1 gm. of sodium chlorid per liter, and as 15 was the zero point on the scale for the final titration, $35 - V =$ the number of grams of chlorids per liter. In the case of very dilute urines of low specific gravity it is better to start with 10 c.c. of urine, which modifies the formula to

$$\frac{40 - V}{2} = \text{grams of chlorids per liter.}$$

To test the accuracy of this method we have controlled a series of estimations with a method of known accuracy, the Arnold modification of Volhard's method as described by Webster,³ and the results are herewith tabulated.

NEW METHOD COMPARED FOR ACCURACY WITH THE
ARNOLD METHOD

| No. | Grams NaCl per Liter Arnold Method | Grams NaCl per Liter New Method | No. | Grams NaCl per Liter Arnold Method | Grams NaCl per Liter New Method |
|-----|--|---------------------------------------|-----|--|---------------------------------------|
| 1 | 14.2 | 14.4 | 9 | 7.2 | 7.1 |
| 2 | 10.1 | 9.9 | 10 | 0.5 | 0.66 |
| 3 | 0.8 | 0.8 | 11 | 0.4 | 0.6 |
| 4 | 5.5 | 5.3 | 12 | 13.1 | 13.1 |
| 5 | 7.9 | 7.7 | 13 | 6.0 | 6.0 |
| 6 | 5.6 | 5.6 | 14 | 9.3 | 9.4 |
| 7 | 3.9 | 3.8 | 15 | 11.0 | 11.0 |
| 8 | 7.7 | 7.8 | | | |

The method is thus accurate to within 0.2 gm. per liter, when compared with a more complex titration method which is sufficiently accurate for clinical purposes, and can be carried out in ten minutes by any skilled laboratory helper with only the one piece of calibrated apparatus, and it requires no tables for the computation of the results.

Our thanks are due to Miss Hazel Altman of Dr. Selling's laboratory for many of the controlled estimations.

761 Lovejoy Street.—Selling Building.

Knowledge.—Every mind was made for growth, for knowledge, and in its nature is sinned against, when it is doomed to ignorance.—Channing.

TUMOR OF THE MIDDLE CRANIAL FOSSA INVOLVING THE GASSERIAN GANGLION *

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AND

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Cases of tumor of the middle cranial fossa involving the gasserian ganglion are rarely seen and but rarely reported in the literature.

In 1908 Spiller¹ reported two cases which had recently come under his observation. He also reviewed one case presented by Keen, Dercum and Spiller, and one reported by Hofmeister and Meyer in their paper on "Tumor of the Gasserian Ganglion." A few other cases have been noted in the literature.

The case here reported was a tumor of the middle cranial fossa involving the gasserian ganglion.

History.—O. R. (Case A77175), a well-developed man, aged 21, was examined Dec. 10, 1912. Family history was negative for tuberculosis or other chronic diseases, and personal history good, without evidence of syphilitic infection or alcoholic excesses. Three enlarged upper cervical glands had been discovered on the right side of neck twenty-one months previous to examination. Three months later pain developed anterior to the right ear, and the local physician excised the glands, which were thought to be tuberculous, although no microscopic examination was made. From that time until the patient came for consultation pain had been constant in the site of the trouble with intermittent tie-like paroxysms over the entire distribution of the right fifth nerve. The paroxysms occurred once or twice a day and lasted from a few minutes to an hour. Momentary attacks of diplopia and of indefinite objective vertigo were complained of. Following the operation on the glands there had been some stiffness in using the lower jaw. Six weeks previous to our examination deep alcoholic injections of the branches of the fifth nerve had been made with some relief for one week. Two weeks following this procedure an operation was done in the right temporal region, but there were no data to show what was accomplished. For one week prior to coming to our clinic there had been a drooping of the right upper lid.

Examination.—General examination disclosed nothing of note. All reflexes were normal; there was no ataxia in station or gait. Mentally the patient was rather dull and apathetic, and answered questions slowly. A superficial survey of the head revealed a scar on the cheek following the use of a hot-water bottle, as well as those left by the previous operations. A small trophic ulcer was apparent on the right side of the upper lip below and to the right of the nasal ala. The sense of smell seemed to be slightly diminished on the right side. There was a marked ptosis of the right upper lid. The right pupil was dilated and showed no reaction to light or accommodation. There was partial paralysis of all the extrinsic muscles of the right eye, but this was less evident in the external rectus. Vision in the right eye was 20/50 with slight contraction of the fields. The optic nerve-head was pale. Vision in the left eye was 20/20; the fundus, extrinsic muscles, reflexes and fields were normal.

Careful tests showed anesthesia and analgesia of the skin and mucous membrane supplied by the first and second divisions of the right fifth nerve with hypesthesia and hypalgesia in the distribution of the third division. There was also complete anesthesia of the right cornea. A slight exaggeration of the jaw-reflex was noted; the pharyngeal reflex was apparently normal. The sense of taste was absent in the right anterior portion of the tongue. The tongue could not be protruded beyond the lips, as it was impossible to separate the teeth more than $\frac{1}{2}$ inch, which condition was probably the result of

* From the Mayo Clinic, Rochester, Minn.

1. Spiller: Am. Jour. Med. Sc., 1908, cxxxvi, 712, 725.

contracted scars following the previous operations. No weakness of the tongue-muscles was evident. There was a definite decrease of strength in the muscles used in closing the right side of the jaw. A specimen from a slight bulging of the right side of the nasopharynx showed lymphatic tissue only. There was a slight bilateral catarrhal deafness. The sinuses were objectively normal. A roentgenogram of the skull disclosed a trephine opening about $\frac{1}{2}$ inch in diameter in the right temporal region. Diagnosis was made of a tumor of the middle cranial fossa involving the gasserian ganglion.

Operation.—June 6, 1913, an operation was performed in the Mayo Clinic by Dr. Beekman. The Hartley-Krause method exposed a hard mass below the right temporal lobe. The extent of the tumor could not be determined and it was considered inoperable. A specimen examined microscopically showed the tumor to be a small round-cell sarcoma.

The patient died a few months later. No necropsy data were obtained.

The important features in this case are: (1) the enlargement of the right cervical glands; (2) the constant dull pain just anterior to the right ear with paroxysms of sharp pain which involve the entire distribution of the fifth nerve; (3) the absence of symptoms of general intracranial pressure, such as headache, vomiting, choked disk, etc., unless the occasional vertigo and the mental hebetude are considered symptoms; (4) the definite localizing signs such as the anesthesia, the loss of the sense of taste on the right anterior portion of the tongue, the partial paralysis of all the right extrinsic eye-muscles with a nearly complete ptosis, the pallor of the right optic nerve-head, and the large immobile right pupil.

It is possible that the anesthesia became more definite following the alcoholic injections which had been given six weeks previous to our examination. As would be expected, considering the absence of any signs of general intracranial pressure, there was no improvement following the exploration.

In the cases reported by Dercum, Keen and Spiller, Hofmeister and Meyer, and Spiller there was enlargement of the lymphatic glands of the neck. In our case, although no microscopic examination was made by the physician who excised the glands, the history of glandular enlargement just previous to the onset of the symptoms gives strong presumptive evidence of their metastatic character.

The fact that the glands were enlarged three months before the onset of pain makes it probable that the tumor originated from the dura and had gained considerable size before it involved the gasserian ganglion.

SURGICAL TREATMENT OF URETHRO- RECTAL FISTULAS

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Under the present methods for the surgical treatment of urethrorectal fistulas about 25 per cent. of the cases terminate successfully. This low rate of recoveries is not surprising when it is remembered that the urethra is a curved channel carrying water under pressure and that the fistula is usually located at the most tortuous part. In addition to this, the rectum is in close apposition to the prostate and the recto-urethralis muscle anchors the ampulla of the rectum at a short distance from the membranous urethra.

The standard operative procedures seem faulty in principle.

No one would try to repair a leak in the retaining wall of an irrigation ditch, especially on a curve, by tearing down the sound, natural wall for some distance close to and up into the leak, if this could be repaired in the line of leakage. Still, this is the principle underlying the operative methods usually employed. The perineal body is split at its center, the cut extending back to or into the rectum, in front to the bulb, and in depth down to the urethra; thus, a sound retaining wall many times the length of the fistulous opening is laid open—a wall which is known to be hard to make water tight by suturing. The fistulous tract is cut flush with the urethra and the opening closed by a continuous suture. The condition then is that instead of one large opening, there are several small holes, not water tight, between the sutures. After the removal of the fistulous tract and repair of the rectum, the wound is sutured. The result is that in 75 per cent. of the cases there are, instead of one leak, two—a rectal and a perineal.

The following technic has been worked out and found very satisfactory:

After the usual preparatory treatment, such as curing of strictures, etc., the field of attack is just in front of the rectal wall up to and above the fistula; and then in the line of the fistula. A catheter is inserted into the bladder and retained for several days. If the fistula is located low down, the rectum is loosened from its bed in front and to the sides, while in fistulas high up, the rectum is dissected loose in its entire circumference. If more room is required, the postanal tissue is cut through to the coccyx, which may also be turned back. An incision through the skin is made in front of the anus either half way around, or encircling the anus and back to the coccyx. The sphincter, left attached to the skin, is cut through in front or in front and posteriorly. If the fistula is above the levator ani, this is cut close to the rectum and so also the recto-urethralis and if necessary the deep perineal fascia. This exposes the prostate, bladder and the peritoneal pouch. The dissection should be up to and a short distance above the location of the fistula. As the fistula is reached, it is tied and cut close to the rectum and the fistulous tract is dissected loose up to the urethra; if this is impossible, it is curetted up into the urethra. A purse-string suture is placed around the fistula close to the urethra in the tissue surrounding the tract and tied, leaving the ligature ends long. The tract is removed. Several flaps now are dissected loose alternately on each side of the tied urethral end and stitched in place, one on top of the other, each suture-line being located at a different plane. The long ends of the urethral tie are drawn through the center of the first flap and tied before the flap is stitched into place. The principle here is not only to build up a water-tight, but also a thick wall, thereby bringing the rectum farther away from the urethra. The rectal tie is buried by two or three pleats of the rectal wall. As the ends of the fistulous tract, where they open into the urethra and the rectum, are, as a rule, funnel-shaped, these funnels should be tied and not cut; if they are cut, two large openings are produced which are hard to make water-tight by stitching, while if they are tied, this makes the opening water-tight. If there should be a large opening into the urethra which cannot be tied off, the urethral edges should be apposed by interrupted sutures, the sutures tied and their ends drawn through the center of the first overlapping flap and tied. It generally spells failure to turn up a flap from each side of the urethra, their edges meeting and sutured opposite the urethral suture-line. This is like putting one sieve

on top of another. After a thick wall has been built up between the rectum and the urethra, the rectum is partly twisted and a sound part is sutured to the built-up wall. The levator ani and sphincters are sutured in place. If the postanal space was entered, a good-sized drain is left in there.

If at the time of the operation there should exist both a urethrorectal and a urethroperineal fistula, the best policy is to repair the urethrorectal fistula first, waiting for a future time to repair the perineal fistula, because there would be a too extensive injury inflicted on the periurethral wall in one sitting, and because an open drain through the perineum will greatly assist in relieving the repaired part, until thoroughly healed, from the expansive pressure of the urine. A perineal fistula is easier to repair later on. It is a great temptation to repair the two in one sitting, but the result is generally a failure. In repairing the perineal fistula, the same overlapping, building-up method will give good results.

THE PRESENCE IN THE URINE OF DIALYZABLE PRODUCTS REACTING TO NINHYDRIN

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NEW ORLEANS

In a recent article in *THE JOURNAL* Warfield¹ says:

It occurred to me that if there was a specific ferment in the blood-serum which was elaborated to split up the products derived from the placenta, syncytium especially, there should be also in the blood-waste, products of the metabolic activity of the growing fetus. These substances had to leave the body by some route and the most logical route was the urinary excretion. These products should be peptones and amino-acids, they should dialyze out and one should then be able to find them by means of the ninhydrin reaction in the dialysate. It was found that actually such is the case.

In support of this theory, tests on seventeen cases of pregnancy are cited, all of them giving positive results; seven cases in the puerperium were tested with the result that "the eleventh day was the earliest to show a negative reaction, while one still showed a faint reaction on the seventeenth day." If correct, these observations would be of the utmost importance and would greatly simplify the "Abderhalden test."

I have carried out a series of reactions in order to prove or disprove these conclusions. The water containing the dialyzers, the glassware, pipets, etc., were all carefully tested for the presence of the ninhydrin reaction before being used. The work was done with the dialyzing thimbles supplied by Parke, Davis & Co., and these had been proved to be impermeable to all but amino-acids by repeated testing and also by a long series of tests with the original technic. Three different solutions of ninhydrin were used.

February 10 the urines of six positively pregnant women were tested for the presence of the ninhydrin reaction, without dialyzing, by boiling 2 c.c. of urine with 0.2 c.c. of a 1 per cent. solution of ninhydrin. The accompanying table shows the results.

It will be observed that whenever the urine was strongly acid, the ninhydrin reaction was negative. This indicates that the acidity inhibits the reaction, a fact that is already well known. An attempt was made to bring out the test by neutralizing these strongly acid urines, but the reaction remained negative. It was further observed that, although a urine may give a strongly positive ninhydrin reaction, if made strongly acid by the addition of acetic acid the reaction will disappear and will not reappear when the urine is exactly neutralized by the addition of sodium hydroxid. The same day, those urines that had given negative tests before dialyzing, were placed in dialyzing thimbles and the dialysates tested at the end of twenty-four hours. All three, that is, Nos. 2, 5 and 6, gave strongly positive reactions with ninhydrin.

February 11 the urines of three women known to be pregnant were dialyzed. At the end of twenty-four hours the dialysate gave a positive reaction in each instance. These urines did not contain albumin and were acid in reaction.

February 12 the urines of ten non-pregnant women suffering from various surgical conditions were dialyzed, and the dialysates tested for the presence of the ninhydrin reaction. Without exception, these urines gave distinctly positive reactions. The reactions of these urines to litmus varied from alkaline to acid, the majority were acid. No matter what the reaction of the urine before dialyzing, however, the dialysate is

NINHYDRIN TEST OF URINES FROM SIX PREGNANT WOMEN *

| No. | Reaction | Ninhydrin |
|-----|--------------------|-----------|
| 1 | Acid | + |
| 2 | Strongly acid..... | — |
| 3 | Neutral | + |
| 4 | Neutral | + |
| 5 | Strongly acid..... | — |
| 6 | Strongly acid..... | — |

* All urines were albumin-free.

always neutral to litmus. These urines were voided just before luncheon, and none of them gave a positive reaction with the ordinary tests for albumin.

February 13 the urines of four non-pregnant women and two men were tested. One of the men had nephritis, the other was normal. The dialysates from all of these urines gave positive reactions with ninhydrin.

February 14 the urines of four healthy men were tested; the dialysates giving negative reactions.

In view of these results it was thought that the amino-acids present might be accounted for by the action of bacteria on pus and other albuminous matter present in the urine, especially in that of women. To avoid this, the urine was thoroughly boiled as soon as voided, all material used in the tests was sterilized by boiling and the tests were set up under aseptic precautions. Under these conditions ten urines from non-pregnant women suffering from various surgical conditions and two from known pregnant women, were tested. At the end of twenty-four hours the dialysates from eleven of them showed positive reactions with a freshly prepared solution of ninhydrin, and one of them a negative reaction. The case giving a negative reaction was one of carcinoma of the breast.

In regard to the presence of dialyzable substances reacting to ninhydrin in the urines of others than pregnant women, Dr. Warfield says:

In order to show that in normal urine there are no dialyzable substances which give a positive reaction with ninhydrin, a number of urines from healthy persons were tested. These gave no color reactions.

1. Warfield, Louis M.: The Presence of Dialyzable Products Reacting to Abderhalden's Ninhydrin in the Urine of Pregnant Women; a Preliminary Report, *THE JOURNAL A. M. A.*, Feb. 7, 1914, p. 436.

The conclusions to be drawn from the few tests that I have performed are:

1. After dialyzing the urines of pregnant women the dialysate always gives a positive reaction to ninhydrin.

2. After dialyzing the urines of non-pregnant women, the dialysate frequently gives a positive reaction to ninhydrin; occasionally, under the same conditions, the urines of men give positive reactions.

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VOLUNTARY DISPLACEMENT OF THE EYE

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The following unique case was called to my attention about three months ago.

E. J. H., aged 30, a native American, soldier, unmarried, was admitted to the Government Hospital for the Insane April 2, 1909, with dementia praecox. His previous history was unimportant; he had completed grammar- and high-school courses and two years in a university.

The patient entered the army in 1906. During the year 1908 he showed evidence of lack of attention and inability

but not directly. The cornea of the left eye was perfectly clear, the anterior chamber equal to the right in depth; there was very little conjunctival injection and blepharitis marginalis of the left eye. The left fundus was easy to examine, and showed complete atrophy of the optic nerve, but no signs of active inflammation. There was but little change in the caliber of the retinal vessels, the arteries being slightly smaller than normal and the veins slightly dilated.

When asked to show me what he could do with his eye the patient placed his index-finger on the lower left eyelid and, with slight pressure, forced the eye outward and upward from the socket. The globe was at least an inch beyond its normal plane, as shown in Figure 2. When the finger was removed from below the eye, the globe, by the action of the muscles, was redrawn into the socket. The return of the eye was rapid until about three-quarters of the way back, then more slow, the muscles restoring it to the position shown in Figure 1. By making a sort of hook with his index-finger and placing it above the eye the patient could bring the eye outward and downward along the side of his nose, as seen in Figure 3. The manipulation of the eye seemed to cause the patient not the slightest pain or inconvenience, in fact, he stated that he felt no pain whatever. Fixation was perfect, as can be seen by a glance at Figure 1, both the left and right eyes looking straight into the camera.



Fig. 1.—Left eye in orbit; note its slight prominence and widening of the palpebral fissure. No strabismus; fixation of left eye equal to right.

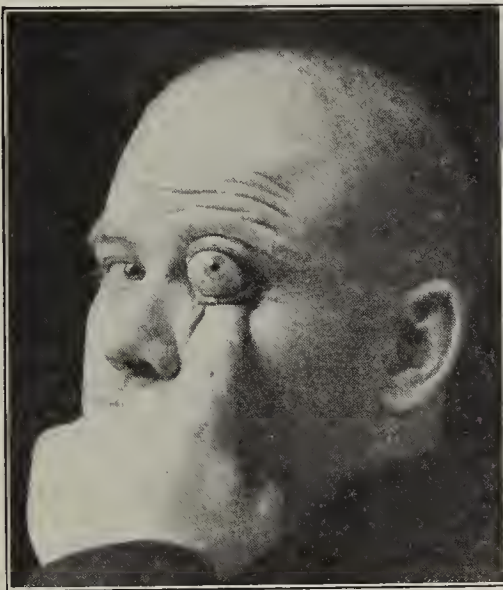


Fig. 2.—Eyeball forced out of orbit upward. No evidence of pain.

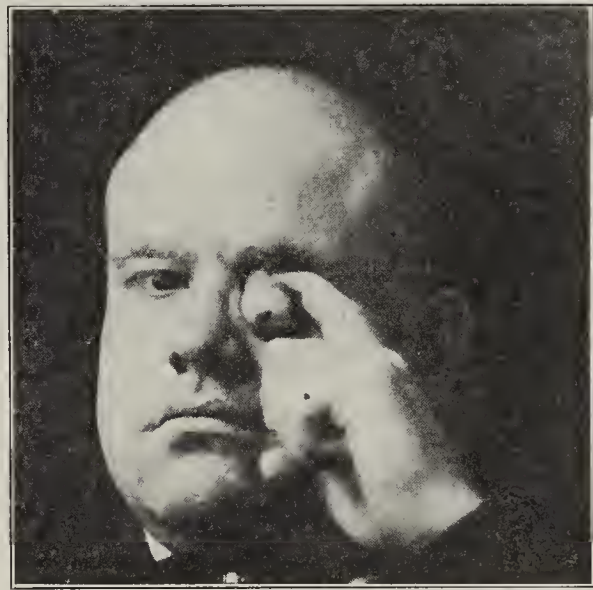


Fig. 3.—Eyeball forced downward well outside of lids.

to do his work properly. He became very much depressed and "blue"; was worried about his mental condition, homesick, and anxious to return home. He became careless of his personal habits, was forgetful and unable to perform simple duties. He stated that previously people had called him insane.

Since his admission to the hospital his condition has remained about the same. When admitted his pupils reacted to both light and accommodation. A history note dated Jan. 18, 1913, records the patient's mannerism of holding his hands to the side of his head and, in a characteristic way, with finger-tips pressing the lower lids downward, exclaiming, "Doctor, I am just an old, crazy bum, that's what I am."

About six or seven months ago the patient began to devote attention to his left eye, and, by pushing the index-finger in beside the eyeball, the conjunctiva and muscles were gradually stretched until he was able to force the globe out of the socket. To do this seemed to afford him a certain amount of satisfaction, and that eye became his plaything. It was not many weeks before he was able to extrude the eye as shown in Figures 2 and 3.

I first examined this patient about three months ago. The left eye, in a quiescent state, was slightly more prominent than the right, projecting about 4 mm. beyond the plane of the latter. The pupils were about equal in size and regular in shape. The right pupil responded normally to light and accommodation. The left pupil responded to light consensually

One of the most difficult features to understand in this case is how the muscles retain their tone, after all the stretching to which they have been subjected. So far no attempt has been made by the patient to displace his right eye.

The Farragut.

A CASE OF INFANTILE UTERUS AND APPENDAGES WITH RESULT OF TREATMENT

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Department of Medicine

Patient.—Mrs. M., white, aged 27, married five years, has never been pregnant, and is anxious to have a child.

Examination.—General condition good, muscular, not fat; figure like that of a boy of 18; narrow hips, undeveloped breasts. Heart and lungs normal. Uterus about size of English walnut, ovaries not palpable. (Has been examined by gynecologist who told her she could never have a child.) Pelvis normal. Has had menstrual show of a few drops three or four times during her life. Epistaxis very free at times. Sexual feeling very slight, if at all, and only very seldom. Several members of family have had menstrual disorders, but none of this type.

Treatment and Result.—April 6, 1912: Patient was put on extract of luteum tablets, one three times daily for a week,

two three times daily for another week, then returning to the first dosage. Uterine massage was given by forcing organ against and kneading it through abdominal wall, April 6, 12, 19, 27, and May 3 and 10.

May 20, 1912: Menses appeared with fair flow for a day. Patient has taken on quite a little weight and feels well. Massage has been stopped. Extract of luteum is continued.

Patient had sensation of approaching menses in June, but only a pink show. She had mild epistaxis. General condition is good; she seems to be rounding out. Becoming discouraged, patient abandoned treatment.

Extract of luteum treatment was advised and started again in September, 1912. Uterus seems larger and cervix longer than in June. Last part of October patient had slight menstrual show, first since June.

Nov. 3, 1912: Patient noticed more sexual feeling last month.

Pregnancy.—Nov. 25, 1912: No menses since show in October. Patient very much stouter, breasts enlarged, uterus larger, cervix longer. Pregnancy suspected and cautions given.

Jan. 24, 1913: Uterus much larger, size of large pear, cervix long and firm. Breasts much larger; hips larger; general appearance of woman's figure instead of boy's. Side view, prominence above pubes, as in three and a half to four months' pregnancy.

Feb. 1, 1913: Patient thought she felt motion. Breasts quite large, areola darker.

Feb. 9, 1913: Patient felt motion distinctly.

Feb. 14, 1913: Patient noticed fluid in breast. Pregnancy continued normally until May 26, when miscarriage threatened after strenuous day of house-cleaning.

July 2, 1913: Uterine pains started at about 4 a. m.; duration of about fifteen seconds and about half an hour or more apart. At 7:30 a. m., pains were twenty minutes apart, rather regular, lasting one-half minute, os slightly open. Patient was sent to George Washington University Hospital at about 9 a. m. Pains were ten minutes apart, harder, and lasting about three-quarters to one minute. Expulsion pains, very strong, lasting from one to two minutes, began about 3:30 p. m. At 6 p. m. patient was delivered normally of a boy weighing 6 pounds, 2 ounces. There was no tear of cervix or perineum. Placenta delivered ten minutes later normally. Mother and baby made an uneventful and perfect recovery and left the hospital in two weeks.

Nov. 5, 1913: Baby well, strong and good, weighs 14 pounds. Mother's condition excellent; has retained her weight and has nursed the baby from birth.

The Farragut.

EASILY PREPARED DILUTING FLUID FOR COUNTING RED CELLS

JAMES G. CALLISON, M.D., NEW YORK

Text-books on clinical diagnosis usually give two diluting fluids for making the erythrocyte count in blood-work. These are Toisson's and Hayem's solutions. Toisson's fluid is difficult to prepare, as weighing the stipulated 25 mg. of methyl violet requires great care to secure the necessary accuracy, and more delicate scales than the average laboratory possesses. Then it is not always permanent, as molds may grow in it, forming precipitates. Hayem's solution has no added coloring-matter, and so the cells are not brought into clear relief. With this fluid it is also difficult to differentiate the white and red cells. I have for some time been using a diluting-fluid that is easily prepared, keeps permanently, and has all the advantages of either Toisson's or Hayem's solutions. The formula follows:

| | | |
|---|-----|------|
| Loeffler's alkaline methylene blue..... | 1. | c.c. |
| Liquor formaldehydi..... | 1. | c.c. |
| Glycerin..... | 10. | c.c. |
| Ammonium oxalate (neutral)..... | 1. | gm. |
| Sodium chlorid..... | 2.5 | gm. |
| Distilled water..... | 90. | c.c. |

The various ingredients are added to the distilled water and allowed to stand until solution occurs. After being filtered, the preparation is ready to use. This gives a diluting-fluid of specific gravity about 1.045—sufficiently heavy to prevent a too rapid sedimentation of the red cells. If for

any reason a diluting fluid of less specific gravity is desired, the glycerin and sodium chlorid may be reduced proportionally until the desired density is obtained. The preparation is permanent, easily prepared, and brings out the red cells in sharp relief, making the count easy. The red and white cells are also well differentiated.

128 East Fifty-Seventh Street.

A CASE OF DORSAL DISLOCATION OF PROXIMAL PHALANX OF GREAT TOE

DON W. DEAL, M.D., SPRINGFIELD, ILL.

C. T., aged 14, from Tower Hill, Ill., came into my service with a painful and swollen foot due to a horse falling on it.



Fig. 1.—Dorsal dislocation of proximal phalanx of great toe.

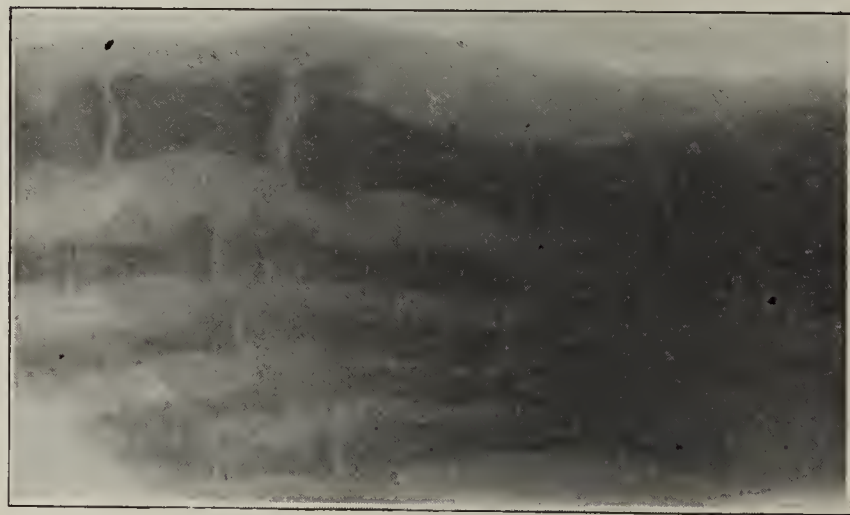


Fig. 2.—Same case after reduction.

Examination showed marked deformity of the right foot, and suspected fracture with dislocation. A roentgenogram by Dr. Fred O'Hara disclosed a dorsal dislocation of the proximal phalanx of the great toe, with a plantar displacement of the metatarsal, and a fracture of the distal end of the second metatarsal bone. Though Malgaigne calls attention to the fact that four out of ten cases of this type are irreducible, reduction under general anesthesia was readily accomplished and the end-results are perfect.

Skellern¹ refers to the rarity of the condition in his report of a case, and I am desirous of adding my case to those already reported, which now total twenty.

1. Skellern, P. G.: A Case of Dislocation of Proximal Phalanx of Great Toe, THE JOURNAL A. M. A., Dec. 6, 1913, p. 2063.

New Instruments and Suggestions

A STERILE ELECTRIC ENGINE FOR BONE-CUTTING

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High-speed, rotating bone-cutting instruments such as circular saws, drills, reamers, etc., have not been universally taken advantage of in bone surgery because of the fact that some sterile means of driving these instruments must be provided. The flexible cable-driving shaft, of the type formerly used by dentists, is not entirely practicable because it is prone to "freeze" or break; there is little freedom of motion because the motor must be kept away from the operative field; and also since it has but little weight, the saw will often override and slip unless considerable pressure is used.

Surgical and electric instrument makers have attempted to produce a practical sterilizable electric motor for the purpose of directly attaching the cutting instruments to it; but even these costly enamel wire motors are unreliable, and are apt to develop short circuits and other ills after boiling. Being acquainted with the small, light electric hand-drills used in the steel and iron building-trades, I have adopted for use in bone surgery, at a very small cost over the original price of the drill, one form known as the Duntley Universal Electrical Drill, No. 000 (Fig. 1).

This drill is fitted with a removable universal chuck which will firmly grasp and automatically center all manner of cutting instruments of any size up to $\frac{3}{8}$ inch in diameter at the shank. (The motor is of the universal type and can be run on either direct or alternating current at 110 volts).

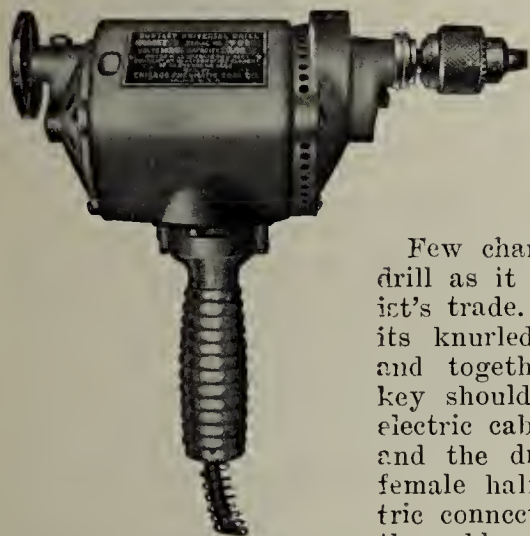


Fig. 1.—Duntley universal electric drill.

Few changes are needed in this drill as it is found in the machinist's trade. The chuck should have its knurled collar ground smooth, and together with its bevel gear key should be nickel-plated. The electric cable should be cut in two and the drill end fitted with the female half of a "separable" electric connection. The other half of the cable should be fitted with the male part of this connection. Another male half of a similar separable connection should be fitted,

instead of wires, with a hook to which a sterilized lead plumb bob is to be attached, so as to allow the electric cable to slip readily through the long canvas tube.

Two canvas bags are provided; a long tube, 4 inches in diameter with four tapes at its upper end, and a square bag just fitting over the body of the motor, provided with four tapes at the open corners and a tape on either side of the copper grommet-hole. The latter is made at the upper end of the front of the bag so that the tapered shaft which is to carry the chuck can protrude. These bags are made out of the very finest quality of 8-ounce United States Army canvas, and the copper grommet is just large enough to fit accurately at the collar of the tapered shaft. These grommets are used by all awning, tent or sail makers, who can easily make such bags at a very small cost.

My method of using this electric apparatus is as follows: The chuck, key and lead plumb bob are boiled with the instruments, and the canvas bags sterilized with the dressings. Previous to the operation, the tapered shaft is cleaned and sterilized by running the motor and polishing it with a gauze sponge wet with phenol (carbolic acid) solution; it is further sterilized with a sponge wet with alcohol, and then covered with sterile gauze. (The alcohol will not injure the ball bearings of the shaft). After the usual preparations, the nurse opens the dressings and hands the operator the long tube which he and an assistant hold open with the tapes. A fourth person fits the sterile plumb bob to the hook of the male half of the separable connector and this half to the female connector on the cable leading from the drill. He then lets the weighted cable down through the tube, firmly hold-

ing the drill horizontally with one hand while he manipulates the cable with the other. After the handle is covered up to the make-and-break switch, the bag is firmly tied to the handle. The operator now seizes the tube firmly at the handle and inverts the drill and slips it into the open end of the larger bag, which is held by the nurse and assistant by means of the four tapes. These are then tied about the tube, and the tapered shaft slipped through the grommet and at

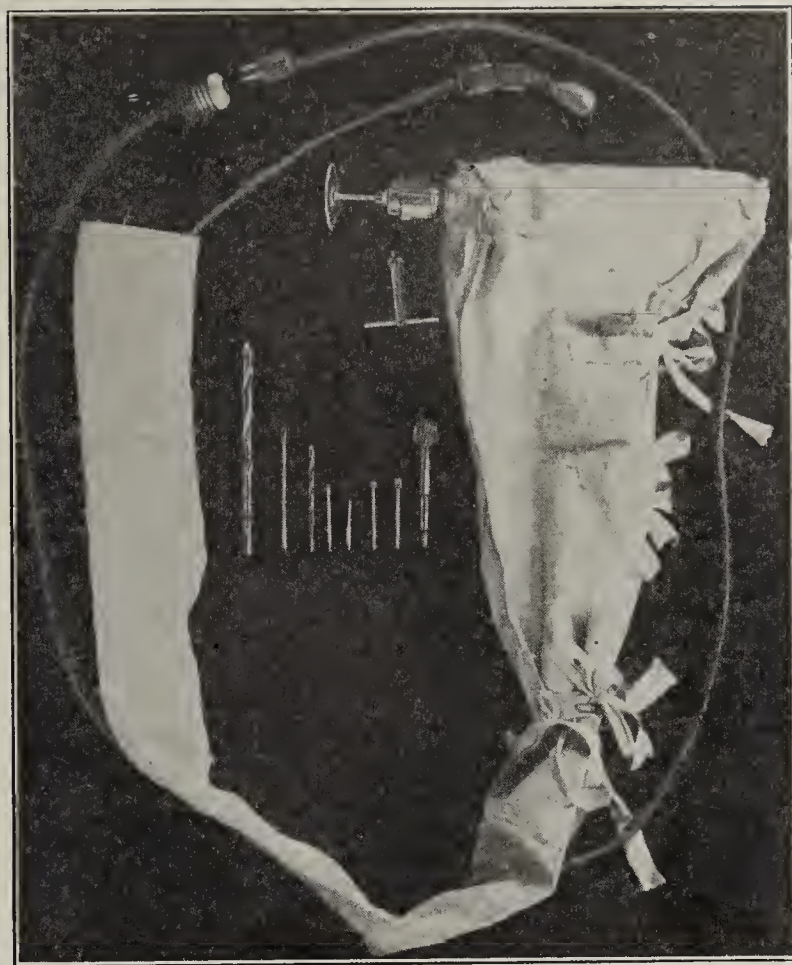


Fig. 2.—Electric engine encased in the canvas bag. Chuck in place holding rotary "buzz-saw." Some of the burrs and reamers used with the engine.

once capped with the chuck. The upper tapes are tied and the chuck firmly seated on the shaft by a blow from the mallet, and the key is inserted into its hole in the chuck. Any desirable instrument (in the illustration, a circular saw) can be firmly grasped and locked in the chuck by a few turns of the key. The fourth person now removes the half of the separable connector carrying the plumb bob and slips on the joint carrying the other part of the cable, which has previously been connected to some electrical socket. Electric cords of any length can be used.

In this way there is absolutely no unsterilized surface near the field of operation. I have used my apparatus sixteen

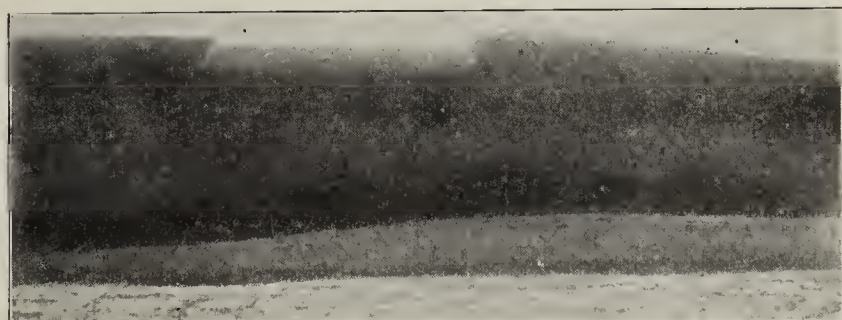


Fig. 3.—Cut made with circular saw. (Print slightly retouched.)

times without any infection resulting, making a fairly conclusive test as to sterility. The whole operation of loading the bags ought not to take more than five minutes.

Any shape of rotating cutting-tool can be used. For drilling holes, ordinary slow-speed twist drills, which can be purchased in all sizes from $\frac{1}{64}$ inch in diameter and upward, are preferable. Wood reamers of all sizes can be fitted, and all sorts and sizes of dental and vulcanite burrs, drills, reamers, etc., can be used as easily in bone as in dental surgery. Circular saws of all sizes, single or double, can be used. The

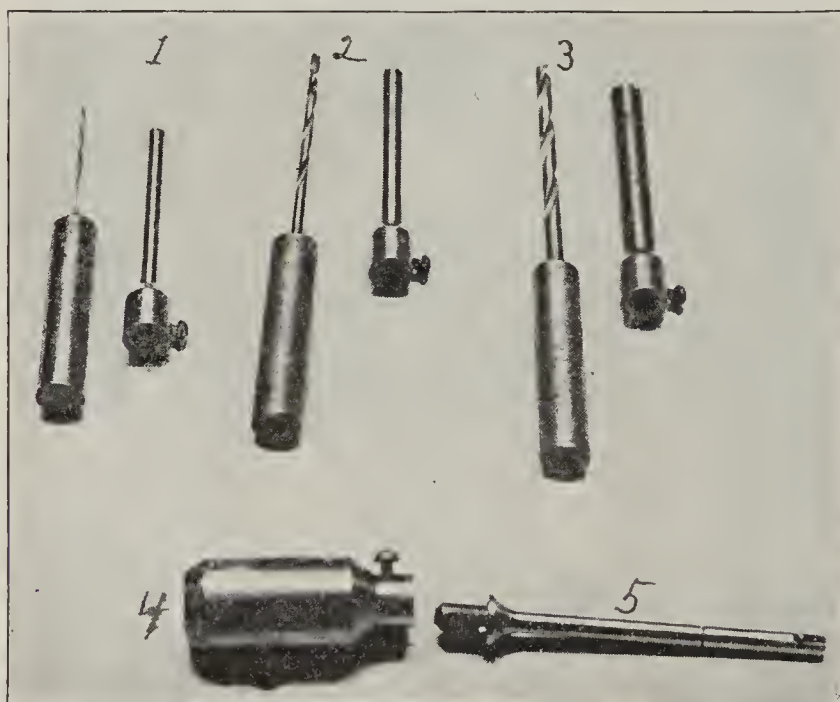
best size is about $1\frac{1}{4}$ inches in diameter and as thick as a good quality visiting-card. Such a saw can be furnished by any good saw sharpener at a very small cost. It is not necessary to nickel-plate these instruments if they are properly dried after operations. Dull instruments may be resharpened by being immersed in dilute nitric acid until the edges are restored. With such a machine it is very easy to sever bones with a straight or curved cut, cut out all manners of grafts or slots in bone cleanly and quickly, clean out hard, eburnated osteomyelitis cavities, ream out marrow cavities, cut through ankylosed joints, freshen up ends of old ununited fractures, drill holes for nails and screws, trephine the spine or skull, or cut off exostoses. The cuts are remarkably clean and sharp and there is no splintering or chipping of bone as when a gouge or chisel is used.

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INSTRUMENTS FOR THE MANUFACTURE OF AUTOGENOUS BONE NAILS, PEGS AND GRAFTS

HUGH H. TROUT, M.D., AND R. L. RHODES, M.D., ROANOKE, VA.

In the accompanying illustration 1, 2 and 3 represent twist-drills of three sizes and the corresponding reamers for the manufacture of bone nails; 4 is a chuck to receive the drills, and 5 the spindle which receives not only the chuck but the



Instruments for the manufacture of autogenous bone nails, pegs and grafts: 1, 2 and 3, twist-drills of three sizes and the corresponding reamers for the manufacture of bone nails; 4, chuck to receive drills; 5, spindle which receives chuck and reamer.

reamer as well. These reamers have a slightly wider diameter on the inner side at the base than they have at the cutting end; preventing any binding or twisting of the nail. In obtaining the nails it is advisable to utilize the bones removed from the groove, or at least to make them in the long diameter of the bone if no groove is made. When made in this manner the nail is far stronger than when made transversely.

Of course, these instruments are operated by means of an electric motor and we find one with a friction-driven shaft less apt to bind and more even in action.

We have now employed these nails, both as intramedullary pegs and as a means of holding bone-grafts in position, in a sufficient number of fracture cases to appreciate their great value.

APPARATUS FOR ENDOSCOPIC GALVANO-CAUTERY OPERATIONS ON THE VESICAL ORIFICE

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This apparatus is intended primarily for operations on the moderately hypertrophied prostate. It consists of a Braasch direct-vision cystoscope for which operating windows with a hole for the introduction of the cauteries have been

made for me by the manufacturers. These cauteries I have had made in two forms, the cautery knife and the cautery curet. As the electrode does not readily pass through the hole in the operating window, a separate window has to be provided for each cautery. These cauteries are to be used under water and, therefore, certain special precautions have to be observed in their manufacture. They must be absolutely impervious to water. If the slightest trace of moisture leaks into them it will cause a short circuit. The distal end requires very particular attention. It must be sealed in a manner to render

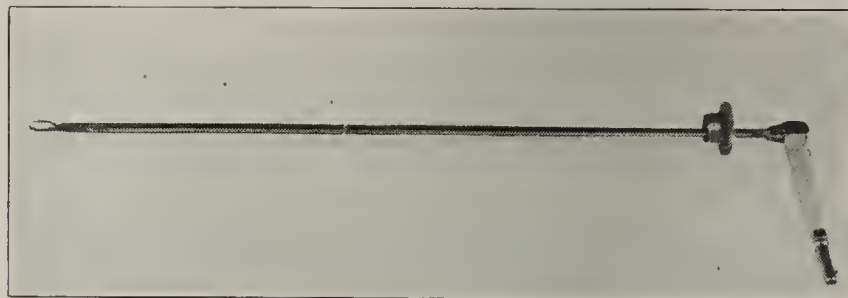


Fig. 1.—The cautery curet.

the instrument absolutely water-proof. An ordinary cement will not do, for it is porous. My electrician encases the inner electrode in fine rubbing tubing. Each cautery must be carefully tested before use.

The surgeon having previously determined that his case is one suited to this technic, will introduce his Braasch cystoscope as for an ordinary cystoscopy. No preliminary washing of the bladder is necessary. Having found offending protuberances on middle or lateral lobes, he will introduce his cautery curet, which, of course, has been carefully tested beforehand and his transformer set at exactly the point necessary to heat it properly. The irrigating fluid is permitted to flow through the cystoscope, and the curet is placed firmly against the tissues which it is desired to remove. The current is now turned on and a ribbon of tissue, corresponding to the size of the curet, is cut out. As this ribbon of tissue ordinarily adheres to the curet, it may be removed, the instrument reinserted and the maneuver repeated. This may be continued indefinitely. Bleeding cannot interfere with the vision for the reason that the irrigation carries all blood and debris back to the bladder, thus providing the surgeon always with a clear field. This cystoscope is also an excellent urethroscope for the posterior urethra, and the surgeon can therefore prolong his operations as far forward into the prostatic urethra as he may elect.

The knife, it will be observed, is straight instead of having the conventional downward curve of many prostatic incisors. I believe that when used through the cystoscope a straight knife is preferable for the reason that the point can be kept constantly in view. It will of course cut through the floor of the prostatic urethra just as well as a curved knife could, for the urethra will tend to resume its natural curve as the cystoscope is withdrawn, and this will bring the prostate firmly up against the knife. Fairly deep incisions can also be made laterally by deflecting slightly the beak of the instrument.

It is believed that this technic has a somewhat wider field of usefulness than any of the various conservative methods of

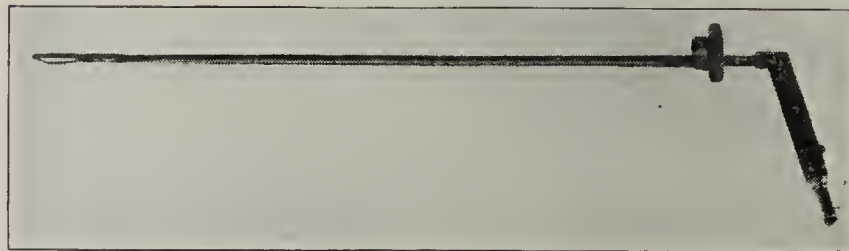


Fig. 2.—The cautery knife.

operating on the prostate hitherto proposed. It has the advantage over the Bottini operation that it can be done under the direct control of the eye. I believe that it is superior to Goldschmidt's procedure also, for the reason that portions of the gland can actually be removed and a more extensive operation performed, and it is much simpler in point of technic. It also would appear to promise somewhat more than the various punch operations, for the reason that the surgeon can incise or excise as he chooses and as deeply as he chooses, can

review his work almost indefinitely until he is entirely satisfied with the situation he has created, and is not annoyed by the hemorrhage. The only technical difficulty connected with the procedure lies in the proper heating of the cauteries under water, a thing which, however, is entirely feasible and has been done many times before. It will require some care in their manufacture and then considerable patience on the part of the surgeon to determine just how much current is necessary to heat them without the danger of fusing them. They must

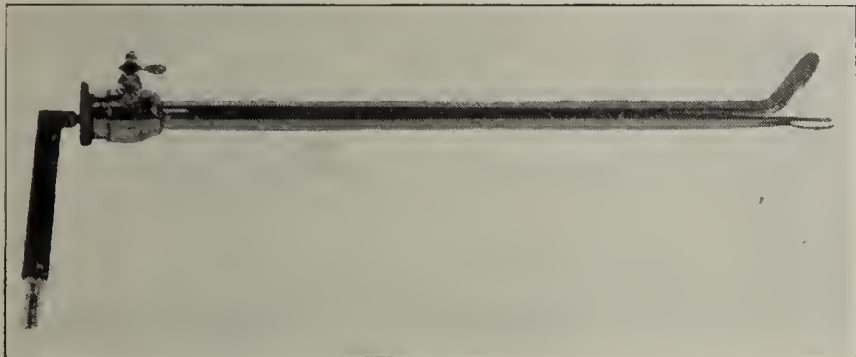


Fig. 3.—Braasch cystoscope with cautery knife in position.

of course never be exposed to the current while in the air or they will fuse instantly. At best the surgeon must expect to burn out a knife occasionally and should therefore always take several of these cauteries with him to every operation. Finally, the pleasure to be derived from raking out an offending projection through the cystoscope under the direct control of the eye, together with the ease and simplicity with which this can be accomplished, will amply repay him for all his trouble.

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SOME NEW CAMERAS FOR LABORATORY USE *

LOUIS B. WILSON, M.D., ROCHESTER, MINN.

I have recently completed two cameras for laboratory use, and in describing them also include two others which have been in use for some time previously.

I. CAMERA FOR USE WITH PROCTOSCOPE

This camera (Fig. 1) consists of a cylindrical barrel (A) to the front end of which is attached a rapid, short-focus, photographic lens (B) and to the other end of which is attached a simple photographic shutter (C) and small metal receiver (D) for taking a plate-holder (E) which carries an ordinary photographic plate 4.5 by 6 cm. in diameter.

In use, when a desirable field is found through the direct-vision proctoscope (F), the camera is inserted with the shutter closed and set for time exposure and the dark slide of the plate-holder drawn. The patient's buttocks are steadied, the shutter snapped and an exposure of from 2 to 5 seconds given. The shutter is then closed and the camera withdrawn from the proctoscope. The operation should require not more than twenty seconds, and interferes but slightly with the ordinary course of a proctoscopic examination. The resulting pictures

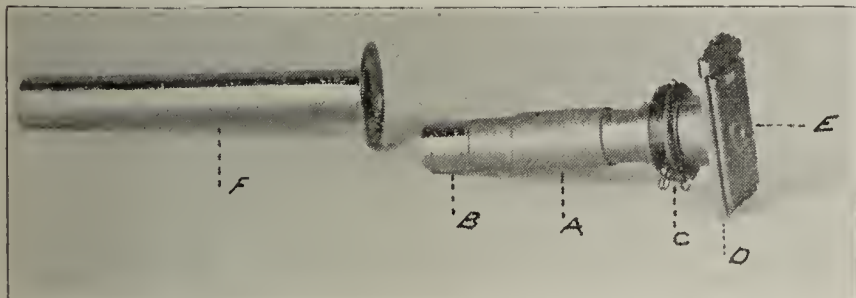


Fig. 1.—Camera for use with proctoscope; A, tube; B, lens; C, shutter; D, receiver; E, plate-holder; F, proctoscope.

are circular and $1\frac{1}{8}$ inch in diameter. The chief difficulty encountered is in maintaining the patient in a fixed position for the few seconds necessary to make an exposure.

II. MINIATURE CAMERA FOR PHOTOMICROGRAPHY

Laboratory workers have for a long time experienced great inconvenience in having to carry a microscopic slide from the

microscope which they ordinarily use to one set up and adjusted for photography. A number of cameras have been devised to obviate this difficulty. With but two exceptions, these have all required the use of a large heavy plate on which the microscope rests at all times or to which it must be transferred after the desired field is found. Of the two exceptions, one is a camera which fits directly on the draw-tube of the microscope, weighs 685 gm. (23 ounces) and uses a plate of a size difficult to obtain in America. The other is a camera which has a very heavy base, and while the whole apparatus may be moved up to the microscope, yet has no means of rapidly centering the two. The miniature camera here described and the larger portable camera to be described next both get rid of the inconvenience of the heavy sole-plate, and yet work with simplicity, speed and accuracy.

The miniature camera (Fig. 2) consists of a pyramidal aluminum box (A) bearing at one end a shutter (B) with a light-tight connecting sleeve (C) and at the other end a receiver (D) which takes a plate-holder (E) carrying a plate of the ordinary block-note size, 4.5 by 6 cm. The whole apparatus is 9 inches long and weighs, complete as it goes on the microscope, only a trifle over 7 ounces. In use, when a desirable field has been found in the microscope, the camera is slipped on the microscope, to which it fits securely by

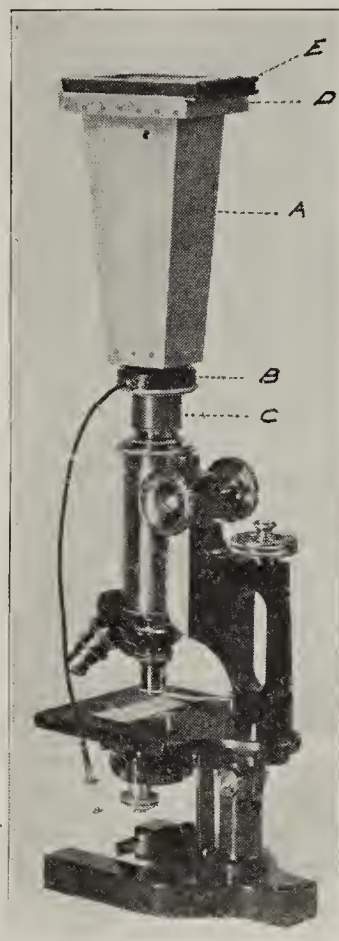


Fig. 2.—Miniature camera for photomicrography; A, box; B, shutter; C, light-tight sleeve; D, receiver; E, plate-holder.

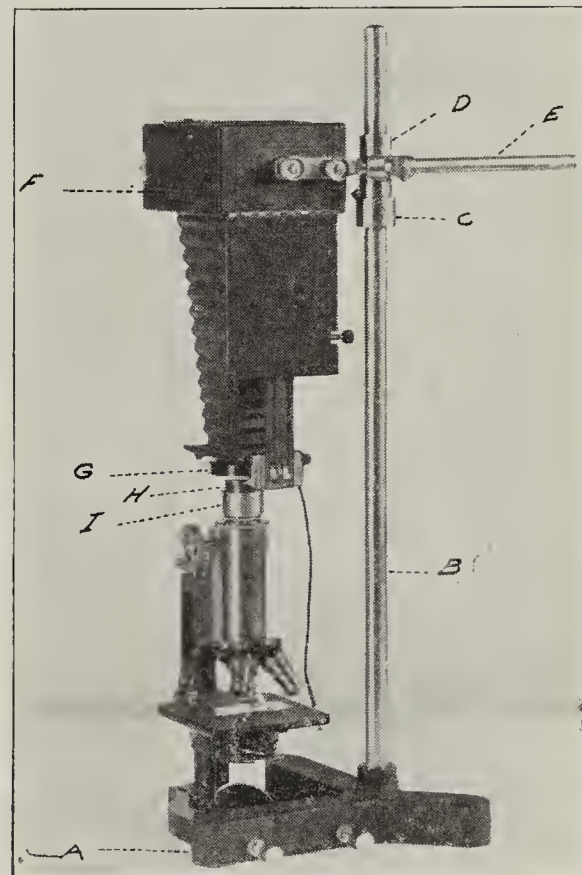


Fig. 3.—Portable stand and camera for photomicrography; A, base; B, support; C, collar; D, reducing clamp; E, arm; F, camera; G, shutter; H, and I, sleeve.

means of a sleeve that remains permanently on the draw-tube. The camera is placed in position with the dark slide drawn and the shutter set for a time exposure and closed. The focus is then adjusted an amount previously determined by the usual adjustment screw, the shutter opened and the exposure made. The shutter is then closed and the camera removed from the microscope. The whole operation may be done without in the least jarring the microscope. Aside from the time of the exposure, which of course varies with the kind of light used and the magnification, the entire process requires less than a minute. This little camera gives excellent results, though its field of usefulness is, of course, limited by the small size of the plate and by the short range of magnification resulting from its short, fixed extension.

III. MEDIUM-SIZED PORTABLE STAND AND CAMERA FOR PHOTOMICROGRAPHY

This stand and camera (Fig. 3) have been devised to get rid of the inconvenience of the sole-plate or other special stand to which the microscope has hitherto been attached when used for photomicrography. The new features in it are: (1) a tripod base (A) which can be adjusted accurately by

* From the Mayo Clinic.

set-screws to any microscope with the ordinary horse-shoe base so that the instrument, while not attached in any manner to the microscope, can be brought instantly into accurate alignment with it; (2) a supporting rod (*B*) carrying a collar (*C*) and clamp (*D*), the latter of which is specially constructed for holding a round horizontal arm (*E*) in a manner that will permit its being turned at any angle and yet held with great firmness without turning; and (3) the camera (*F*) carried by the horizontal arm, by means of which it may be adjusted to any position from vertical to horizontal or tipped at any desired angle.

The camera itself takes the ordinary plate-holder for $3\frac{1}{4}$ by $4\frac{1}{4}$ plates, but is heavily reinforced in its working parts and has an unusually long bellows. A shutter (*G*) and light-tight sleeve (*H*) are attached to the front board. In use, the microscope to which the camera has been previously adjusted and to which is permanently affixed only a small inconspicuous part (*I*) of the light-tight sleeve may be used anywhere on a fairly level table. When a desirable field is found, the entire stand and camera are moved into position so that the studs and set-screws are in contact with the base of the microscope, when it will be found that the two instruments are in exact alignment.

The readjustment of the focus may be made ordinarily with low powers by the fine adjustment screw, or, if necessary, with high powers, by refocusing on the ground glass. The subsequent steps of taking the photograph are those ordinarily employed.

The camera may be rotated on the support-rod at will and brought again into exact alignment by means of two stop-studs—one on the collar and one on the clamp—which engage with each other. It may be used with the microscope in the horizontal position or inclined at any angle, though the instantaneous alignment is obtained only when the instrument is in the vertical position.

Photographic lenses may be added to the shutter and the camera very conveniently used for photography of specimens and apparatus, or for making portraits, etc., while it is still attached to the stand. Or the camera may be detached entirely from the stand and then forms a high-class folding pocket camera suitable for plates or film-pack. For use with extra long-focus lenses, I have had this camera built with a 16-inch extension which is obtained by means of a supplementary bed.

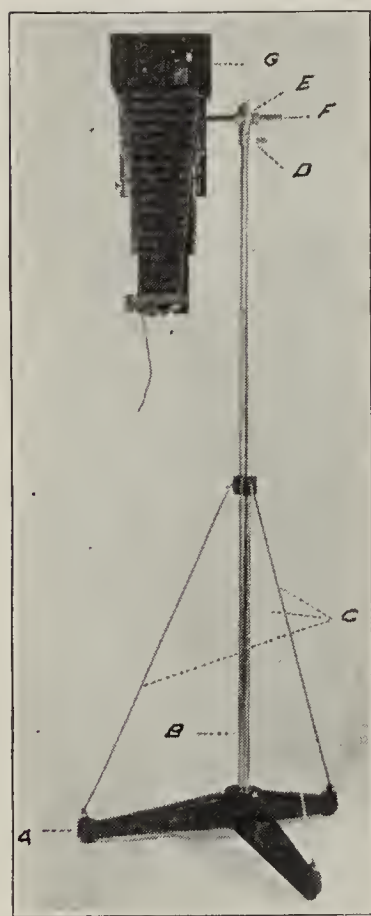


Fig. 4.—Large stand and camera for specimen and general laboratory photography; A, base; B, support rod; C, guy rods; D, collar; E, right-angle clamp; F, arm; G, camera.

IV. LARGE STAND AND CAMERA FOR PORTRAITS, GROSS SPECIMENS AND GENERAL LABORATORY WORK

Six years ago Andrews and I built and described (*Jour. Med. Research*, 1908, xvii, 487) a large stand and camera for photographing pathologic specimens submerged. This apparatus has proved to be thoroughly satisfactory in our hands, but there is a demand for a more portable and withal a less expensive machine to serve the same purpose. I have therefore devised the stand and camera shown in Figure 4. This apparatus which is well adapted for taking portraits of patients, photographs of gross specimens or operations and for general photographic laboratory work, consists of a heavy tripod base (*A*) into which is screwed a heavy support-rod (*B*) 5 feet high, which is reinforced and made more rigid by three small guy-rods (*C*) running from a collar near its middle point to the ends of the feet of the tripod. On the support-rod are carried a collar (*D*) and right-angle clamp (*E*) which is specially bored to hold securely at any angle a round arm (*F*) with a forked end to which is attached an ordinary long-extension 5 by 7 folding box camera (*G*). The camera may be used in the vertical position, as when photographing specimens under water, horizontally as for portrait work, or inclined at any angle as in taking photographs of operations,

apparatus, etc. Hardened steel domes are inserted at the bearing points of the tripod in lieu of the usually unsteady casters. The whole apparatus is portable, light, simple in construction and extremely rigid, while its cost is very low.

A MEANS OF FACILITATING THE APPLICATION OF LEG-DRESSINGS

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An uncomfortable or awkward position hinders efficient work in any occupation, including surgical manipulations. In the outpatient department of every large surgical service many leg cases are dressed. Such dressings are often avoided, partly because of the physical discomfort necessary in applying these dressings under ordinary conditions.

The heel-rest usually supplied for this work is slightly higher than the seat of an ordinary chair, and unless the dresser sits down to apply the bandage, he is compelled to bend over and assume a very tiring position, which is a matter of considerable moment where there are a number of these dressings.



The high chair and heel-rest compared with those ordinarily used.

In a busy clinic it is obviously impracticable for each dresser to have a seat for this purpose, and consequently a considerable amount of energy is unnecessarily expended. In order to avoid this useless fatigue and to accelerate the work, it occurred to me that higher chairs and correspondingly higher heel-rests might be of advantage. A number of these chairs with seats 28 inches above the floor, and heel-rests 32 inches high, were tried in one of the rooms of the outpatient department, and their use has greatly facilitated the application of leg-dressings.

Dressings on other parts of the body are also made easier by the use of these chairs, thus sparing the surgeon unnecessary discomfort. Should it be desirable to have the leg elevated before applying the dressing, the high heel-rest may be used while the patient sits on a chair of ordinary height. These simple and inexpensive modifications in the equipment of a surgical dressing-room seemed worth while reporting, as I have found them most satisfactory.

Women in Medicine.—We are prone in the modern time to think that our generation is the first to offer to women any facilities or opportunities for education in medicine. We are prone, however, just in the same way, to consider that a number of things that we are doing are now being done for the first time. As a matter of fact, it is extremely difficult to find any important movement or occupation that is not merely a repetition of a previous interest of mankind.—Walsh: Makers of Medicine.

Therapeutics

THE TUBERCULOSIS PROBLEM

(Continued from page 1017)

TREATMENT

In the first place, it should be most seriously urged that, although there is no specific treatment for the cure of tuberculosis, and although the important part of the treatment consists in rest, fresh air and proper nourishment, it is a serious mistake to believe that a patient, even though for a period carefully advised, can do without constant medical supervision. This disease does not tend to recovery, but can be managed or engineered to recovery. The elements of successful treatment of pulmonary tuberculosis are hygiene (climate, sanatorium or home), fresh air, rest and food.

A few general axioms should be considered:

1. A change of climate alone, or any one climate, will not cure a patient. Therefore, there is no Mecca to which every patient, or even very many patients, should be sent on account of climate. Of course a dry climate, either warm or cold, is better than one which is moist or variable and changeable.

In seeking a location for the tuberculous patient, his comfort must not be forgotten. Even if other things are unequal, he must be comfortable and content, and where he can have the best possible food and will worry the least. Consequently, to combine the elements necessary for success, a large number of patients must be treated at home. A patient who is mentally weak, has no stability and lacks all mental force can be treated satisfactorily only at a sanatorium.

The tubercle bacillus seems to thrive best in cold, damp climates, and next best in hot, damp climates. It thrives less well, and bronchitis is less, in dry, hot climates, but it thrives least well, and bronchitis and catarrh of the upper air-passages are least prevalent, in dry, cold climates. It is generally understood that winds make a bad climate worse, and perhaps a good climate better. Therefore, for patients who are not seriously ill, a sea voyage, if possible, is often excellent. A climate, changing rapidly from 20 to 40 or even 50 degrees in twenty-four hours, with fogs or with the damp atmosphere that occurs in places located on rivers, lakes, sounds or inner bays (that is, not actually subjected to the ocean breeze) is as bad as possible for tuberculous patients. In spite of these serious climatic disadvantages, however, many patients under proper treatment recover in these locations.

The value of a high altitude has been overestimated. One great advantage of altitude is that sanatoriums so located are ordinarily removed from the dust and dirt of cities; in other words, the air is pure, and they also have more sunlight and more clean, dry winds. Therefore, sanatoriums, even in the lowlands, placed at a sufficient distance from large cities and at such a height as to be entirely free from the atmospheric conditions surrounding such cities, and not to be subjected to the moist atmosphere of the surrounding plains, are able to offer most of the advantages of the more distant and perhaps ideally located sanatoriums. The height above sea-level is not so important for such sanatoriums as the height above the surrounding country; a location five hundred feet or more above its immediate environment is entirely satisfactory.

A patient at high altitudes, where the atmospheric pressure is reduced, breathes more rapidly for a period

in order to oxygenate the blood normally, until he becomes used to the altitude. It has also been shown that he will acquire, for a time, more red blood-corpuscles until he becomes, so to speak, acclimated, and he then can perhaps walk without extra exertion or dyspnea, provided that the altitude is not too great and that he has no circulatory lesion and is not having hemorrhages. A patient with hemorrhages and a heart-lesion should not be sent to high altitudes.

There are so many authorities who may be consulted on climate and tuberculosis sanatoriums, that it is not proposed here to advise the place to which a tuberculous patient should be sent. It may simply be suggested that if a patient has the means to travel and is otherwise fitted for a distant sanatorium treatment, the Denver region represents the high and dry, and the Adirondacks a less high and colder climate; New Mexico and Arizona are dry, and often pleasanter; Southern California is pleasant, warm and more moist, and Florida has a warm, moist, rather undesirable climate. In the fall and spring, the Carolinas possess a pleasant, satisfactory climate, as also do many of the southern islands, as the Bermudas, at most seasons of the year. But it cannot be too many times repeated that a patient cured in the region in which he is to return to work stands that work better than if he is cured in another climate. He seems less likely to have recurrences. Also, the statistics of improvement seem to be very satisfactory for sanatoriums properly situated in most of our states, and not far from most of our large cities; hence it is not necessary to send a patient a great distance to be cured.

The value of the pine regions has also, perhaps, been overestimated. It seems to be a fact, however, that inhalation of the aromatic vapors from pine woods tends to cause the mucous membrane of the upper air-passages to be more healthy, and to dry up catarrhs of these passages. The satisfactory action of pine vapors has caused many inhalant mixtures containing them to be prepared.

A patient financially able may take the cure in the Adirondacks in the summer and in Southern California or South Carolina in the winter, and may thus avoid the hardship of a severe winter climate. To whatever sanatorium or region a patient is sent, careful decision should be made within two or three months as to whether or not this particular climate is causing improvement. Some patients do not do well in one climate, but immediately improve in another. As to climate and surroundings and the success of treatment, each patient must be individualized carefully.

The greatest handicap to the ultimate permanent success of sanatorium treatment is that it is difficult to make the patient and his relatives understand that although he looks well, eats well, has gained weight and coughs but little, he should remain longer at the sanatorium for treatment. Like the Christian Scientist, what he does not see, he does not worry about. It therefore means that each patient, and the patient's relatives, should put implicit trust in the decision of the patient's physician as to when he should begin to exercise, when he should stop active treatment, and when he should return to work. If the physician's advice were always followed in this respect, the relapses or the relighting of arrested pulmonary tuberculosis would be reduced at least half.

Other things being equal, as to whether or not a patient should be sent to a distance, we may make a

rough working rule that a patient with incipient tuberculosis having but one apex involved, or a patient with a slowly healing pleurisy or a pneumonia that does not properly clear up, should be sent away. If both apices are affected, it is hardly justifiable to send the patient to any distance, especially at a pecuniary sacrifice. If much softening and cavities exist, or if there is disseminated tuberculous infiltration, a change of climate can often give but slight relief. Great care should be exercised not to send an advanced patient away, or on a journey that he cannot well stand. A patient without means, or without sufficient financial help to remain at a sanatorium for at least three months, should certainly not be sent to a distance.

2. The second essential is fresh air. The fresh-air treatment does not mean that the patient should be frozen to death in winter. It does not mean that he should be snowed on or rained on, or that he should lie out on a veranda in a fog. This is senseless, useless and often a cause of serious consequences, such as increased catarrh of the upper air-passages, hypertrophy of the mucous membrane of the nose, middle-ear catarrh, pneumonic congestions, congestion of the kidneys, and intestinal indigestion. Although many patients go through such hardships and attain recovery, a great many fall by the wayside. Such foolish exposure of young babies to cold as occurs to-day is a potent cause of the increase in postnasal adenoids.

3. The third essential is rest. When there are hemorrhages or continued fever, of course there is no question of the necessity of rest and quiet. When fever is not present in the morning, but rises in the afternoon and evening, it is certainly better to have the patient absolutely at rest. When the fever ceases, but the patient is not improving or gaining weight and has poor appetite, or when there is any bowel disturbance, the patient should still continue at rest. If the attending physician is in doubt as to whether or not a patient should exercise, it is best to err on the side of rest. Rest means more than simply lying down; the patient must be comfortable. Therefore the proper wraps for the season, the proper chair, couch or bed in such a location as to insure sun, air and the least possible wind, are all essentials for the rest-cure.

Just when exercise should be begun is hard to decide, and should be decided only by testing the patient. Exercise may be given, whether in walking, calisthenics or in the doing of a little work (and all must be graded) to see what the effect on the patient is; a bad effect is shown by an increased temperature, a rapid heart, loss of appetite, an increased cough and expectoration, or by a hemorrhage. Any of these occurrences would show that the rest period should be continued, except possibly when only an increased rapidity of the pulse results. A patient who shows no disadvantage from exercise, except an increased heart-action, should take graduated walks to strengthen the heart. In other words, a long-rested heart must be trained gradually to acquire sufficient strength to allow the patient to work.

The first exercise a patient should take is a sponge bath in the morning, first with tepid water, later with cool water, and finally often with cold water, to be followed by a brisk rubbing with a towel until the skin is aglow. The warmer the skin is and the better the circulation in the skin, the less likely is the patient to become chilled or take cold.

The next exercise should be ordinary walking, graduated according to the strength of the patient and the

results obtained, to educate the patient to endurance. Next comes calisthenics or games that require more or less exertion, and finally some light labor. Driving or automobile riding may be advantageous, if facilities are offered and the patient is improved by such pleasures. Breathing exercises or lung gymnastics are doubtful propositions. The tuberculous lesion heals by contraction, not by expansion. Persons who have no active tuberculosis, who are insufficiently aerating their lungs, are becoming hollow-chested and breathing more or less abdominally only, should take deep breathing exercises; but a patient undergoing a cure for tuberculosis of the lungs should not. A patient receiving tuberculin treatment should also be at rest; that is, he should not take exercise on the days of the injections.

It is almost always of advantage to arrange a patient's daily routine if he is out of bed. He should have his meals and intermediate nutriment at regular intervals; he should have such rest times and such exercise times as prescribed, and he should retire at the hour ordered. It is also well to know absolutely what his exercise is, what his play consists of and how absolute is his rest. In no other way can it be determined where the mistake occurs in a non-successful treatment.

Some sanatoriums, notably one near San Francisco, are endeavoring to offer some simple, self-sustaining work so that patients may pay for their treatment at the same time that they take the cure. Such facilities allow an impecunious and partially healed patient to remain long enough at a sanatorium to perfect his cure.

4. The fourth essential element is food. As already intimated, an increase in weight does not always make the prognosis good, although fortunately it generally is a good indicator of the success of treatment. Some patients may even retain liquids and have slight edemas, from poor circulation, and their weight may increase from this cause. Also, a patient may gain weight from the rest, good food and fresh air, and yet the lung disintegration may continue. Patients who are nervously irritable and restless, especially children, may not gain weight, though eating well. This type is hard to manage in promoting the cure of tuberculosis.

Hyperalimentation, forcing of large quantities of food into the patient, is a mistake in the treatment of tuberculosis. The enormous number of eggs once recommended, the large quantities of milk and the consequent loading of the system with liquid, are also mistakes. The diet should be properly adjusted to the needs of the patient, to his ability to digest properly and assimilate the food offered, and should represent all the elements that good nutrition requires. This means that the patient should receive goodly amounts of carbohydrates, fat, sufficient but not too much protein, fruit, sugars, salts and water. The actual measurement of the amount of protein and the number of calories he receives is likely to be more irritating to the patient than of value in his treatment. A patient who eats sufficiently at his three regular meals need not have very much extra nutrition. A glass of milk, a cup of chocolate or an egg-nog, without alcohol, in the middle of the morning, in the middle of the afternoon, and at bedtime is generally good treatment. Whether or not the patient should drink milk with his meals depends on his digestion. It should be remembered that milk makes a meal by itself, and if a patient eats largely and drinks milk at his meals as he would water his digestive system will be overworked. Meat once a day is generally sufficient. The advantages, in the treatment of tuberculosis, of raw

chopped beef or chopped-beef patties, very slightly broiled, or of expressed beef-juice and blood have been overlauded. Such treatment may be of advantage to some patients, but as a routine treatment is not good.

If for any reason a patient does not take meat, and does not have such a vegetable as greens frequently, and especially if he is anemic, he should receive iron once or twice a day, best in the form of the *Eisenzucker* (saccharated oxid of iron), in a 3-grain tablet. This iron should not be considered as a drug or as a medicament; it is simply part of the food. Goodly quantities of digestible cereals are positively essential to the welfare of the patient. The gummy cereals, such as oatmeal, should be taken well broken up as a soup or gruel, and should never be swallowed in gelatinous masses. The more granular cereals that are chewed to insalivate them properly are all more or less of value. The vegetables should be varied. Some fruit is essential, both for the laxative qualities and for the salts they contain. The value of uncooked egg-albumin has been overestimated; it is probably a very poor food, not well digested in the stomach, and often causes increased peristalsis and diarrhea. Raw eggs, including the yolk, or the yolks alone, form good food; but a raw egg is of no more advantage than one poached or soft boiled. The lecithin presented by the yolk of egg has all the advantages of any artificial preparation that contains lecithin; lecithin very probably is a slight nervous stimulant, and may be an aid in promoting nutrition.

Whether or not tea and coffee should be allowed must be determined for the individual patient. Generally he is better off without them. If he does not sleep well he should not receive them with the evening meal. Perhaps coffee with breakfast may be allowed. It should be remembered that tea and coffee represent the drug caffeine, and a good strong cup of coffee contains between 2 and 3 grains of it. The action of caffeine is that of a cerebral and nervous stimulant; it raises the blood-pressure and acts as a diuretic. If such activities are desired, coffee may be good treatment.

Once more, in our opinion, it should be stated that cereals, vegetables and fruit are of more advantage than large quantities of milk and many eggs. The patient should be encouraged to eat plenty of butter, and cream when he can obtain it, on cereals or other foods. If a patient cannot take, or for any reason cannot obtain plenty of cream, olive-oil in teaspoonful doses or on salads is advisable. Also, in some instances, it may be well to give the patient, after meals, cod-liver oil, best pure and in small doses. The advantage of cod-liver oil in tuberculosis has, of course, long been overestimated, but it is readily digested. If they do not cause indigestion, many of the oily nuts, such as peanuts, have their advantage as nutritives.

GENERAL CONSIDERATIONS

While infection from tubercle bacilli will cause an afternoon rise in temperature and many of the symptoms typical of tuberculosis, the high temperature in the afternoon and evening and the sweating at night are often really due to a streptococcus secondary infection, and such a temperature plotted on a chart is often termed "the streptococcic curve"; that is, typical hectic fever is really due to secondary infection. Therefore, the less the purulent bronchitis, and the general catarrh of the air-passages, the less will be the fever. Any treatment, therefore, whether inhalations or internal medication, which, when added to the proper treatment

of the tuberculosis, will tend to diminish this bronchial catarrh, will also lower the temperature and cause less sweating and less loss of weight.

A patient should be cautioned against swallowing his sputum, as many an intestinal catarrh is due to such carelessness. That the tubercle bacillus can pass through the stomach and be absorbed from the intestine has already been stated. That streptococci and other pathogenic germs thus swallowed may cause diarrhea is also a fact.

If there is intestinal disturbance, it may be wise to give some drug as a bowel antiseptic.

Before eating a meal or taking nourishment, a patient not only should wash his hands and lips, but also should use some antiseptic mouth-wash such as a warm boric acid and menthol solution (as a 1 per cent. boric acid solution in ordinary peppermint water); or he may use a 1:5 dilution of alcohol in water.

It is often of advantage to give a high colon wash with physiologic saline solution perhaps once or twice a week. This can never do harm, and may do a great deal of good, whether the patient has a diarrhea or is constipated. An occasional dose of castor oil, or other laxative if preferred, is of advantage, even if the patient is not constipated, as it tends to clean out the intestines, and causes the mucous membrane if healthy to remain so.

Proper bathing is essential to keep the skin in good condition; whether this shall be only the morning sponging, or tub-baths, and whether or not with massage, should always be according to the orders of the physician. When the patient has a dry skin, inunctions of oil or cacao butter (oil of theobroma) are valuable, both for removing loosened epidermal scales and to stimulate the lower layers of the skin to a more healthful activity. The same manipulations will also promote the circulation in the skin and muscles.

An insufficient amount of urine passed means that the patient must drink more milk or more water, or perhaps receive some diuretic, such as caffeine.

It should be a working rule that all narcotic drugs and depressants should be avoided, if possible. A patient should be taught to sleep without a hypnotic, unless it is deemed temporarily wise that he should be made to sleep artificially. Such treatment should be regretted, and should be only temporary. Occasionally a cough is so irritant and continuous that a sedative is needed, and codein is the best of the opiates. Such depressants as acetanilid or the bromids should be avoided, unless there is a specific indication for them. Nutrition will never improve while such drugs are being administered. Alcoholic stimulation is rarely required, and is generally harmful. Strychnin is generally inadvisable, as it rarely actually stimulates anything but the nervous system. It is an overused drug. Occasional doses of a camphor preparation, or of aromatic spirit of ammonia may be advisable, and are harmless.

Whether or not a male patient should smoke, if he has been addicted to the habit, is a question to be considered. If the patient is otherwise doing well, and he obtains considerable comfort by smoking once, or at most twice a day, after meals, it may perhaps be allowed. Occasionally a man who has been used to considerable amounts of tobacco daily, and becomes tuberculous, may have considerable circulatory weakness if tobacco is taken away from him. Such patients will have their circulation and blood-pressure improved if they are allowed a graded amount of smoking.

(To be continued)

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ATHLETIC SPORTS VERSUS COMPETITIVE ATHLETICS

Certain aspects of physical exercise need to be defended from the discredit into which they are likely to be thrown by the abuses of modern athletics.¹ So long as it is maintained that the latter necessarily involve the idea of a contest — and this point of view has its advocates — we are constrained to emphasize the fact that the dangers of athletic sports are primarily and almost entirely confined to their competitive aspects. It is not the exercise *per se*, but rather the undue exertion involved in the attempt to win or surpass that brings on the symptoms of overdoing, the defective functioning of heart and kidneys. We take no narrow or perverted view of the best intent of physical training. The fundamental definition of an athlete is one trained or fit to contend in exercises requiring great agility or strength. This does not call for a supreme effort.

If the element of competition could be eliminated from our athletic games, if the desire to win could be superseded by the joy of play and a pride in grace of movement and skill in performance, a great step in advance would have been taken. Precisely in these features do gymnastics surpass the athletic contests that call for the extreme efforts of most highly trained persons. The element of physiologic danger is almost entirely wanting in the usual routine of gymnastic exercises. They suffer by comparison with the other types of bodily exercise included in so-called athletic sports so far as the latter involve work outdoors and under conditions which represent the ideal of hygienic surroundings.

The American public is becoming converted to the need of bodily exercise for great groups of the population, young and old. Presumably this is, in general, a commendable sign. If the competitive feature could be eliminated and athletics were conducted for the sake of sport itself, the foremost dangers that now lurk in the struggle to win would vanish completely. It is doubtless too late to reform those who have been saturated with the current notions that athletics are synonymous

with a fight for supremacy. In our schools, however, the element of contest involving a mere matching of strength ought to be fundamentally eradicated. The play of children represents the truest ideal of athletic sport. Graceful execution of movement and mild rivalry for perfection can be associated with forms of athletics of increasing difficulty in performance. To develop a graded sequence from the easiest games of early youth to the vigorous complex feats of middle life is a scheme well worth consideration on the part of those to whose care the physiology of exercise is entrusted. A successful plan of regulated physical exercise might serve to retain some of the personal zest for outdoor sports which is now too frequently lost in the misplaced enthusiasm for the dangerous athletic extravagances of a selected few.

CHEMICAL SUBSTANCES AND PHAGOCYTOSIS

There are three essential factors concerned in bacterial phagocytosis on which chemical substances may act so as to increase or depress phagocytic activity, namely (1) the leukocytes, (2) the opsonins, (3) the bacteria. The influence of various chemical substances on phagocytosis might be of great importance in bacterial diseases in which various drugs are now used without knowledge of their effect on the processes which produce immunity. A review of the action of chemical substances on phagocytosis with a study of the influence of some extensively used therapeutic agents has been made by Arkin.¹ From the results it appears that the action of chemical substances on phagocytosis varies with their chemical composition and their pharmacologic action. Substances which have an inhibitory effect on oxidation, such as chloroform, ether, morphin, potassium cyanid, alcohol, etc., all depress phagocytosis.

That the oxidative processes play a rôle in phagocytosis is evident because sodium iodoxybenzoate, an organic peroxid, which owes its pharmacologic and germicidal action to the presence of physiologically active oxygen, has a marked stimulating effect on the phagocytosis of streptococci and staphylococci *in vitro*.² The action appears to be on the opsonin of the serum. Furthermore, substances like colloidal metals which have a stimulating effect on oxidative processes stimulate phagocytosis to a marked degree. It may be that the beneficial effects of improved oxygenation of the blood in infectious diseases are due in part to the stimulating action on phagocytosis.

Substances like caffein and antipyrin, which are more inert drugs and have little if any effect on oxidation, likewise have little if any effect on phagocytosis. The salts are mostly injurious to phagocytosis to an extent depending on their toxicity, their ability to effect an

1. See Athletic Sports in Relation to Health, editorial, THE JOURNAL A. M. A., March 21, 1914, p. 936.

1. Arkin, A.: The Influence of Strychnin, Caffein, Chloral, Antipyrin, Cholesterol and Lactic Acid on Phagocytosis, Jour. Infect. Dis., 1913, xiii, 408.

2. Arkin, A.: The Influence of Certain Oxidizing Agents (Sodium Iodosobenzoate and Sodium Iodoxybenzoate) on Phagocytosis, Jour. Infect. Dis., 1912, xi, 427.

exchange of ions with the salts in the cells, and to their ability to combine with the opsonins.

Those substances which depress phagocytosis *in vitro* have been found, when studied *in vivo*, to have a detrimental effect on the immunity reactions, for example, the anesthetics, chloral, morphin, some salts and certain antiseptics. The substances which have been found to stimulate phagocytosis at all are: calcium, magnesium and mercuric chlorids; quinin; colloidal metals; peptone in dilute solution; nucleic acid; a few other leuko-stimulants, such as staphylolysin in weak solution; strychnin sulphate and nitrate; sodium iodoxybenzoate; salvarsan, and other arsenic compounds. It is interesting that all of these which have been studied *in vivo* have also seemed to have a favorable action there, namely, salvarsan, calcium chlorid, quinin, colloidal metals (platinum, silver, gold, copper) and mercuric chlorid in weak solution. Hence it appears that the action of a chemical substance on phagocytosis *in vitro* may be a good index of the effect of that substance when used *in vivo*.

Strychnin has a marked stimulating action on the phagocytosis of streptococci by human leukocytes in the presence of human serum. The action is on the opsonin of the serum apparently by the formation of a more active opsonin-strychnin combination. This action of strychnin seems to offer an explanation of its value in infectious diseases to which many clinicians have attested. It is another example of the empiric use of a drug whose therapeutic value has been placed on a scientific basis, and suggests a more extended use of this substance in infectious diseases. The interaction of the specific antibody and the chemical substance is in this case a beneficial one and suggests the possibility of a combined therapy against infectious diseases, the antibodies produced in the body being increased in amount by drugs introduced from without, or their action on the invading micro-organism accelerated.

Morphin has a depressing effect on phagocytosis, which is due largely to its action on the leukocytes. Large doses of this drug lower the resistance to infection; hence it should be used cautiously in bacterial diseases. Caffein has practically no effect on phagocytosis. Chloral has a distinct inhibitory effect on the phagocytosis of streptococci by human leukocytes. That this detrimental action is of importance in infection has already been demonstrated. Cholesterol reduces the opsonic power of normal serum, probably by combining with the opsonin. Antipyrin has no effect on phagocytosis, or on the formation of protective substances *in vivo*. Lactic acid, under certain conditions, suspends hemolysis and phagocytosis by acting on the complement and the opsonin, and neutralizes the anthracidal action of dog's defibrinated blood. The greater susceptibility to infection in muscular fatigue may be due to increased lactic acid formation.

Clearly the effects of an agent on the processes of immunity should be considered carefully when the use

of that agent seems indicated in infectious diseases. The possibility of a combined therapy, consisting of the use of immune serums or vaccines together with certain drugs, suggests itself in the case of drugs which have a stimulating effect on phagocytosis. The drugs may act as stimulants to leukocytosis, increase the production of antibodies, or combine with the antibodies to render them more active. This opens up a new field for the use of chemotherapy, a chemo-immunotherapy.

THE MOTOR BEHAVIOR OF THE LOWER BOWEL

When Gaspard Bauhin discovered the ileocecal valve in 1579 he found that even after death it resists a moderate degree of pressure from the side of the colon, but very little from the side of the small intestine. For this reason the anatomic action, which prevents the fecal material from returning to the ileum after it has reached the cecum, has been believed to be a mechanical one. It is true that, as a rule, the contents of the large and small intestines do not mix; this fact of itself is not sufficient, however, to determine the function of the devices at the union of the ileum and the cecum. Both anatomic structure and physiologic experiments indicate that a strong ileocecal sphincter exists in man. This does not always prevent regurgitation into the ileum. The theory is rapidly gaining ground that the function of the ileocecal sphincter is, as Keith¹ some time ago suggested, to prevent the contents of the ileum from passing too rapidly into the cecum. Dr. Arthur F. Hertz² of Guy's Hospital in London has pointed out, as the result of extensive Roentgen-ray observations, that the bismuth-containing chyme reaches the end of the ileum an hour or even longer before any appreciable quantity passes into the cecum, and that often the ileum is still full, four, five or more hours after the last traces of bismuth have left the stomach. Consequently an accumulation of chyme occurs in the last few inches of the ileum, where it undergoes digestion actually for a longer period than it remained in the stomach. There may be active segmentation during the whole of this time; but very little peristalsis can be seen.

Such observations have led to the conclusion that the function of the ileocecal sphincter is to prevent the passage of the contents of the ileum into the cecum until sufficient time has elapsed for the complete digestion and absorption of foodstuffs. The chyme which reaches the cecum contains relatively small quantities of nutrient material in solution. Hertz remarks that ileal stasis is thus a normal physiologic condition of the utmost importance for adequate digestion. Normal ileal stasis is increased in certain conditions which lead to spasm or to inhibition of the normal relaxation of the ileocecal sphincter. This is notably true in forms of peritonitis associated with acute appendicitis.

1. Keith: London Hosp. Gaz., 1903.

2. Hertz, Arthur F.: The Ileo-Cecal Sphincter, Jour. Physiol., 1913, xlvii, 54.

The ileocecal sphincter is said to begin to relax at infrequent intervals some time after the chyme first reaches it. If it be true that there is exceptionally active peristalsis in the end of the ileum and simultaneous relaxation of the ileocecal sphincter whenever food enters the stomach, obviously the proper filling of the cecum is dependent in no small measure on a gastro-ileac reflex. Observations by Hertz and his colleagues indicate that the cecum and ascending colon are entirely passive, and are filled solely as a result of the activity of the ileum. The passive filling of the colon is described as occurring very slowly except during and immediately after meals, this being the period at which peristalsis at the end of the ileum is most active as a result of the gastro-ileac reflex.³

From the immobility of the shadow of the colon observed in man after a bismuth meal, it has been assumed that the progress of the colonic contents depended on peristaltic waves too slow to be observed. From time to time, however, it has been reported that the contents of the cecum and ascending colon can move bodily into the transverse colon, while everything beyond the splenic flexure is carried through the pelvic colon and rectum and evacuated.⁴ Evidence has accumulated in favor of the possibility that the contents of one section of the human colon may pass into a more distal section by a rapid movement lasting a few seconds. These large movements of the colon, so different from what one has hitherto been led to suspect, have now been seen on numerous occasions by competent observers. Hertz and Newton therefore conclude³ that the movements of the colon seen in defecation and also, in normal persons, apart from defecation, are examples of the same phenomenon. Under natural conditions the passage of feces along the colon is mainly due, according to Holz-knecht,⁵ to a rapid movement along a considerable length of bowel, repeated three or four times a day. Hertz and Newton suggest that this movement is due, most probably, to a powerful peristaltic wave. The chief stimulus to it, as to the relaxation of the ileocecal sphincter, is the entry of food into the empty stomach—a gastrocolic reflex. Hertz and Newton add that in most persons this response results in defecation only after breakfast, as the pelvic colon is then full and the sudden passage of feces from it into the rectum gives rise to the call to defecation. After other meals the desire to defecate is not often felt, as, if the first attempt has been successful, the colon contains comparatively little feces, and under ordinary conditions of eating none are present beyond the splenic flexure until the latter part of the afternoon, or in the end of the pelvic colon until the evening. We are reminded that some persons with an abnormally excitable nervous system

experience the desire to empty their bowels after each meal. This is due, on the hypothesis of the English clinicians, to an exceptionally active gastrocolic reflex, and the large movements through the colon are apparently so great that a quantity of feces actually reaches the rectum after each meal.

Little by little the nature of the movements of the entire human alimentary tract is becoming clearly appreciated, thanks especially to the suggestions derived from animal experiments and the fruitful Roentgen-ray method of examination first introduced by Cannon in this country. The old conception of slow and simple peristaltic movements as the sole motor device of the digestive canal has given way to that of a sequence of orderly, specialized neuromuscular mechanisms varying in different parts of the tract.

THE ANTECEDENTS OF GLYCOGEN IN THE LIVER

Glycogen has long occupied a conspicuous place among those chemical substances which take a prominent part in the energy transformations of the body. It is generally recognized that a well-nourished person is likely to abound in glycogen in those storehouses, namely, the liver and muscles, which this reserve nutriment commonly seeks out. When one attempts to define precisely what the precursors of the deposited glycogen may be, some confusion of views may arise. Broadly speaking, glycogen is regarded as representing a reserve material in the human body analogous to the reserve carbohydrate stored up in different parts of plants. It is a wide-spread belief that the liver does not manufacture glycogen from fats; and it is currently admitted that the so-called animal starch can be formed from the proteins of the food, or from the products of their alimentary disintegration, the amino-acids. But the principal source of glycogen, beyond peradventure, is to be found in the carbohydrates of our food.

Inasmuch as glycogen production involves a polymerization of glucose, it might at once be concluded that not all carbohydrates will give rise directly to it. To learn what sugars will lead readily to a storage of glycogen, for example, amounts to ascertaining an important item in respect to their assimilability. In Professor Hofmeister's laboratory at Strassburg, Barrenscheen¹ has taken a very direct method of solving some of the mooted questions in relation to the antecedents of glycogen, by employing directly the surviving isolated mammalian liver. In this way he has successfully perfused the organ with blood containing different sugars and noted the outcome so far as the deposition of hepatic glycogen is concerned. Glucose and levulose readily yield positive results. Neither galactose nor maltose is synthesized directly to glycogen. There are various substances such as lactic acid, glyceric aldehyd, glyceric acid, and

3. Compare Hertz, A. F., and Newton, A.: The Normal Movements of the Colon in Man, *Jour. Physiol.*, 1913, xlvii, 57.

4. Hertz and Schlesinger: *Guy's Hosp. Rep.*, 1907, lxi, 423. Hertz: *Arch. Roentg. Ray*, June, 1908.

5. Holz-knecht: *München. med. Wchnschr.*, 1909, lvi, 2401.

1. Barrenscheen, H. K.: Ueber Glykogen- und Zuckerbildung in der isolierten Warmblüterleber, *Biochem. Ztschr.*, 1913, lviii, 277.

glycolaldehyd, which retain some theoretic interest in connection with the metabolism of carbohydrates and do not yield glycogen; but they are found to act as precursors of sugar in perfused livers, in certain types of diabetic manifestation. It is a matter of surprise and more than passing import that the livers of animals rendered diabetic by the classic procedure of extirpation of the pancreas no longer are able to form glycogen from glucose, even when they are perfused with the blood of normal individuals of the same species. The glycogen-forming function cannot be restored by the addition of pancreatic extracts.

So long as the possibility remains that one of the perversions characteristic of diabetes is the inability of the organism to retain ingested carbohydrates in the form of glycogen until they are needed, we are of necessity bound to learn what we can respecting its physiologic history at every stage of metabolism. The success with which isolated parts of the body have in recent years been compelled to tell their own story, as exemplified in a fragmentary way in the foregoing review, is one of the undervalued contributions to the physiology of the twentieth century.

MINERAL WATERS

An address by the secretary of the American Climatological Association, Dr. Guy Hinsdale,¹ before the balneologic section of the Royal Society of Medicine in London serves to remind us once more of the rather chaotic conditions which still exist in the United States in relation to the subject of mineral springs. It is still quite true, as Hinsdale remarks, that the definition of a mineral water varies with the point of view of the chemist, the geologist, the physician and the dealer. Each has his standard, and no arbitrary line depending on total content of minerals or salts in solution can be drawn between so-called pure waters and those commonly denominated as mineral waters. Indeed, some of the most popular and commercially valuable "mineral" waters in America have almost a minimum of solid constituents in solution.

The Third International Congress of Physiotherapy in 1910 passed resolutions recommending: a revision of analyses of mineral waters and the adoption of an international notation harmonious with modern chemical terms; the study of an international system of classification of mineral waters; the establishment in each country of a complete official descriptive catalogue of all springs and their commercial use; the creation of an international committee on the scientific study of mineral waters. All of these proposals represent steps in the right direction. Although in the past the analytic data pertaining to waters were furnished in such diverse

ways that one reviewer discovered in use at least forty-two methods of stating the results, the recent analyses are now almost uniformly expressed in modern chemical nomenclature and decimal units. A rational classification of springs, however, is not always easy to make where they represent all gradations from one extreme group of alkaline waters like those of the Navajo Spring at Manitou, Colorado, or the Waukesha springs in Wisconsin, to the saline group at Saratoga or Mount Clemens in Michigan, the chalybeate waters of Missouri, the arsenic waters of Virginia, or finally the various springs from which effervescent waters of diverse types are derived. To all of this is added the still newer consideration of radio-activity.

The unprejudiced physician who is eager to avail himself of the best therapeutic aids that modern medical science affords cannot help being baffled by the conflicting claims made by the crude balneotherapy of to-day. He sees numerous cases in which relief has unquestionably been obtained by patients who have visited one of the many springs in this country or Europe; but when he attempts to analyze the possibilities—including rest, change of diet and environment—and to determine some standard by which he may intelligently advise those who need his help, the result is a hopeless confusion of ridiculous claims. The added question arises of the relative value of the different uses of the same waters. At some of the widely known spas—for example, Saratoga—the internal use of waters takes precedence; at Mount Clemens, White Sulphur Springs and others the baths are chiefly relied on; at Hot Springs and French Lick the combined method prevails. In view of the diversity of practice and the impossibility of measuring the consequences in any precise way, we agree with Hinsdale in scouting the claims of the specific virtues of particular mineral ingredients in the waters, except in such obvious features as laxative action or the absorption of dissolved iron salts.² If we assume, he writes, that approximately equal results are achieved by a course of bathing in waters so dissimilar, we cannot avoid the inference that the chemical constituents of these different springs are not *per se* the active therapeutic agents. That certain baths may be used with good results in a case of syphilis, and likewise in a case of gout, ought to suggest that the hydrotherapeutic or balneologic methods employed are more potent than the fact that the waters employed have a special chemical analysis. The differentiation of mineral springs for therapeutic purposes has some practical basis; but we believe it has been carried too far, especially in European practice.

If the cultivation of the rational use of mineral waters involves an accurate knowledge of their contents, information regarding them must have some guarantee of accuracy. For the past twenty years it has not been

1. Hinsdale, G.: Mineral Springs: Their Analyses, Classification, Therapeutic Uses and Newer Methods of Application; with Special Reference to American Springs, Proc. Roy. Soc. Med., 1914, viii, Balneological and Climatological Section, p. 13.

2. The Absorption of Iron from Mineral Waters, editorial, The Journal A. M. A., March 14, 1914, p. 856.

possible in France to advertise any mineral water as such, or to exploit a mineral-water station, without the favorable recommendation of a commission under whose direction the analyses are made. If such rules were in force in the United States, fake "lithia" waters would long ago have been driven out of the market.

The damage to mineral springs resulting from uncontrolled commercial ventures is illustrated by conditions at Saratoga. The amount of mineral matter held in solution by some of the waters there obtained is dependent on the quantity of carbon dioxide which impregnates the water and the pressure exerted at the mineral-water vein. For over twenty years an exhaustive pumping of the gas was carried on by a carbonic gas industry, and a great depletion of the mineral-water basin took place, depriving the entire area of materials which Nature had furnished for the maintenance of her natural fountains. Since New York State, through its Reservation Commission, has undertaken a protective policy with regard to the springs, and the pumping operations have been stopped, the restoration of the mineral waters to the Saratoga basin is being accomplished. Examinations by the State Hygienic Laboratory at Albany³ show the return of a steady flow and fairly constant mineralization varying only with physical disturbances. A few years must elapse before the springs will have returned to all the natural conditions which were present before the gas companies began their operations. These facts serve to show that scientific control may sometimes be a beneficent procedure, and that, presumably through the Public Health Service, it ought to be applied more widely in the United States.

DEATHS FOLLOWING ANESTHESIA

Progressive medicine recognizes that among the most helpful aids to the advancement of the work of our profession are the critical analysis of errors, either in diagnosis or treatment, the frank discussion of mistakes, and the unremitting investigation of the reasons why procedures in current practice fail. For this reason we are interested in a recent review of inquests in England concerning deaths during anesthesia for the years 1910-1913, especially because it attracts attention to "the number of fatalities occurring with melancholy regularity" in different parts of the country. From the lay press accounts of coroner's inquests, Flemming¹ has secured "only such portion of the pabulum as has managed to squeeze through the newspaper filter." The statistics are therefore far from complete and the nature of the anesthetic used has been ascertained in only 542 of the 700 deaths reported in connection with anesthesia. In no fewer than 521 instances among these the anesthetic seems to have been more or less

responsible for death. From such uncertain data it is not easy to determine the proper share of blame which should be attributed to surgery; but in 223 cases death is reported to have occurred before the operation was begun. Included in 100 instances where surgery was distinctly a contributing factor were many operations of great severity and of long duration. These accidents are in large measure unavoidable, inasmuch as various surgeons must naturally differ in their capacity for combining rapidity with gentleness.

The statistics regarding the nature of the anesthetics used in the fatal cases reported are instructive.

| | |
|---|-----|
| Chloroform | 378 |
| Ether | 28 |
| C. E., A. C. E. and A. C. mixtures..... | 100 |
| Nitrous oxid..... | 12 |
| Ethyl chlorid..... | 6 |
| Spinal | 8 |
| Scopolamin | 2 |
| Hedonal | 2 |
| Local | 6 |
| Not specified..... | 158 |

In the majority of the cases the range in age was from 26 to 60 (338 persons) and from 6 to 15 (124 persons).

To American practitioners, less committed than their British colleagues to the general use of chloroform, the apparent dominance of fatalities from this anesthetic at once contrasts with the notably lower figures for deaths under ether. The data cannot be interpreted thus rigidly, however, unless the relative frequency of use of these anesthetics is likewise known. It may be that the percentage of fatalities is far greater with some other anesthetics than with chloroform. Flemming believes that a large number of these accidents would not have occurred if ether had been used during the induction of anesthesia, or at any rate during the struggling stage, and he champions the use of ether whenever possible. We have no desire to open the old controversy here; but these appalling data cannot be dismissed without awakening some inquiries. Are they attributable to the indiscreet selection of the anesthetic or to the limited experience of the anesthetist? Does the false sense of security point to some deficiency in the practical part of our teaching system?

We are well aware that from a strictly scientific point of view statistics such as Dr. Flemming has gathered by indirect methods are of limited value. It has even been maintained that the publication of such fatalities is a mistake; that the public is apt to conclude not that an experienced anesthetist is necessary, but that one who takes an anesthetic is likely to die. They do not realize that many of the accidents are preventable. Whether or not we take the review of Flemming seriously in its bearing on the practice of anesthesia, at any rate it serves to bring out the pressing need of reliable statistics and certain reforms in relation to deaths from anesthetics. If, as has been claimed, the coroner's

3. Milford, L. R.: Recent Analyses of the Saratoga Mineral Waters, IV, Jour. Industrial and Engineering Chem., 1914, vi, 207.

1. Flemming, A. L.: A Review of Inquests Concerning Deaths During Anesthesia, 1910-1913, Proc. Roy. Soc. Med., 1914, vii, Section of Anesthetics, p. 17.

inquest or the customary reports of death are poorly calculated to bring out the truth, some device ought to be introduced to establish the facts so that any needed reforms can be based thereon. Unpleasant details frequently arouse a storm of protest; but when the atmosphere has cleared the ultimate outcome is frequently of decided benefit to all concerned.

Current Comment

INAGGLUTINABLE TYPHOID BACILLI

Freshly isolated strains of the typhoid bacillus not infrequently resist agglutination by typhoid serum. Usually, however, they very soon become freely agglutinable, though occasionally a strain is encountered which resists agglutination through generation after generation. Such inagglutinable typhoid strains have otherwise all the usual characteristics of the typhoid bacillus. This inagglutinability is of considerable interest: unless guarded against, mistakes may result from the use of inagglutinable strains in making agglutination tests; and then there is the question why certain strains should be inagglutinable. McIntosh and McQueen¹ isolated a strain of this kind from a case of typhoid fever and made experiments with it, the results of which throw light on this question. They found, and others have made similar observations, that the inagglutinable strain, when injected into animals, led to the production of typhoid agglutinins which had practically no action on itself, but agglutinated heterologous typhoid strains freely; and furthermore, that the strain in question would absorb typhoid agglutinins just like the agglutinable strains. Hence the inagglutinability cannot be due to loss of affinity for the agglutinins; that is, loss of receptors in the terms of the side-chain hypothesis, but rather to some physical alteration by virtue of which the second step in agglutination fails to take place, namely, aggregation or clumping. It would be interesting to learn how inagglutinable strains behave with respect to opsonification. They appear to have no peculiarities with respect to complement fixation, and are clumped by chemical agglutinants, an observation showing that acid and serum agglutination do not depend on the same factors.

THE OFFICE OF CORONER

About a year ago we commented² on the inadequacy of the machinery in this country for proper conduct of the coroner's office, and stated that thorough rehabilitation along modern lines was urgently needed. It was also stated that so long as the coroner remains an elective officer with a continuous tenure of at most four years, it is not likely that the office will be filled generally with properly trained men. A bill is now pending in the New York legislature to do away with the ancient coroner system and to substitute for it a system of medical examiners. The bill provides for a new officer

to be known as the chief medical examiner, who must be a skilled pathologist with at least ten years' practical experience in the performing of necropsies, to be appointed by the mayor, and to hold office until he resigns or is removed for cause after a hearing. He will appoint assistant examiners, chemists, clerks, etc., as may be deemed necessary, subject to approval by the board of estimate and apportionment. The power of the present coroner is limited so that this officer will hold inquests only in cases referred to him by the district attorney, acting as a magistrate. The new law also marks the abolishment of the coroner's jury, a body which is costly, useless and often ridiculous — which might be said, however, of the petit jury. The medical investigation of crime is to be the duty of qualified medical officers, capable and responsible. The bill is the result of a joint conference of committees of the New York Academy of Medicine, trustees of Bellevue and allied hospitals, district attorney's office, professors of pathology in the leading medical schools, City Club, Citizen's Union and Short Ballot Association. Its passage would result in the removal of a pernicious, slow, inefficient system, which is a relic of obsolete social conditions.

HEALTH ALMANACS

Three years ago, at the time that the Virginia State Board of Health issued its first "Health Almanac," THE JOURNAL commented on the innovation,¹ commending the board for rescuing from the hands of "patent medicine" fakers this time-honored institution. New editions of Virginia "Health Almanacs" have been issued every year since. Several other states have followed the same plan. The almanacs for Virginia and North Carolina for 1914 are particularly attractive. In the Virginia calendar the familiar monthly tables, giving the days of the week and the month, the time of rising and setting of the sun and moon, and the moon's changes, contain important dates in which, so far as possible, items of scientific interest have been substituted for the hackneyed entries in the old-time almanac. For instance, under January 26, is the entry, "Edward Jenner born, 1823"; February 12, "Charles Darwin born, 1809"; February 13, "John Hunter born, 1728"; March 13, "Joseph Priestly born, 1733"; March 18, "Lady Montague's son inoculated for small-pox"; May 14, "Vaccination first tried, 1796"; June 27, "Dr. Carroll submitted to yellow-fever experiment," etc. Opposite each monthly table is a page of short paragraphs on some specific disease-problem. January, for instance, is devoted to small-pox; February to pneumonia; March to typhoid fever; April to malaria; May to infantile mortality; June to flies; July to typhoid; August to hookworm; September to diphtheria; October to scarlet fever, measles and whooping-cough; November to colds, and December to tuberculosis. Additional pages contain directions for the care and feeding of infants, information regarding typhoid vaccine and typhus antitoxin, and birth and death registration. The North Carolina State Board of Health Almanac follows the same general plan,

1. McIntosh and McQueen: Jour. Hyg., 1914, xiii, 409.

2. The Office of Coroner, editorial, THE JOURNAL A. M. A., May 24, 1913, p. 1644.

1. The Reformed Almanac as a Health Evangelist, editorial, THE JOURNAL A. M. A., April 15, 1911, p. 1115.

but contains interspersed proverbs, admonitions and suggestions. Some of these "healthgrams" are deserving of mention. "Ventilate—don't hibernate." "An open window is better than an open grave." "Sunshine is God's best germ-destroyer." "Most colds are catching." "Fresh air, rest and good food are the only cures for consumption." "The only bad night-air is last night's air." "Cures for consumption guarantee only one thing—death." "A city's most valuable asset is wholesome water." "A good iron pump costs less than a case of typhoid." "God bless the man who first invented screens!" "The only good fly is a dead fly." "Preventable diseases are born of ignorance." "Don't take medicine for sleeplessness—take a bath." The alternating pages are filled with short forceful paragraphs on a multitude of different subjects. The value of the almanac as an educational agent is evident. Frequently referred to in every household and preserved throughout the year, the educational matter in it has a much better opportunity to sink into the minds of the people than it would have if contained in a regular bulletin or a health pamphlet. The health almanac offers an admirable opportunity to state boards of health to preach their gospel every day.

THE SURGEON-GENERAL'S LIBRARY IN DANGER

Seldom have the dangers of hasty and routine legislation been better illustrated than by the amazing amendment to the Army appropriation bill, which passed the Senate, Saturday, March 28. The bill contained as one of the appropriation items the clause, "For the Library of the Surgeon-General's Office, including the purchase of necessary books of reference and periodicals, \$10,000." The Library of the Surgeon-General's Office has been for many years the pride of the medical profession of the United States, comprising as it does the largest collection of medical and surgical books in existence. It is an inexhaustible mine of scientific information. It is, in fact, the nation's medical library. Its Index-Catalogue is recognized the world over as the best working bibliography of modern medicine, by which scientific men are enabled to find all the existing authorities with the least trouble. Owing to the broad and liberal policy of its administration, for years past the material in the library has been made available to the entire medical profession. Its development has been a growth of many years, and the need of the preservation of its integrity and usefulness will be apparent to any one on the slightest investigation. Yet in spite of all this, without any discussion or careful consideration, without even consulting the Surgeon-General of the Army or the head of the Library of Congress, without apparently arousing a word of protest in the Senate, the following amendment was adopted by that body last Saturday: "Provided that on or before Jan. 1, 1915, said library shall be transferred to and become a part of the Library of Congress, and so much of the amount herein appropriated as may be necessary is made available for paying the expenses of such removal." This hastily considered and unwise effort to pitchfork the Surgeon-General's library into

the Library of Congress is entirely without justification or reason; it can only result in obliterating the identity of the Surgeon-General's library and destroying its usefulness. The Library of Congress has no room for the Surgeon-General's library at present and the librarian of Congress does not want it. To move the Surgeon-General's library into the Library of Congress building would simply involve double expense without compensatory advantage, since in order to be of any real use and to fulfil the functions which it has developed, the Surgeon-General's library must maintain its autonomy. To be of service it must be managed in the future as in the past by carefully selected scientific medical men. Its record is such as to entitle it to the confidence of Congress. The Army medical officers who have been in charge of it in the past, such men as Billings, Huntington, Merrill, Reed, McCaw and McCullough, have conducted and developed it to the entire satisfaction of those familiar with its work, and with ever-increasing value to the medical profession and the public. To move it would be an expensive and tactical blunder, and to destroy or even impair its usefulness would be justly regarded by the scientific men of the world as an act of unjustifiable and wanton vandalism. The fact that this amazing proposition could pass the Senate without challenge is only another instance of the dangers of permitting "riders" in the form of irrelevant amendments to be saddled on appropriation bills. The Army appropriation bill passed the House without this absurd provision. Under the parliamentary rules which govern Congress, the measure will now be returned to the House for concurrence. It is earnestly hoped that there will be enough discrimination in the House of Representatives to eliminate this uncalled-for and destructive provision.

Medical News

ALABAMA

Personal.—Dr. B. W. Guyton has been accepted by the board of missions of the Methodist Episcopal Church, South, as a candidate for hospital work in China.—Dr. James Smith, Huntsville, who has been on duty as surgeon of the United Fruit Company, Colon, is home on sick leave.—Drs. Edwin P. Solomon and William H. Wilder, Birmingham, have been appointed division surgeons of the Southern Railway, vice Dr. Benjamin G. Copeland, deceased.—Dr. Robert Nelson, health officer of Birmingham, has resigned. Dr. Nelson was the guest of honor at a farewell banquet given by the members of the Health Department, March 16.—The residence of Dr. Wyatt Heflin, Birmingham, was burned recently, with a loss of \$15,000.

CALIFORNIA

Against Contract Practice.—The Sonoma County Medical Society, at its meeting March 12, passed a resolution that no physician should sign a contract with any insurance company to attend persons injured under the workingmen's compensation act.

Stanford Medical Lectures.—The last two lectures of the Stanford University medical course were delivered by Medical Inspector S. F. Gale on "Medical Service in our Navy," March 13, and by Dr. Andrew W. Hoisholt, superintendent of the Napa State Hospital, March 27, on "The History and Nature of Insanity."

Civil Service Examinations.—The State Civil Service Commission announces that examinations will be held May 7, 8 and 9, to provide a register of eligibles from which to fill the positions of physicians in city hospitals. The examination is open to both men and women, citizens of California, and

twenty-one years of age. Complete information and application blanks may be obtained from the office of the State Civil Service Commission, Sacramento.

Personal.—Dr. Stanley P. Black, Los Angeles, has resigned as a member of the State Board of Health in charge of the southern Branch Laboratory since 1907.—Dr. Walter V. Brem has been appointed division bacteriologist, with offices in Los Angeles, to succeed Dr. Black.—Miss Grace A. MacMillan has been appointed laboratory assistant in the State Hygienic Laboratory at Berkeley. She will assist the director in the serologic work of the laboratory. Miss MacMillan was formerly an assistant in the United States Public Health Service laboratory in San Francisco.—Dr. Thomas D. Maher, San Francisco, has been appointed chief physician of the public schools, vice Dr. Emmet L. Wemple.

State Board Bulletin for February.—The *Bulletin* of the State Board of Health for February is exceptionally interesting. It represents the work of the new secretary of the board, Dr. Donald H. Currie, and his assistants. The secretary announces his intention of following the plan of his predecessor, Dr. Corydon G. Snow, in presenting each month, under the heading "Comments," at least one article of general interest to the readers of the *Bulletin*. In the February number a brief résumé is given of the situation in the state with reference to plague, small-pox, leprosy, yellow fever, Asiatic cholera, typhoid fever, rabies, hookworm and diphtheria. All of these diseases were present in the state during the month except plague, yellow fever and cholera. It is stated that the United States Public Health Service, on the completion of its squirrel extermination campaign this spring, expects to have the most heavily infested counties of the state freed from plague-infested ground-squirrels. The campaign will then be continued in the other counties. Yellow fever is mentioned on account of the possibility of its being brought into the state from the infected parts of Mexico, and Central and South America. The yellow fever mosquito at present is not found in California, but it is believed that it might possibly be carried into the interior of the state where conditions are favorable to its propagation. It might come either through the ports, or by way of railroad trains from Texas which is only two or three days away. Cholera is also mentioned on account of the remote possibility of its being brought in by visitors from Asiatic ports.

CONNECTICUT

Scarlet Fever at Yale.—Since the first of the year eleven cases of scarlet fever have occurred among the students at Yale. The last case to occur was reported March 23.

Clean-Up Week.—The week of April 5-11 has been set aside as clean-up week in New Haven. The school children have been enlisted, as in previous years, for the discovery of insanitary yards and buildings. Dr. Harry B. Ferris is chairman of the general sanitation committee and Dr. Thomas H. Russell, Jr., chairman of the committee on flies.

FLORIDA

New Officers.—Volusia County Medical Society at De Land: president, Dr. Edward F. McConnell, De Land; secretary, Dr. Davis Foster, Hawk's Park.

Experiment Building for State Board.—A building is being erected at a cost of \$2,200, on the grounds near the State Health Office, Jacksonville, by the State Board of Health, to be used for conducting experiments and making tests on animals suspected to have communicable or contagious diseases.

GEORGIA

Want Zones of Quiet.—A petition has been signed by more than two hundred physicians of Atlanta requesting that legislative measures be enacted to establish "zones of quiet" near hospitals of the city.

Personal.—Dr. Bartow S. W. Daniels has resigned as city physician of Savannah.—A dinner was given in honor of Dr. Guy D. Ayer, Atlanta, by physicians of Atlanta, March 21.—Dr. James P. Smith, Augusta, is reported to be critically ill at the Augusta City Hospital.

New Officers.—Ocmulgee Medical Society at Hawkinsville, March 20: president, Dr. A. A. Smith; secretary, Dr. Robert G. Stone, both of Hawkinsville.—Seventh District Medical Society at Rome, March 12-13: president, Dr. William G. England, Cedartown; secretary, Dr. William L. Funkhouser, Rome.

Medical Hall Ready.—The Georgia Medical Society, Savannah, occupied its new building on Drayton Street, March 13. The building is known as the Medical Hall of the Georgia

Medical Society, will be used as a meeting-place for the organization and also for social gatherings, and will also provide an appropriate home for the valuable library of the organization.

Examination for Chief Food Inspector.—The city of Savannah has an ordinance providing for the establishment of a department of food inspection, the regulation, slaughtering, handling, care and sale of meat, poultry, game, fish and oysters, and has adopted the unique procedure of making the appointment subject to technical and practical examination of the candidates, who may be from any portion of the United States. The examination for this position is advertised in various medical and veterinary journals throughout the country. An examination will be held simultaneously in Boston under the direction of Dr. M. J. Rosenau of Harvard Medical School; in Washington under the direction of an officer of the United States Public Health Service; in Chicago under the direction of Health Commissioner George B. Young, and in Savannah under the direction of City Health Officer, Dr. William F. Brunner, assisted by Drs. John W. Daniel and W. C. Burnett, and Victor H. Bassett, city bacteriologist.

ILLINOIS

Dispensary for Evanston.—A free medical and dental dispensary is to be opened at the north end of Maple Street, Evanston, about May 1. Special attention is to be given to school children.

Anti-Tuberculosis League Meeting.—The Woodford County Anti-Tuberculosis League has decided to hold four general meetings during the year, and twelve local meetings. The league is to issue a quarterly bulletin, to be edited by Dr. Homer A. Millard, Minonk.

Personal.—Dr. Olive Hughes Kocher of the staff of the Elgin State Hospital has been transferred to the Watertown State Hospital.—Dr. Esther A. Hart Stone of the staff of the Watertown State Hospital has been transferred as physician to the State Home for Girls, Geneva.

Chicago

Personal.—Dr. Frank Billings has returned from a trip to the Mediterranean.

State Isolation Hospital Started.—Mayor Harrison, on March 27, turned the first shovelful of earth of the ground for the new contagious disease hospital at Marshall Boulevard and Thirty-First Street. The hospital, when completed will accommodate 600 patients.

Surgeon Wins Suit.—In the case of Dr. Coleman G. Buford against the estate of A. L. Sercomb for \$5,000 for an operation performed on Mrs. Sercomb, the probate court returned a verdict of \$5,050 in favor of Dr. Buford, that is, the original claim and \$50 for consultation and examination of Mr. Sercomb.

Milk Producer Has Small-Pox.—On March 16, the Department of Health collected samples of milk for sediment testing. For a farmer near Bass, Ind., the test was so unfavorable that notice was sent him to appear before the Board of Health. Eleven days later a letter was received from the man, saying that he could not come to the city, since he had been ill with small-pox since March 9, and had not yet recovered. During this time, milk had been coming in from the farm daily.

The Contagious Disease Hospital Question.—Under this heading the *Official Bulletin of the Chicago Medical Society* advises, for the best interests of the community, that any contagious disease hospital built by the community should be provided with accommodations for pay as well as free patients. It agrees that if the health commissioner will guarantee to obtain the necessary frontage consent for the location of such a hospital, in a part of Chicago reasonably accessible, the society will build the hospital, provided it be under community control.

INDIANA

New Officers.—Whitley County Medical Society at Columbia City, March 10: president, Dr. Oliver V. Schuman; secretary-treasurer, Dr. David S. Linvill, both of Columbia City.

Sanatorium Notes.—Work on the new St. Joseph's County Tuberculosis Hospital will begin about April 1; \$12,000 has been appropriated for this purpose.—Floyd County Hospital Association has filed articles of incorporation and will establish an open-air camp for tuberculosis on the knobs, northwest of New Albany. A site has been secured on the Vincennes Road, and a dozen or more cottages or open-air shacks have been donated by societies and fraternal orders of New Albany.—Bert H. Whiteley has given a hospital to the city of Muncie.

MARYLAND

Asks for More Vaccinators.—Health Commissioner Nathan R. Gorter appeared before the Board of Health of Baltimore, March 10, and asked for more than fifty additional physicians as vaccinators. Since Christmas eve, 177 cases of small-pox have been discovered, and the present force is unable to cope with the situation.

Personal.—Dr. Gerard H. Leuret, former chief resident physician at St. Luke's Hospital, Baltimore, has been appointed radiologist at the New Jersey State Hospital, Trenton.—Dr. Samuel C. Chew, Baltimore, who has been ill at his home at Roland Park, is convalescing.—Dr. Marshall D. West, Catonsville, has recently established a small-pox hospital at Ilchester, where there are four patients, and one at Hillsdale, with nine patients.

To Prevent Small-Pox.—In an effort to prevent the spread of small-pox which has been causing consternation among the residents of Curtis Bay and the surrounding districts, a movement has been started by Dr. William D. Scott, which has received the commendation of not only the residents of South Baltimore, but also of the heads of corporations that employ large numbers of men in that section. Dr. Scott suggested the advisability of starting a campaign to vaccinate every man employed by the large corporations in that section and immediately began work by vaccinating fifty-two men in the Davidson Chemical Company in one day.

Campaign for Contagious Disease Hospital.—The Baltimore City Medical Society and the Medical and Chirurgical Faculty of Maryland have taken up the fight for a hospital for infectious diseases in Baltimore and intend to see that a hospital containing 300 beds is provided for such cases. Baltimore has only 37 beds at Sydenham, as compared to 430 beds in Philadelphia, 215 in Cincinnati and 125 in Rochester. A bill was introduced into the general assembly last week authorizing a bond issue of \$750,000. The physicians will go before the senate some time this week. They will also go before the city council and will hold public mass meetings. The body having immediate charge of the campaign is a committee of the Baltimore City Medical Society, but both this society and the medical faculty are behind the movement. Members of the committee are: Drs. Archibald C. Harrison, Chairman; Winford H. Smith, superintendent of the Johns Hopkins Hospital, Louis P. Hamburger, Charles O'Donovan and Thomas R. Brown, president of the Baltimore City Medical Society.

MICHIGAN

New Officers.—Saginaw County Medical Society at Saginaw, March 19: president, Dr. Robert McGregor; secretary-treasurer, Dr. Alexander R. McKinney, both of Saginaw.

Appropriation for Hospital.—The Detroit City Council's committee of health and city hospitals, on March 23, made an appropriation of \$812,000 for additional land and buildings for the Herman Kiefer Contagious Disease Hospital, and also approved the appropriation of \$400,000 for a Tuberculosis Building and \$100,000 for a unit for the proposed General Hospital, and the Board of Health Estimate of \$60,000 for the care of tuberculosis patients.

Septic Sore Throat at Ann Arbor.—Up to March 24 about one hundred cases of sore throat had occurred among the students at the University of Michigan. The disease in some cases is severe. While the dean, it is reported, claims that the disease is only an ordinary sore throat, others claim that the disease is of the septic variety. An investigation has resulted in the exclusion of the water-supply as the source of the disease, and the milk-supply of the students afflicted is being investigated.

No Compensation for Militia Surgeon.—Dr. Floyd A. Roberts, Flint, an officer in the Medical Corps, N.G., Mich., during the recent labor troubles in Calumet, received injuries, while on duty, that resulted in blood-poisoning and partial disability. He made application to the state for compensation, but was informed by the attorney general that such cases did not come under the workmen's compensation law, and that, furthermore, the fact that he was not permanently injured would militate against his receiving any compensation.

Personal.—Dr. George B. Gesner, health officer of Marshall, is seriously ill with septicemia.—Dr. Harvey J. Chadwick, Grand Rapids, who is ill with pneumonia, is reported to be improving.—Dr. Charles H. Oakman has been elected president of the Detroit Board of Health, vice Dr. Johnson B. Kennedy, term expired.—Dr. and Mrs. Ralph O. Fuerbringer, Saginaw, have returned from abroad.—Dr. Roscoe C. Main has been appointed full-time health officer of Marquette.—Dr. Sherman Gregg, St. Joseph, has been appointed assistant phy-

sician of the Kalamazoo State Hospital, vice Dr. Edmund M. Pease, resigned.—Dr. Levi A. Harris has been appointed postmaster of Gaylord.

MINNESOTA

Personal.—Dr. Pierre A. Hilbert, Melrose, has returned from a trip to the Panama Canal Zone.—Dr. Conrad A. Neumann, Lewiston, was operated on at Rochester, March 22, for septicemia.

New Public Health Association.—At the first meeting of the Minnesota Public Health Association, March 13, the organization was perfected and the following officers elected: president, E. W. Randall, St. Paul; vice-president, Dr. W. J. Mareley, Minneapolis; honorary vice-presidents, Gov. Adolph Eberhardt, and Pres. George F. Vincent of the University of Minnesota; and secretary-treasurer, H. Longstreet Taylor, St. Paul.

Infectious Diseases in Twin Cities.—On March 22 it was reported that since January 1 there had occurred 628 new cases of scarlet fever and 782 cases of diphtheria in Minneapolis. Both diseases were reported to be unusually virulent, attacking an unusual proportion of adults. Up to the date mentioned there had been 401 more cases of diphtheria than in any previous year between January 1 and April 1. The deaths from diphtheria were 49 and from scarlet fever 31. Violations of quarantine regulations have been wholesale, it is reported. In St. Paul since January 1 there had been 688 cases of scarlet fever with 14 deaths, and 106 cases of diphtheria with 5 deaths.

Mayo Clinic Opened.—The new Mayo Clinic Building, Rochester, was formally opened, March 6, with a reception in which about sixteen hundred people participated. The building is of brick and masonry construction, four stories in height. The building is provided with rooms for Drs. William J. and Charles H. Mayo, Christopher Graham and Edward S. Judd. The business offices and general clinical rooms are on the first floor; the second floor is for diseases of the eye, ear, nose and throat; bacteriologic laboratories and the Roentgen-ray department; the third floor contains laboratories, reading rooms and staff rooms, and the fourth floor has an immense store room for the disposal of specimens and also the photographic equipment of the clinic.

MISSISSIPPI

State Association Meeting.—The forty-seventh annual meeting of the Mississippi State Medical Association will be held in Columbus, April 14 to 16.

Personal.—The residence of Dr. Robert A. Anderson, Gulfport, was burned March 25, with a loss of \$15,000.—Dr. Morris J. Alexander, Tunica, has resigned as president of the Mississippi State Board of Health.—Dr. S. Wade Glass, Lyon, has been appointed a member of the State Board of Health.

MISSOURI

Personal.—The office of Dr. William P. Rowland, Bevier, was burned March 24.—Dr. William A. Clark, Jefferson City, was seriously injured in a collision between his automobile and another motorcar, March 14.

Class Reunion.—Seventeen of the thirty-three members of the class of 1894 of the old Kansas City Medical College, met in Kansas City, March 23, and effected a permanent class organization, electing Dr. Andrew M. Kirkpatrick, La Harpe, Kan., president, and Dr. Thomas Fields, Kansas City, secretary.

St. Louis

Mount St. Rose Fund.—The campaign to raise \$300,000 for the Mount St. Rose Hospital has resulted thus far in contributions amounting to nearly \$40,000.

John Green Memorial.—A memorial for the late Dr. John Green was held, April 2, in the Graham Memorial Chapel, Washington University. Among the speakers were Dr. Washington E. Fischel, Prof. E. A. Engler, Dr. Arthur E. Ewing and William Trelease.

MONTANA

Northern Health Officers to Meet.—The Northern Montana Health Officers Association was organized at Havre, March 23. The object of the association is to secure better cooperation among county and city health officers, to discuss problems of public health and to improve living conditions throughout the state.

Resolutions on Vivisection.—At its regular meeting, March 14, the Gallatin County Medical Society adopted resolutions deprecating the attempts of the periodical "Life" to hinder and prevent research by false and overdrawn illustrations, and endorsed the work of "Puck," which is endeavoring to counteract these attempts.

NEW YORK

Health Bulletin.—The first issue of the *Monthly Bulletin of the Syracuse Bureau of Health* will appear late in April. The first issue will be practically given over to infant welfare matters.

Start on Tuberculosis Hospital.—Excavation has been commenced for the foundations of the Onondaga County Tuberculosis Hospital, Hopper's Glen. The contract calls for the completion of the building by October 4.

Increase Salary of Indian Physicians.—The Arndt bill, which increases the salary of the physicians to the Onondaga and St. Regis Indians, passed the assembly, March 20. This bill advances the pay of the physicians from \$300 to \$900 per year.

Quarantine on Bridge Lifted.—In response to a communication from Mayor Dore of Niagara Falls, Dr. F. Montizambert, director-general of public health, at Ottawa, informed the mayor that the quarantine on the Canadian side of the bridge on account of small-pox in Niagara Falls on the American side would be lifted at the end of March.

Dispensary Opened.—The Syracuse Free Dispensary, recently erected at 610 East Fayette Street, was thrown open to the public March 30. In the evening the formal opening ceremonies took place, at which Dr. Richard E. Cabot, Boston, delivered the chief address. Chancellor James R. Day formally tendered the dispensary the use of the basement and the first two floors of the building together with the equipment.

Personal.—Dr. Sedgwick E. Austin, Auburn, who has been seriously ill with septicemia, is reported to be improving. —Dr. George G. Whitaker, city physician of Fulton, has resigned. —Dr. Robert S. Reed, bacteriologist at the Geneva experiment station, has been appointed a member of the New York Milk Commission. —Dr. George R. Kinne, Syracuse, who has been seriously ill at the Hospital of the Good Shepherd, is reported to be improving.

Christian Science Bill Passes Senate.—The McClelland-Thorn bill permitting christian scientists to treat the sick has passed the assembly and the senate and been sent to the governor for his signature. This bill amends the medical law so that people of the state may resort to christian science for help without violating the provisions of the medical practice act. It exempts from this act "any person who ministers to or treats the sick or suffering by mental or spiritual means without the use of drugs or any material remedy." During the meeting of the Medical Society of the County of New York on March 23 telegrams were sent to the senate and assembly protesting against this bill and the chiropractic and naturopath bills now before the legislature.

New York City

Councilman to Speak in Brooklyn.—Dr. William T. Councilman, Boston, will deliver an address on "Glioma" before the Brooklyn Pathological Society, April 9.

To Lift Debt on Blind Home.—The New York Association for the Blind has inaugurated a campaign to raise \$300,000, part of which is to be applied to the mortgage of the new Lighthouse on East Fifty-Ninth Street and the remainder to form a working fund for the institution. Forty-one thousand dollars have already been subscribed toward the fund.

Hospitals Accused of Transferring Dying Patients.—A report made by the Hospital Investigating Committee to the Board of Estimate recently condemns private hospitals which receive city aid for emergency service for sending dying patients to Bellevue and Kings County hospitals in order that their own death records may be kept as low as possible. Eighteen patients brought to Bellevue Hospital in private ambulances during the three-month period under consideration was considered evidence of the tendency of private hospitals to carry dying patients to Bellevue rather than to their own hospitals. The committee recommends that the Ambulance Board make rules to compel ambulances to carry dying patients to the nearest hospital.

NORTH CAROLINA

Confiscated Liquor to Go to Hospitals.—The hospitals of Raleigh have received from the municipal court several hundred bottles of fine liquor, confiscated by the court from five negro druggists convicted of the illegal sale of alcoholic liquors.

Personal.—Dr. Lewis B. McBrayer, Asheville, has been elected superintendent of the North Carolina State Sanatorium for Tuberculosis, Montrose, and director of the Bureau for the Prevention of Tuberculosis, recently established by the State

Board of Health. In addition to the superintendency, Dr. McBrayer will have charge of the extension of the antituberculosis crusade throughout the state. —Dr. M. Hall Fletcher, Asheville, has been elected a member of the Buncombe County Board of Health, vice Dr. Lewis B. McBrayer, resigned. —Dr. Carl V. Reynolds, Asheville, has been elected health officer of the city, to succeed Dr. Lewis B. McBrayer, resigned.

NORTH DAKOTA

New Officers.—University Medical Society at Grand Forks: president, Solveig Thordarson; secretary, Elmer Hancock.

Personal.—Dr. Clarence E. Lommen has been appointed local surgeon for the Soo System at Fordville. —Dr. Albert M. Fisher, Bismarek, has been appointed physician of the state penitentiary.

OHIO

Campaign for Hospital.—A committee has been appointed to raise \$500,000 for St. Luke's Hospital, Cleveland. The money will be used to liquidate an indebtedness of \$100,000 and to erect additional buildings for the institution, including a new power-house and service building.

Personal.—Dr. Marie S. Perfect, Columbus, who was struck by a street-car and seriously injured recently, is reported to be convalescent. —Dr. William C. Hayes has succeeded Dr. Edward V. Hug as health officer of Lorain. —Dr. Thomas K. Wissinger, Columbus, was seriously injured in a collision between his automobile and a trolley car, March 18.

Cincinnati

Personal.—Dr. Herbert A. Brown has resigned as workhouse physician. —Drs. J. Henry Schroeder and Sidney Lange sustained severe injuries in a collision between the automobile in which they were riding and another motor car, March 16.

Small-Pox Annex.—Considerable controversy has arisen over the location of the small-pox annex of the new City Hospital. Property owners residing near the new hospital have entered protest against having the annex located in that vicinity, while a suggestion to place it near the tuberculosis branch has met with opposition on the part of the Antituberculosis League. At a meeting of the Academy of Medicine, March 23, the consensus of opinion was in favor of placing it near the new general hospital.

Health Board Members Resign.—Four out of six of the members of the Cincinnati Health Board resigned, March 25. Those who resigned were Drs. Edward W. Walker, George A. Fackler, Clifford Schinkal and William Breed. The only other medical member of the board was not present at the meeting which precipitated the resignations. The trouble is said to have been due to a remark of the mayor's regarding the manner in which the Health Department officials were appointed, in which he intimated that the board was "playing politics."

OREGON

Cancer and Tuberculosis Symposium.—At the meeting of the City and County Health Officers in Portland, March 21, symposiums were held on cancer and tuberculosis.

Medical College Site Donated.—Twenty acres of land in South Portland, valued at \$100,000 have been donated as a site for the campus and buildings of the Medical School of the University of Portland, by the Oregon-Washington Railroad and Navigation Company, the terms stipulating that the site may be used for public purposes, such as a hospital or institutions for the furtherance of scientific research and investigation, and teaching along such lines.

Conservation of Vision.—Dr. Calvin S. White, Portland, president of the Oregon State Medical Society, has appointed the following commission: Dr. Joseph L. McCool, Portland, chairman; Drs. John F. Dickson, William L. Wood, Frank B. Eaton, George Ainslie and Ralph A. Fenton, Portland; Dr. Claude M. Pearce, Baker; Dr. Jocelyn J. Emmens, Medford, and Dr. Justin M. Waugh, Hood River. This commission is empowered to appoint an advisory commission to consist of one educator, one architect, one railway official, one press representative, one lumberman, one illuminating engineer, one banker, one merchant and the superintendent of the State School for the Blind.

PENNSYLVANIA

Personal.—Dr. Stanley F. Druckenmiller, Lansford, has been appointed medical inspector of the Lehigh and New England Railroad. —Dr. William L. Crawford, Dillsburg, who has been ill from appendicitis, is reported to be improving.

Small-Pox in Chester County.—Nine cases of small-pox have been discovered in Chester County. Two at Toughgenamon, near Kennett Square. The 450 residents of the village were ordered to be vaccinated. Church services have been ordered discontinued and the public schools were closed.

Medical Pantheon for Wilkes-Barre.—Plans are being prepared for the Luzerne County Medical Society building, to be erected on South Franklin Street, Wilkes-Barre. The building will have a large circular auditorium and a domed ceiling. On the first floor the library of the society will be housed, and there will also be club rooms for members; on the second floor there will be the directors' room, committee rooms and check room.

Philadelphia

Hospital Addition.—Work was started, March 26, on another building for medical cases at the Jewish Hospital, Old York Road and Tabor Street. The new structure will cost \$60,000 exclusive of the ground and will be of stone and brick, two stories and a basement.

Personal.—Dr. Charles A. Groff has resigned as assistant chief medical inspector of the Bureau of Health.—Dr. Samuel S. Woody, having successfully passed the civil service examinations, has been appointed chief resident surgeon of the Philadelphia Hospital for Contagious Diseases.

Gifts to Woman's College.—In addition to the gifts of \$16,000 noted in THE JOURNAL of March 21 for the endowment fund of the Woman's Medical College of Pennsylvania, and erroneously attributed to the Woman's Hospital, an additional anonymous gift of \$5,000 has been received, and one of the incorporators, recently deceased, has left a bequest of \$1,000 for the endowment fund of the college.

Farm for Feeble-Minded.—Plans are being perfected to raise \$10,000 by private subscription to establish a colony for the temporary care of feeble-minded children in eastern Pennsylvania, until the legislature appropriates money for permanent quarters. More than twenty-five offers to lease or sell farms within 30 miles of this city have been sent to Dr. Walter S. Cornell, chief medical school inspector. Several places have been inspected, but a farm of about 100 acres is desired.

Site for New Hospital Building.—Eighteen two- and three-story brick dwellings adjoining St. Mary's Hospital, Frankford Avenue and Palmer Street, have been purchased by the Sisters of the Third Order of St. Francis of Assisi. These buildings will be torn down to make way for a new hospital building. The conveyance of these properties give to the hospital an additional frontage of 70 feet on Palmer Street and of 270 feet on Sepviva Street. The old hospital building on the corner of Frankford Avenue and Palmer Street will be torn down to make way for part of the new building.

Hospital Efficiency Meeting.—More than one hundred hospital representatives attended a meeting called by the Philadelphia County Medical Society, March 25. The speakers were Dr. Edward Martin, who presided; Dr. Robert G. LeConte, Dr. George E. de Schweinitz, W. B. S. Thorne, vice-president and treasurer of the Union Pacific Railroad Company, Bromley Wharton, secretary of the State Board of Charities, and Alexander M. Wilson of the Department of Health and Charities. A resolution to adopt the work being done by the committee on hospital efficiency was adopted unanimously.

Inebriates Off Hospital's Pay Roll.—On March 23, Superintendent Walsh, put a new regulation into effect, that inebriates admitted to the Philadelphia General Hospital for treatment will be barred from appointment on the hospital roll to do light work with pay. Acting Director Wilson found that inebriates recurrently had themselves committed to the hospital where they would perform duties of cleaners, attendants or orderlies, and receive from \$5 to \$20 a month, and thus earn enough money to start on another debauch. During the last six months, eighty-three male convalescents were placed on the pay roll, of whom forty-three were from the inebriate wards.

SOUTH CAROLINA

Personal.—Dr. Thomas J. Lancaster has succeeded Dr. James W. Babcock as superintendent of the State Hospital for the Insane, Columbia.—Dr. George A. Hennies, Chester, sustained painful injuries in a runaway accident, March 19.

Hospital for the Study of Pellagra.—Congress has authorized the establishment of a hospital at Spartanburg for the care and study of patients with pellagra. A bill for the establishment of a hospital by the state for the study of this disease was recently defeated in the legislature. The Thompson-McFadden Pellagra Commission has made Spartanburg its

headquarters during the past two years. The establishment of the federal hospital should greatly facilitate the work of the commission.

VIRGINIA

Public Health Meeting.—The meeting of the Virginia Public Health Association will be held April 23-24, at the University of Virginia, Charlottesville.

License Exemption Bill Becomes Law.—Governor Stewart permitted Senate Bill 70, which exempts physicians from the payment of licenses to the state, to become law without his signature. This fight has been carried on by the physicians of the state for many years, and there is general rejoicing over the victory.

Small-Pox in the State.—March 21, it was estimated that there were 500 cases of small-pox in the state, the state health commissioner stating that the disease was prevalent in 40 per cent. of the counties. The commissioner also stated that the disease has been more virulent this year than for a long time past. In two instances the disease attacked the heads of families who had for years defied and resisted attempts to have them vaccinated. They then lost no time in having the members of their families vaccinated.

Personal.—Dr. Meads Ferguson, Richmond, has resigned as city bacteriologist to become editor of the *Southern Planter*.—Dr. Francis Randolph Crawford, Kernstown, a medical missionary of the Southern Presbyterian Church, has sailed from Europe for Shanghai.—Dr. T. Edward Baird, Norfolk, has been appointed medical quarantine officer of the Elizabeth River District, vice Dr. Frank H. Hancock.—Dr. Knox E. Miller, Richmond, for two years hookworm inspector of the state, has resigned and been succeeded by Dr. Albert P. Traynam, Richmond.

WASHINGTON

Personal.—Dr. Cline F. Davidson, chief medical examiner of the Seattle Health Department, has resigned, and the position is to be abolished.—Dr. Walter E. Keehl, Cle Elum, sailed for Europe March 28.

Vetoed Rat-Killing Bill.—An appropriation of five thousand dollars to pay the salaries of thirty rat catchers who have been employed in the antiplague campaign at Seattle was vetoed by Mayor Gill. This was done in face of the report that plague infected rats have recently been found on the water fronts of the city.

GENERAL

Monument to Finlay.—Friends of Dr. Carlos J. Finlay, Havana, Cuba, have decided to raise funds to erect a monument in his honor. The funds on hand have been raised by popular subscription. Dr. Finlay, who was the first person to put forth the theory of the transmission of disease by the agency of mosquitoes, has retired from active work.

Mental Hygiene Election.—The sixth annual meeting of the National Committee of the Society for Mental Hygiene was held in New York City, March 10. Dr. Lewellys F. Barker, Baltimore, was elected president; Dr. William H. Welsh, Baltimore, vice-president; Dr. Thomas W. Salmon, New York City, director of special study, and Mr. Clifford W. Beers, New York City, secretary.

Meeting of Pacific Coast Oto-Ophthalmologic Society.—At its coming meeting in Seattle, July 1-3, 1914, the Pacific Coast Oto-Ophthalmologic Society will have as a guest, Col. Robert H. Elliot of London, who will deliver an address and demonstrate his operative methods, including the trephining operation for glaucoma. The territory embraced by the membership includes the states west of the Rocky Mountains and also British Columbia.

International Surgical Association.—The fourth triennial meeting of this association will be held in New York City, April 13 to 16. The program is to be limited to the consideration of three main topics: (1) Gastric and duodenal ulcers, with papers by De Quervain, Balse, Hartman and Lecène, Paris; Mayo, Rochester, Minn.; Moynihan, Leeds, and Payr, Königsberg. (2) Grafts and transplantations, with papers by Morestin, Paris; Villard, Lyons; Uhlmann, Vienna; Lexer, Jena, and Carrel, New York. (3) Amputations, with papers by Witzel, Düsseldorf; Ceci, Pisa; Kusmik, Budapest; Binnie, Kansas City; Durand, Lyons, and Ranzi, Vienna. Foreign members have been invited to attend the meeting of the American Surgical Association in New York, April 9 to 11. At the close of the session, April 16, many of the foreign surgeons will make a tour; the itinerary will include Philadelphia, Baltimore, Washington, Chicago, Rochester, Minn., and Boston.

Bequests and Donations.—The following bequests and donations have recently been announced:

Maimonides Koshier Hospital, Chicago, an additional donation of \$9,000 by Abraham Slimmer, Dubuque, Iowa.

Beverly (Mass.) Hospital, toward the Charles Ingalls Giddings Memorial Fund, one-half the remainder of the estate of Mrs. Martha P. Webb, Brookline, of \$40,000, after payments of bequests.

Boston Baptist Hospital, Perkins Institute for the Blind, Massachusetts Eye, Ear, Nose and Throat Infirmary, each \$1,000 by the will of Miss Sarah E. Pratt.

Long Island College Hospital, Brooklyn, Brooklyn Home for Consumptives, Brooklyn Hospital, and the House of St. Giles the Cripple, each one-tenth of an estimated estate of \$200,000 by the will of Mrs. Matilda E. Webb.

Stony Wold Sanatorium, St. Rose's Free Homes for Incurable Cancer, and the New York Medical College and Hospital for Women, each \$3,000 by the will of Mrs. E. N. Andreas.

State Orthopedic Hospital, Lincoln, Neb., and Home for Dependent Children, each about \$50,000 by the will of Charles Geunchi.

Episcopal Hospital, Philadelphia, \$5,000; one-half of the residuary estate, valued at \$100,000, to revert after the death of the legatee to St. Martin's College for Boys, Home of Rest, Episcopal Hospital, Home for Crippled Children, Philadelphia; and the proceeds of the sale of the house eventually to be given to the Pennsylvania Hospital for the endowment of a free bed in the children's ward, in memory of Mary M. McNamany, by the will of Margaret A. May.

FOREIGN

Leprosy in Germany.—The cable states that the wife of a government official at Danzig, Germany, has been certified as leprosy and has been sent to a lepers' hospital.

Plague at Havana.—Under date of March 25 three new cases of plague were reported at Havana. The persons attacked are Spaniards employed as clerks by a sugar firm.

Archives for Eugenics.—The latest new periodical on this science is the *Archiv für Frauenkunde und Eugenik*, founded by Dr. Max Hirsch of Berlin and issued by the Kabitsch publishing house at Würzburg.

Death of Joachimsthal.—One of the leading orthopedists of Germany, Prof. G. Joachimsthal of Berlin, died recently, aged 50. He founded in 1900 a private clinic for orthopedic surgery. Since Hoffa's death, in 1908, he has been chief of the university clinic for orthopedic surgery, and has written extensively on this specialty.

International Congress of Medical Radiology.—The seventh international gathering to discuss the medical aspects of electrolgy and radiology is to meet this year at Lyons, France, July 27-31, with Professor Renaut in the chair. Among the seven addresses is one by Lumière, of color photography fame, on the action of Roentgen rays on the photographic plate; one on clinical electrocardiography by Nicolai of Berlin, and Vaquez and Bordet of Paris. Schnee will discuss ionotherapy, and Doumer the action of high frequency electric currents on surgical tuberculosis, while Falta of Vienna and Sommer of Zurich will discuss radium. A prize of \$200 is offered for the apparatus for electrodiagnosis best fulfilling certain conditions formulated at the Barcelona congress in 1912. There were no apparatus presented at the congress last year deemed worthy of this prize.

Official Investigation of Salvarsan Demanded.—The medical members of the German Reichstag (Drs. Becker, Gerlach, Schatz and Struve) recently asked for an official report from the imperial chancellor on the questions (1) as to the truth of the reports now circulating in the lay and medical press that several hundred fatalities have already followed the treatment of syphilitics with salvarsan and that permanent or transient injury of the health has resulted; (2) whether salvarsan is dispensed without a physician's prescription; (3) whether the amount of arsenic contained in salvarsan is several times the maximal dose established in the Pharmacopœia, and (4) whether the fatalities and injury of the health are to be ascribed to the arsenic content of the salvarsan.

The official answer to these questions is given in full in our German exchanges of March 10. It states in effect that as physicians are not required by law to report cases of serious injury from salvarsan, the authorities have no official data on the subject. The cases that have been published in medical literature can be explained in part by injudicious selection of patients, by defective technic or by peculiar features of the disease, and in part by the arsenic content of the salvarsan in especially susceptible persons. According to the evidence to date, only part of the injuries can therefore be ascribed to the toxic action of the salvarsan. The general verdict of approval and appreciation of salvarsan is cited, and the concluding paragraph states that the single dose of salvarsan ranges from 0.1 to 0.6 gm. arsenic. This is in fact several times the corresponding maximal dose of arsenic in arsenous acid (0.004 gm.). It must be remembered, however, that according to the professional press, the arsenic in salvarsan is in a materially less toxic form than in arsenous acid.

CANADA

Canadian Medical Association Meeting.—Dr. Thomas McCrae, Baltimore, is to deliver the address in medicine at the Canadian Medical Association meeting, St. John's, N. B., July 7-10; Dr. J. Rutherford Morison, professor of surgery, University of Durham, Newcastle-on-Tyne, England, the address on surgery; Dr. Robert Jardine, professor of midwifery, St. Mungo's College, Glasgow, Scotland, the address in obstetrics, and Dr. Charles A. Hodgetts, Ottawa, the public lecture.

New Health Code for Montreal.—One of the first measures to come before the new city council of Montreal is the establishment of a new board of health. A health code for that city has been drawn up after considerable labor by a special commission, with Dr. Emmanuel P. Lachapelle as chairman. The board of health will consist of the mayor and four aldermen, to hold office for two years. The new health code will provide for the complete abolition of all cesspools throughout the city and of all dark rooms in dwellings. Five hundred cubic feet of air space for each person and 50 square feet per head in houses will be another requirement. Schools and industrial establishments will also come in for regulation. Employees to be given 400 cubic feet of air space. This means the inspection of industrial establishments.

Hospital News.—For a new private pavilion for the Royal Victoria Hospital, Montreal, a few thousand dollars has been collected. Mr. J. K. L. Ross will bear the balance of the cost, between \$250,000 and \$300,000, as a tribute to the memory of his late father, Mr. James Ross. Drs. Walter W. Chipman and George E. Armstrong, feeling the need for the pavilion, had each contributed \$1,000. The new wing will be located immediately behind the main structure, but a separate unit. It will have accommodation for about 150 patients.—The Ontario government has introduced a bill into the legislature of that province to enable Toronto to establish a detention home for insane persons. It will incorporate the agreement between the Toronto General Hospital, the City Council and the Ontario government. It will also provide that in Ontario cities of over 100,000 population, reception homes may be provided for on the authority of the governor-in-council, plans and sites selected to be subject to the approval of the government. These hospitals will be under the control of the department of the government having to do with all hospital administration, and the cost of maintenance other than that provided by municipalities to be borne by the government.

Workmen's Compensation in Ontario.—In the bill now before the Ontario legislature to provide for workmen's compensation, no provision is made for the payment to physicians for services rendered to employees suffering injury. The physician will simply have to look to the injured one for payment. The Academy of Medicine, Toronto, and the Ontario Medical Council do not consider this fair to the medical profession, nor even to the working man, and have accordingly suggested certain amendments to the bill. The act will be administered under a commission of three, which will appoint a chief medical officer, medical referee, a secretary and others. The accident fund to provide for compensation will be raised by a levy on a percentage basis of wages paid, and certain industries are classified into distinct sections. The bill is modeled more after the German than the British law, and the industrial diseases mentioned for compensation are the same as originally set out in the British act. While the working classes are possibly just as good pay from the physicians' standpoint as other classes of the community, it seems considerably unfair that an act in the interests of the working man primarily should make him responsible for medical services rendered in case of accidents occurring while he was working for another man or employer.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, March 13, 1914.

State Provision for the Blind

In the United Kingdom there are between 32,000 and 34,000 blind persons. Of these it is estimated that 5,000 are in workhouses, 5,000 are receiving parish relief and 7,000 are begging their bread. Only 3,000 are employed in voluntary institutions, and there the wages earned average only about \$2.50 per week. About 5,800 receive a small pension averaging not more than \$50 per year from charitable organizations. The subject of the care of the blind has been under discussion in the House of Commons. A labor member, Mr. Wardle, brought forward a motion that "the present system of voluntary effort in aid of blind people of this country does

not adequately meet their necessities and that the state should make provision by which capable blind people may be made industrially self-supporting and the incapable and infirm be maintained in a proper and humane manner." Another member pointed out that about 5,000 of the blind would not have been so if they had received proper attention at birth. On behalf of the government Mr. J. H. Lewis, parliamentary secretary to the Local Government Board, said that although blindness was diminishing this was no reason for not taking action. Indeed it was an argument for beginning action because the matter had now assumed more manageable proportions. The state had already done something in ensuring the elementary education of blind children, and further steps were about to be taken. With regard to secondary or technical education, the voluntary institutions had done their best with the limited means at their disposal. Private charity had been poured out bountifully for the blind, but admirable as the work had been, there was more to be done. The time had arrived when a forward step would be taken, and the government would immediately appoint a committee to consider the question.

The Royal Commission on Venereal Diseases

At the twentieth meeting of the Royal Commission on Venereal Diseases, Mr. C. A. Ballance, chief surgeon to the Metropolitan police and surgeon to St. Thomas' Hospital, said that the amount of venereal disease among the police was slight. Formerly policemen reporting themselves sick from venereal diseases were looked on as defaulters and their pay was stopped. In 1911 the system was entirely changed and venereal disease was treated like ordinary sickness. The result had been that most of those affected have reported themselves sick to the divisional surgeon and have not tried to keep it secret. As many patients as can be accommodated are sent to the military hospital, but if that hospital is unable to receive them they are sent to the nearest general hospital. The change of system had the good effect of securing early treatment. From his experience at St. Thomas' Hospital Mr. Ballance thought that the number of serious cases of venereal disease were diminishing. This he attributed to early treatment. He much doubted whether the actual prevalence had diminished.

At the twenty-first meeting Dr. Brian O'Brien, medical inspector of the Local Government Board for Ireland, said that his impression was that there was a decline of venereal disease in the country districts and small towns of Ireland. Venereal disease, especially syphilis, was almost non-existent in the rural portions of Ireland, and uncommon in the smaller towns. In Dublin there was a special prevalence, and among the causes contributing to this he mentioned poverty, bad housing and the fact that Dublin is the refuge of persons from the greater part of Ireland who are doing no good for themselves. There was also some prevalence of the disease in Belfast, but to a much less extent than in Dublin. He considered that the treatment of the disease in Ireland was at present very inadequate. His two main recommendations were that means should be provided for improving diagnosis and that institutional treatment should be subsidized. Out-patient departments of general hospitals should be open in the evening. He was opposed to notification of venereal disease. He did not think that the medical profession would be willing to notify, and if they did fewer persons would go to physicians for treatment.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, March 13, 1914.

Compulsory Antityphoid Vaccination and Medical Responsibility

I have already mentioned (THE JOURNAL, March 10, 1914, p. 139) the passage in the Senate of a bill to make antityphoid vaccination compulsory in the active army. This bill raises an important problem of the professional responsibility of physicians, which was discussed at the last session of the Société de médecine légale. It is not easy to determine the contra-indications to antityphoid vaccination in the case of recruits whose past history and organic defects are unknown to the regimental physicians. Every year the recruits with defective constitutions are eliminated a few at a time, the annual number being between 7,000 and 8,000. It is quite possible that several of these men who are sent home for threatened or incipient tuberculosis and who have been vaccinated against typhoid before their dismissal, will attribute the development of their disease to this vaccination and will bring suit

for damages, which may be awarded them. In such a case who will be responsible—the physician who performed the operation or the government which required it? The bill as passed by the senate requires all the soldiers to be vaccinated without exception. The society therefore passed a resolution that some exceptions should be made in the law.

Rubber Grafts

As a general thing, the insertion of foreign bodies in the human organism as a substitute for lost tissue has not hitherto been very successful. Fragments of bone and ivory are finally absorbed after having served as supports for the regeneration of new tissue. Such substances as silver become encysted or eliminated by the suppuration which they cause. Rubber, which has the advantage of being tolerated by living tissues without becoming absorbed or encysted, has been employed by Dr. Pierre Delbet, professor of clinical surgery at the Faculté de médecine de Paris, to repair loss of tissue and to prevent undesirable adhesions. Victor Henri has shown that the latex or sap of the rubber-tree is an emulsion of fine grains, measuring from 0.05 to 2 microns, bearing a negative electric charge. It acts like a negative colloid and therein resembles the colloids of blood-serum which are likewise electronegative. The rubber used by Delbet is produced by evaporating the sap of the rubber-tree and adding 2.5 per cent. of sulphur. Does this preserve the properties of the living sap? It may be assumed that it does, since all serotherapy is based on the fact that certain biologic properties of blood-serum are preserved *in vitro*. The molecular equilibrium of rubber, like that of living substances, is maintained better while it is in use. Rubber of which the elastic properties are frequently brought into play lasts longer than that which is unused. Such qualities are intermediate in some degree between those of inert matter and those of living matter.

Delbet asks if these "paravital" properties of rubber are not parallel with those of animal tissues. Daily experience proves that human tissues undergo no appreciable reaction in contact with rubber drains. Tuffier and Carrel have shown that the circulating blood does not cooperate in contact with a sheet of rubber. Delbet found that rubber remained intact for a long time in the tissues. In 1886 he found in a maxillary cyst a rubber drain which had been forgotten by Chassaignac more than twenty years before and which was intact. In the physicochemical conditions furnished by living tissues, therefore, rubber lasts much longer than on a shelf and thus shows a certain resemblance to the colloids. Delbet used rubber grafts in two cases which he reported to the Académie de médecine. In the first patient, who had an adhesion of the tendon of the extensor longus, Delbet, after breaking up the adhesion, placed a thin sheet of rubber between the bone and the tendon, which resumed its functions. The operation was performed more than eight months ago and the rubber graft has given no trouble. Another still more interesting case was of an enormous hernia of the large intestine. Delbet repaired the abdominal wall with a thick sheet of rubber 7 by 3 cm. Reunion was accomplished without the least sign of irritation. The operation had been performed only a few days before the report. The patient suffered no discomfort; the abdominal wall was solid.

Fieschi used rubber in a different way. He employed a very porous tissue (rubber sponge) in order to obtain incorporation by penetration of the granulations into the areolae. This method may be very interesting. Delbet has begun experiments to learn if the elasticity of rubber grafts cannot be utilized. Whether this be so or not, he believes that rubber grafts are destined to render greater service in surgery.

Deaths from Salvarsan

Drs. Morel and Mouriquand of Lyons, who have been investigating the organotropism of salvarsan for three years, have found two classes of reactions of the organism. In animals which tolerate the injection well, the urinary elimination of arsenic is rapid and intense. No organotropism is found by searching for arsenic in the viscera of an animal killed three or four days after injection. Animals belonging to a second and smaller class rapidly succumb to intoxication because of the almost total retention of arsenic, principally at the level of the liver (hepatotropism). The practical conclusion to be drawn from these researches is that before undergoing the Ehrlich treatment patients should have a test injection of a very small dose, and arsenic should be sought in the urine. If the elimination of arsenic is absent, slight or delayed, the second injection should be postponed or made with great caution.

Marriages

NEWTON EDWARD WAYSON, M.D., San Francisco, to Miss Anne T. Ewing of Portland, Ore., at San Francisco, March 14.

MARSHALL TRIPLETT HOOVER, M.D., Palmer, W. Va., to Miss Emma Boggs of Bois, W. Va., in Clarksburg, W. Va., March 9.

ALFRED E. RIVES, M.D., to Miss Helen Lawrence, both of East St. Louis, Ill., at Louisville, Ky., March 2.

IVAN EARNEST BRENNER, M.D., Winchester, Ind., to Miss Anna Marlatt of Connersville, Ind., March 3.

LUNSFORD M. THOMPSON, M.D., Reardan, Wash., to Miss A. Waddington of Spokane, Wash., March 17.

WILLIAM HENRY GILBERT, M.D., to Mrs. Jessie Shawler, both of Evansville, Ind., in St. Louis, March 20.

ABRAM L. SHERICK, M.D., Ashland, Ohio, to Miss Elsie Cross of Lima, Ohio, March 19.

Deaths

Egbert Le Fèvre, M.D. dean of University and Bellevue Hospital Medical College, New York City; died March 30, from scarlet fever, aged 55. He was born in Raritan, N. J., October 29, 1858, received his A.B., A.M. and Sc.D. degrees from Rutgers College, and was graduated from the University of the City of New York Medical Department in 1883. He served two years as intern in Bellevue Hospital, and in 1888 became clinical lecturer on practical medicine in his Alma Mater. In 1890 he was made professor of clinical medicine; in 1895, adjunct professor of medicine, and since 1898 has been associate professor of therapeutics, professor of clinical medicine, and dean of the faculty of the united colleges. He was visiting physician to the City Hospital in 1894 and 1895, and to Bellevue Hospital and St. Luke's Hospital since 1898; and was also consulting physician to Beth Israel Hospital. He was a Fellow of the American Medical Association and the New York Academy of Medicine, and a member of the American Climatological Association, and National Association for the Study and Prevention of Tuberculosis. He was also the author of a standard work on "Physical Diagnosis," which appeared in 1902.

George McNaughton, M.D. Bellevue Hospital Medical College, 1878; a Fellow of the American Medical Association; for five terms president of the Medical Society of the County of Kings; a fellow of the American Gynecological Society and the New York Academy of Medicine; clinical professor of gynecology in Long Island College Hospital; visiting gynecologist to Long Island College, Kings County, Eastern District and Brooklyn hospitals; consulting gynecologist to the Long Island State Hospital, Jewish Hospital and Central Dispensary; died at his home in Brooklyn, March 17, from heart disease, aged 57.

Daniel B. Cornell, M.D. Detroit College of Medicine, 1889; a Fellow of the American Medical Association; professor of diseases of the eye, ear, nose and throat in the Michigan College of Medicine and Surgery, Detroit; one of the founders of the Saginaw Valley Medical College; oculist and aurist to the Women's Hospital, Saginaw; district examiner as to sight, hearing and color perception for the Cincinnati, Hamilton and Payton and Pere Marquette systems; died at his home in Saginaw, March 21, from septicemia, due to an ulcerated tooth, aged 59.

John Laing Leal, M.D. College of Physicians and Surgeons, New York City, 1884; a member of the Medical Society of New Jersey; president of the New Jersey State Sanitary Association; consulting surgeon to the Paterson Hospital; examiner in hygiene in Rutgers College; for many years president of the Paterson Board of Health, and sanitary adviser of the East Jersey Water Company; an authority on water-supply; died in St. Joseph's Hospital, Paterson, March 13, from diabetes, aged 55.

Henry Sykes, M.D. University of Pennsylvania, Philadelphia, 1884; at one time a member of the staff of the State Hospital for the Insane, Norristown, Pa.; for eighteen years chief resident physician of the Episcopal Hospital, Philadelphia; and for eight years occupying a similar position at the Philadelphia General Hospital; died March 19 in the Jefferson Hospital, Philadelphia, from cancer of the mouth, for which operation had been performed without success, aged 52.

William Coe Monroe, M.D. Bellevue Hospital Medical College, 1876; a Fellow of the American Medical Association; and first president of the Woonsocket District (R. I.) Medical Association; health officer of Woonsocket since 1900; for eight years coroner and medical examiner and a member of the school committee; a member of the staff of the Woonsocket Hospital, and for several years chief of staff; died at his home, March 11, from heart disease, aged 64.

William Perry Weaver, M.D. Cincinnati College of Medicine and Surgery, 1871; a Fellow of the American Medical Association; a member of the Board of Health of Miamisburg, Ohio; district surgeon of the Big Four system, and local surgeon for the Cincinnati, Hamilton and Dayton Railway; died at his home, March 8, from cerebral hemorrhage, aged 62.

George Franklin Roberts, M.D. Rush Medical College, 1872; New York Homeopathic Medical College, 1881; a Fellow of the American Medical Association; consulting physician to Asbury Hospital, Minneapolis; professor of gynecology in the University of Minnesota from 1895 to 1904; died at his home in Minneapolis, March 21, from pneumonia, aged 65.

George Oakley Welshman, M.D. College of Physicians and Surgeons, New York City, 1895; of Newark, N. J.; a Fellow of the American Medical Association; while crossing the tracks of the Delaware, Lackawanna and Western Railroad at East Orange, N. J., in his automobile, March 17, was struck by an express train and instantly killed.

Thomas Wesley Stumm, M.D. Rush Medical College, 1901; of St. Paul, Minn.; a Fellow of the American Medical Association, and once president of the Ramsey County Medical Association; a member of the staffs of St. Luke's, St. Joseph's and the St. Paul City Hospital; died in Vienna, Austria, March 20, from heart disease, aged 42.

Percy Shields, M.D. Miami Medical College, Cincinnati, 1897; a Fellow of the American Medical Association; professor of medicine on the clinical staff of his Alma Mater; a specialist on anesthesia; a member of the staff of the Cincinnati City Hospital and Jewish Hospital; died at his home in Cincinnati, March 9, aged 39.

Charles E. Thayer, M.D. Northwestern University Medical College, Chicago, 1883; Chicago Homeopathic Medical College, 1886; a Fellow of the American Medical Association; and president of the Green Lake County (Wis.) Medical Society; of Markesan; died in Fond du Lac, March 14, from heart disease, aged 54.

Joseph Lowrie Ingle, M.D. New York University, New York City, 1871; a member of the Medical and Chirurgical Faculty of Maryland; formerly physician-in-charge of Sydenham Hospital, Baltimore; died at his home in that city, March 20, from angina pectoris, aged 67.

Abram A. Sulcer, M.D. Rush Medical College, 1866; for many years a practitioner of Los Angeles; aged 75; died at his home in Riverside, March 14, as the result of injuries received a few hours before in a collision between motor-cars on the Box Springs grade.

Francis S. Kennedy, M.D. New York University, New York City, 1891; of Brooklyn, N. Y.; for many years connected with the Seventh Infantry, N. G. N. Y., and later a resident of Toronto, Ont.; died in the Brooklyn Hospital, March 17, aged 58.

Albert R. Fellows (license, Maine, 1895); chairman of the health board of Winterport, Maine, and local surgeon for the Winterport Railroad; for forty years a practitioner; died while making a professional call in Bucksport Center, March 5, aged 62.

James Nicholas Butler, M.D. Bellevue Hospital Medical College, 1888; one of the founders and first dean of the Medical Department of Fordham University; for many years a member of the visiting staff of St. Francis' Hospital; died at his home in New York City, March 14, from heart disease, aged 53.

Jesse J. Stringer, M.D. Chattanooga, Tenn., Medical College, 1905; a member of the Mississippi State Medical Association; and a practitioner of Oak Vale; died in that place, March 14, from the effects of a gunshot wound of the head, believed to have been self-inflicted with suicidal intent, aged 42.

John Joseph Loftus, M.D. Medico-Chirurgical College of Philadelphia, 1903; formerly of Denver, Colo., but for the last two years a practitioner of Scranton, Pa.; died in St. Vincent's Hospital, Denver, March 10, from pneumonia, aged 39.

Woodward David Carter, M.D. Hahnemann Medical College, Philadelphia, 1894; for several years instructor in gynecology in his Alma Mater; died at his home in Philadelphia, March 17, from influenza, aged 46.

Samuel Perry, M.D. Medical College of the State of South Carolina, Charleston, 1854; a member of the Medical Association of the State of Alabama; a Confederate veteran; for many years a practitioner of Birmingham; died at the home of his daughter in Marion, Ala., March 18, aged 80.

Frank D. Stolzenbach, M.D. Hahnemann Medical College, Philadelphia, 1904; aged 35; a Fellow of the American Medical Association; of Pittsburgh; was found dead in a farmhouse near Wellesley, Mass., March 13, from the effects of a gunshot wound of the heart.

James T. Cushenbury, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1875; formerly of Medicine Lodge, Kan.; a physician and banker of Wann, Okla.; died in a hospital in Wichita, Kan., March 11, after a surgical operation, aged 64.

Thomas A. Allen, M.D. Medical College of the State of South Carolina, Charleston, 1853; one of the oldest residents of Hendersonville, N. C.; died at the home of his daughter in South Nashville, Tenn., March 11, from pneumonia, aged 89.

George W. Milligan, M.D. Berkshire Medical College, Pittsfield, Mass., 1852; a practitioner of Sparta, Wis., for more than sixty years; once physician of Monroe County; died at his home in Sparta, March 15, from senile debility, aged 88.

John T. Jones, M.D. Tulane University, New Orleans, 1880; for twenty years physician to the stevedores', long-shoremen's and screwmen's organizations of New Orleans; died at the home of his brother in that city, March 11, aged 53.

R. H. Baylor (license, Tenn., 1889); a practitioner for more than fifty years; health officer of Houston County; a surgeon in the Confederate service during the Civil War; died at his home in Erie, March 9, from heart disease, aged 78.

Daniel Simmons, M.D. New York Homeopathic College, New York City, 1875; a veteran of the Civil War; chief of the consulting staff of the Cumberland Street Hospital, Brooklyn; died at his home in that city, March 18, aged 70.

William V. Loftus, M.D. Missouri Medical College, St. Louis, 1879; a member of the Missouri State Medical Association; for several years editor of a medical journal in Kansas City; died at his home in St. Louis, March 13, aged 64.

William Oliver Howard, M.D. Atlanta (Ga.) School of Medicine, 1908; a member of the Medical Association of Georgia; of Morgan; died at the Williams Sanatorium, Macon, March 6, after an operation for appendicitis, aged 31.

Christopher J. Miller, M.D. Western Reserve University, Cleveland, 1864; for many years a practitioner of Marion, Ohio; died in the Odd Fellows' Home in Springfield, Ohio, March 5, from senile debility, aged 80.

Charles Allen Smith, M.D. Barnes Medical College, St. Louis, 1897; formerly a practitioner of East St. Louis and De Land, Ill.; died in the West Side Hospital, Chicago, March 8, from cirrhosis of the liver, aged 78.

Abraham R. Shank, M.D. University of Pennsylvania, Philadelphia, 1867; a member of the Medical Society of the State of Pennsylvania; died at his home in Clear Spring, March 13, from pneumonia, aged 71.

Chester Lyman Hodgkins, M.D. Georgetown University, Washington, D. C., 1900; for two years a sanitary engineer in Ecuador, S. A.; died at his home in Park Falls, Wis., March 15, aged 43.

Samuel Schaie, M.D. University of Berlin, Germany, 1875; a member of the German Medical Society of New York; died at his home in New York City, March 19, from heart disease, aged 62.

Frank A. Weaver, M.D. Michigan College of Medicine, Detroit, 1881; a member of the Michigan State Medical Society; of Charlotte; died in a hospital at Oakland, Cal., March 6.

Herbert Bacon, M.D. Western Reserve University, Cleveland, Ohio, 1897; a nearly blind practitioner of Tiffin, Ohio; was accidentally drowned near Bloomville, Ohio, March 13, aged 38.

James A. Stevens, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1867; a surgeon of volunteers during the Civil War; died at his home in Eldon, Mo., about March 5, aged 70.

Henry C. Sawyer, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1878; a member of the Illinois State Medical Society; died at his home in Cornell, February 24, aged 68.

David Cabell Burks, M.D. Medical College of Virginia, Richmond, 1904; one of the proprietors of the St. Charles' Hospital, Roanoke, Va.; died in that institution, March 16, aged 43.

Nelson Bradley Coffman, M.D. Miami Medical College, Cincinnati, 1883; of Healdsburg, Cal.; died in St. Winifred's Hospital, San Francisco, March 5, from cerebral hemorrhage.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THEOBROMIN SODIUM SALICYLATE VERSUS "DIURETIN": THE ECONOMICAL ASPECT

[Contribution from the Chemical Laboratory of the American Medical Association]

W. A. Puckner and Paul N. Leech

The following inquiry is from Dr. Reid Hunt, recently appointed professor of pharmacology at Harvard Medical School:

"Have you ever made an examination of the theobromin sodium salicylates on the market to determine if they are identical with 'Diuretin'? The description of theobromin sodium salicylate in New and Nonofficial Remedies agrees with the statements as to the composition of Diuretin, but I wondered if, at times at least, the theobromin sodium salicylate on the market might be a simple mixture of theobromin and sodium salicylate just as the Caffeinae Sodio-Salicylas, N. F., seems to be a simple mixture. Diuretin is quoted in current price-lists at \$1.75 an ounce, whereas the price of theobromin sodium salicylate is only 35 cents an ounce. Many hospitals use diuretin, and both physicians and students often have only hazy ideas as to what it is. If the preparations of theobromin sodium salicylate now on the market are identical with Diuretin they should certainly be used, not only because they are less expensive, but because the descriptive name will continually remind the physicians of what they are using."

Theobromin for some time has been regarded as a valuable therapeutic agent. The obstacle to its use has been its insolubility and the consequent uncertainty of the degree of its absorption. For this reason a soluble salt of theobromin, theobromin sodium salicylate, first introduced and advertised under the proprietary name "Diuretin," has come to be used to a considerable extent.

Theobromin sodium salicylate—also called theobromin and sodium salicylate—is prepared by interaction, in molecular proportions, of theobromin, sodium hydroxid and sodium salicylate, the theobromin first being treated with sodium hydroxid in the presence of a suitable solvent, then the sodium salicylate added and the whole brought to dryness. The soluble compound which is formed is generally considered to be a double salt of theobromin sodium and sodium salicylate.

Theobromin sodium salicylate is described in New and Nonofficial Remedies and in several foreign pharmacopoeias. It is also to be described in the forthcoming United States Pharmacopoeia.

Although the product is not controlled by patents of any kind, and although it is offered for sale under its chemical name by the leading chemical manufacturers at from 35 to 45 cents per ounce, the proprietary product, Diuretin, sells for \$1.75 an ounce. This is probably because the manufacturers think that those who have been using it under its chemically non-descriptive but therapeutically suggestive title, Diuretin, will remain ignorant of the fact that the same product is on the market under its chemical name. In view of these conditions, emphasized by Dr. Hunt's letter, it was deemed important to examine the market-supply of theobromin sodium salicylate and to compare the several specimens with the proprietary brand Diuretin.

The following specimens, purchased in 1-ounce original packages, were examined:

Diuretin, "Knoll," Knoll & Co.

Theobromine and Sodium Salicylate, Mallinckrodt Chemical Works.

Theobromine and Sodium Salicylate, Merek & Co.

Theobromine and Sodium Salicylate Powder, Powers-Weightman-Rosengarten Co.

Theobromine and Sodium Salicylate, "Roche," Hoffmann-La Roche Chemical Works.

Theobromine and Sodium Salicylate, Squibb, E. R. Squibb & Sons.

The theobromin content prescribed for theobromin sodium salicylate by the various standards ranges from 45 to 50 per cent., that of New and Nonofficial Remedies being the highest. A requirement of not less than 46.5 per cent. theobromin in the dried powder has been proposed for the new U. S. Pharmacopeia.

The methods of quantitative estimation laid down by the various authorities are all very similar and consist, in the main, of a determination of water, of the sodium hydroxid, free and in combination with theobromin, and of the theobromin itself. For the theobromin estimation the following method was employed:

A weighed sample (about 2 gm.) which had previously been dried, under slightly reduced pressure, over sulphuric acid, to constant weight, was dissolved in five times its weight of warm water. Two drops of phenolphthalein were added, and the solution titrated with normal hydrochloric acid. To the neutral solution, 1 drop of 10 per cent. ammonium hydroxid solution was added, and the mixture allowed to stand, with occasional stirring, for three and one-half hours at the temperature of 15 C. The precipitate was filtered on a weighed Gooch crucible, washed with just ten times the weight (of the original sample taken) of water (temperature 15 C.) and the precipitate dried at from 100 to 104. To the weight obtained, a correction factor (proved satisfactory by quantitative extraction experiments on the filtrate) of 0.13 gm. was added, for every 2 grams of the original sample taken.

The full details of the examination will be published in the 1914 Reports of the A. M. A. Chemical Laboratory. The results of the examination have been abstracted and are compiled in the accompanying table:

SUMMARY OF ANALYSIS

| | Physical Appearance* | Gm. in 1-Ounce Bottle | Price, per Ounce | Moisture, Per Cent. | Alkaline as NaOH on Dry Powder† Per Cent. | Theobromin in Dry Powder‡ Per Cent. | Theobromin in Orig. Specimen‡ Per Cent. |
|------------------------------|----------------------|-----------------------|------------------|---------------------|---|-------------------------------------|---|
| Diuretin | 3 Pure White | 28.5 | \$1.75 | 0.01 | 10.44 | 48.61 | 48.61 |
| Theo. Sod. Sal. M. C. W. | 3 Pure White | 27.5 | 0.35 | 1.89 | 9.95 | 46.11 | 45.24 |
| Theo. Sod. Sal. Merck | 1 Pure White | 29.0 | 0.35 | 0.48 | 10.38 | 47.87 | 47.58 |
| Theo. Sod. Sal. P. W. R. Co. | 2 Pure White | 29.1 | 0.35 | 2.46 | 10.30 | 47.57 | 46.39 |
| Theo. Sod. Sal. Roche | 3 White | 28.6 | 0.35 | 2.27 | 9.92 | 49.05 | 47.92 |
| Theo. Sod. Sal. Squibb | 1 Pure White | 26.8 | 0.45 | 0.39 | 9.97 | 46.82 | 46.63 |

* In this column, 1, 2 and 3 denote the following:

1. Quite crystalline, under microscope.
2. Fairly crystalline, under microscope.
3. Not crystalline, under microscope.

† Average of determinations.

While the results show some variation in the moisture content and also in the actual theobromin content of the dried specimens, the variation is unimportant. The products in their original state (undried), as compared in relation to the theobromin content (the highest percentage of theobromin being 48.61, the lowest 45.24), reveals a variation of only about 3 per cent.—a variation which is negligible in the case of drugs such as theobromin.

From the preceding investigation, it is concluded that (1) practically there is no difference between the non-proprietary brands of "theobromin sodium salicylate" and "Diuretin"; (2) the several specimens examined were not simple mixtures of "theobromin" and "sodium salicylate"; (3) essentially all the brands complied with the standards laid down and can be rated as satisfactory; (4) "Diuretin," though sold at an

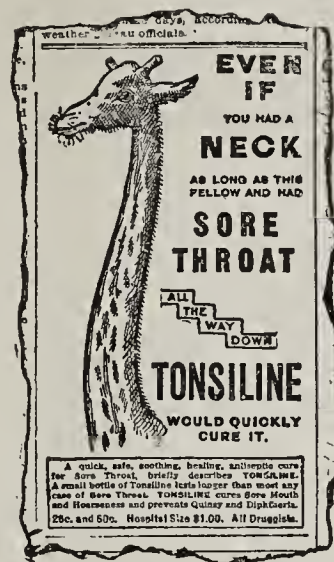
exorbitant price, is not superior to the product supplied under the descriptive term "theobromin sodium salicylate," and (5) "Diuretin" sells wholesale for \$1.75 an ounce, against 35 cents for the "theobromin sodium salicylate," and therefore its employment cannot be interpreted otherwise than as a useless and unnecessary expense.

TONSILINE

If we are to believe the advertisements—which we are not—"Tonsiline quickly cures sore throat." No such untruth appears on the label of Tonsiline, for lying on the label is expensive nowadays.

"We make no wild claims. We would be very sorry to make a single statement not the exact truth."

This from the bottle. Yet we read in the newspapers—the veracity of whose statements is not subject to the jurisdiction of the Food and Drugs Act—that Tonsiline is:



"A quick, safe, soothing, healing antiseptic cure for sore throat."

"Tonsiline cures sore mouth and hoarseness."

"Tonsiline prevents diphtheria."

"Tonsiline is the one and only sore throat cure which is sold over a large part of the United States."

Tonsiline is sold by the Tonsiline Company, Canton, Ohio. To determine the nature of this "one and only sore throat cure which is sold over a large part of the United States," it was analyzed in the Association's laboratory. Here is what the chemist found:

CHEMIST'S REPORT

"Three original bottles of Tonsiline were purchased and the contents subjected to examination. The bottles contained a yellow liquid, with an odor resembling that of Tincture of Iron Chlorid, U. S. P., and having an astringent taste. The specific gravity was 1.0418 at 15.6 C. If the solution was cooled below 12 C. crystals of potassium chlorate were formed. Qualitatively the presence of the following was demonstrated: Iron (ferrie), potassium, chlorate, chlorid and alcohol. The quantitative determinations gave the following:

Alcohol (by volume) 6.3 per cent.
Iron 0.37 per cent.
Potassium 1.31 per cent.

"From the iron and potassium contents it would be calculated that Tonsiline contains 1.60 per cent. ferrie chlorid (FeCl_3) and 3.89 per cent. potassium chlorate (KClO_3). The amount of ferrie chlorid administered in two teaspoonfuls, or 8 c.c., which is the dosage, is essentially the same as that administered in 1-2 c.c. of tincture of ferrie chlorid U. S. P., and which is the official dose. In other words Tonsiline is 1/16 as strong as tincture ferrie chlorid.

From the chemist's report it is evident that a product having essentially the same composition as Tonsiline would be:

Tincture of chlorid of iron (ferrie chlorid), U. S. P. 1 ounce
Alcohol 1 ounce
Potassium chlorate 280 grains
Water, sufficient to make 1 pint

It is not necessary to tell physicians that Tonsiline never cured sore throat nor prevented diphtheria. The stuff contains drugs whose use for these purposes, by the medical profession, is being abandoned. It is the old story of exploiting the public by the use of discarded theories that have been revamped for commercial purposes. The risk of poisoning from the use of potassium chlorate, while well known to the medical profession, is still but little appreciated by the public. The dangers of the indiscriminate use of a "patent medicine" containing, as Tonsiline does, a saturated solution of chlorate of potash by individuals who may be suffering from kidney disease, will be evident to every physician, but not to the layman.

Summed up: Tonsiline is both inefficient and dangerous.

GOMENOL

A correspondent sends some advertising matter on Gomenol and calls attention to the number of diseases for which the preparation is recommended:

Gomenol is apparently a volatile oil. It is a proprietary said to come from France, and to be prepared from a species of cajuput (*Melaleuca viridiflora*, Gaertn.). This plant is closely related to the cajuput tree or swamp tea-tree (*Melaleuca leucodendron*, Linné) from which the official oil of cajuput is obtained. The oils from these two plants are very similar in composition and presumably in therapeutic properties. The oil of the first-named plant appears not to be marketed except in the form of the proprietary, Gomenol. It probably has no advantage over the official oil of cajuput while in the form of Gomenol it costs about four times as much. The following are some of the claims made for Gomenol in the advertising circulars. They need no comment.

"A real specific for suppurations and eatarrh. . . . It immunizes tissues, excites their vitality and favors the formation of new cells. . . .

"The least trace of Gomenol prevents the growth *in vitro* of the streptococcus, the tuberculosis bacillus and the gonococcus."

Correspondence

Flexner's Book on "Prostitution in Europe."

To the Editor:—It is reasonable to presume that the medical aspect of the social hygiene movement will be dealt with, or at least directed by, the high-minded physicians of the world. As we realize the extreme prevalence of the venereal diseases and their serious consequences, the aspect of prevention is bound to force itself on our attention, just as it has in other contagious diseases. In spite of the fact that facilities for treatment of these diseases are absolutely inadequate, little is said about it, even in the medical press; and when we come to consider prostitution, which all admit is the cause of these diseases, few physicians have cared to express any opinion publicly. First, because most physicians, like most lay people, consider the present state of things an unavoidable evil, if an evil at all. Those doctors who have expressed opinions on the subject have generally taken the position that we ought to follow the policy of Continental Europe, namely, the policy of segregation, registration, examination and, if necessary, even temporary detention of infected prostitutes. Although all the vice reports of this country, based on exhaustive study, condemn segregation, the feeling still prevails that we have much to learn from European experience in dealing with prostitution and checking venereal diseases. As a matter of fact, some students of this problem have long been convinced that European methods and policies have by no means achieved the success with which they are often credited. They have doubted that regulation regulates, that examination has had any substantial effect in protecting the patrons of prostitution, or that the police are the proper agents to carry on the supervision and regulation deemed necessary. But they have been challenged so frequently by the adherents of the so-called European policy that it is fortunate that we have at last in the book of Abraham Flexner, "Prostitution in Europe," a clear, able and convincing exposition of the defects and vices of that system. It is a pleasure to recommend this work to every fair-minded physician who has been in the least disposed to favor regulation and examination. It is not too much to say that it ought radically to change current opinion in regard to the treatment of prostitution.

Among the things established by Mr. Flexner, those which challenge medical attention are chiefly these: The entire system of police inspection and regulation was originally instituted in the interest of public order and external decency; health or sanitation was not thought of. In other words, the system was established merely to prevent the offensive forms of the social evil from flaunting themselves in public places.

To-day, however, this has admittedly become secondary or negligible, since public opinion and other forces are relied on, even in Europe, to secure external decency. Regulation and examination, as a health measure, or rather a preventive, was therefore an afterthought. The new system was engrafted on the former and it seemed easier to use the same machinery which already existed, even though it was wholly inadequate to handle the new phase of the matter.

As to the medical examination carried on in various parts of Europe which Mr. Flexner studied, we are not a little surprised to find that few of the great centers of medical learning are applying to these examinations of prostitutes the scientific methods with which we are in the habit of crediting them. In fact, in Paris, for instance, the most casual and perfunctory examinations are made, such as even we in this country would consider worthless. But even in those places, like Berlin, for instance, in which the examinations are carried on carefully and scientifically, the number of prostitutes examined and treated in the hospital provided for such treatment is so small in comparison with the large number of prostitutes in that city that the conclusion is inevitable that the examinations serve very little to diminish venereal disease. Mr. Flexner further concludes that we might just as well give up all attempt at regulation and examination, if the object be the safeguarding of public health.

He does insist, however, as we all do, that repression of prostitution, if carried on honestly and by competent agencies of the government, tends to diminish the supply. He is one of those who do not believe that in prostitution the supply follows the demand. On the contrary, he points out very clearly that *the demand is stimulated in various ways by the supply.*

As to positive suggestions made by Mr. Flexner, they are very similar to those which have been made in our splendid vice reports, namely, that to solve the problem of prostitution we need the aid of the intelligent, conscientious physician as well as that of the sociologist and economist.

RACHELLE S. YARROS, M.D., Chicago.

"The Doctor Can Wait"

To the Editor:—The complaint of Dr. Schreiber (THE JOURNAL, Feb. 21, 1914, p. 633) of the lay point of view that John Doe's debt to the doctor can wait until other debts are paid is just; but Dr. Schreiber does not, to my mind, indicate how and in what direction that point of view is to be changed.

Practically all of us provide better for regular every-day items of expense, like store-bills and rent than for occasional or accidental demands; therefore, when John Doe is unfortunate, Dr. Smith is very apt to be the last creditor paid, if paid at all. Dr. Smith may, indeed, force his collections, or may refuse further service to John Doe, or, like Robin Hood, may even matters up by exacting heavier fees from wealthier patients; but the objections to either plan are, I think, perfectly obvious.

John Doe, a good citizen, doing his fair part in the world's work and rearing good citizens to continue that work, is fairly entitled to demand of society the due guarding of the family health. Dr. Smith has rendered honorable social service to one entitled to social protection and deserves proper recompense at the hands of society. Why, then, should not we Dr. Smiths combine to secure our due compensation from city, county or state instead of waiting, like our English confrères, to have new relations thrust on us, suffering meanwhile from an ever-increasing burden of uncollectable bills?

W. R. TYMMS, M.D., Gig Harbor, Wash.

[COMMENT.—It was Salmon P. Chase, we believe, who coined or invented the startling axiom, "The way to resumption is to resume." The way for physicians to get paid for services rendered, in the same manner as others get paid for services rendered or for goods delivered, is to do as others do—get paid. Physicians are so in the habit of saying that the doctor's bill is always the last one to be paid that they have become accustomed to let the bill run, so that the situation has come

to be considered the necessary condition of affairs. Nothing of the kind! There are doctors who present their bills, as do others in the community, and courteously but firmly demand that they be treated as are the others. In every such case the doctor's bill is paid as soon as any; and, above all—and this, we affirm, is a fact—the doctor who presents his bill and demands payment for his services is more respected than the man who is afraid to present his bill or to demand payment for fear the patient, or the individual responsible, may become angry and get some other doctor.—Ed.]

The Blister Treatment of Subacromial Bursitis

To the Editor:—Supplementary to the article on "Subacromial Bursitis" by L. W. Littig (*THE JOURNAL*, March 21, 1914, p. 907), I wish to call attention to the excellent results of blistering in this malady. In the first instance, there is a striking similarity, pathologically, between subacromial bursitis and tendosynovitis of the extensors at the wrist. Their frequency is about the same, and both are usually caused by the frictional trauma of overuse or by a direct vulnerating force. In the early stages of both I have practically invariably obtained magical relief by the application of a blister. A square inch of fabric "battered" with ceratum cantharidis U. S. P., or an equal area of a "ready-to-use" plaster is moistened with olive-oil and applied over the inflamed part. It is covered with a dossil of gauze, which is secured by adhesive plaster. The text-books say to remove the blister in from four to six hours, but practically it works out that as soon as the blister has formed, the cushion of serum interposed between the medicament and the underlying dermis automatically inhibits vesication. For this reason I remove the blister the next day and dress with boric-acid ointment spread on surgical lint. Immobilization is now secured. It is astonishing how, in the case of the bursitis, painless abduction, and in the case of the tendosynovitis, crepitation-free tendon-play, rapidly returns. Of course, the bursitis must be properly diagnosed, and when available a roentgenogram should be taken to exclude minor skeletal injuries, for the condition is not always primary, but may be secondary too, for example, tear or arrachement fracture of the greater tuberosity of the humerus. I do not agree that there is liability of a laceration of the tendon of the supraspinatus muscle, but think that a shell of cortex is more often avulsed from the bone by this or one of the other two tendons that insert on this prominence. The blister acts not only by determining the congestion from the part, but also trophically through the cutaneous nerve which, in the case of the shoulder, is a branch of the same nerve that supplies the deltoid, the bursa and the joint—the circumflex. P. G. SKILLERN, JR., M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

RECIPROCITY UNDER THE NEW CALIFORNIA PRACTICE ACT

To the Editor:—Please give full particulars regarding the provision for reciprocity in the new California practice act. P. C. N.

ANSWER.—Holders of certificates to practice medicine issued since Aug. 1, 1901, by a medical examining board or by any other board or officer authorized by law to issue a certificate entitling the holder thereof to practice medicine and surgery either in the District of Columbia or any state or territory in the United States, will be granted a certificate to practice medicine in the state of California on payment of a \$50 fee, provided that the requirements of the medical college from which he graduated and the board which issued such certificate shall not have been in any degree or particular less than those required for issuance of a certificate in the state of California at that time. The applicant must furnish from the board which issued such certificate satisfactory evidence that

the requirements of the college or board met the above-mentioned requirements of this state. Licentiates prior to Aug. 1, 1901, who have practiced medicine and surgery in any other state and who desire to register in this state, shall file application on a blank furnished by the board showing: (1) full name of the applicant; (2) all institutions in which he studied and the period of study, and all institutions at which he graduated; (3) statement of certificate or certificates to practice medicine and surgery which may have been issued to him, together with date and description of the same; (4) statement of all places in which applicant has practiced medicine or surgery, and (5) such other general information as to his past practice as may be required by the said board. The board shall then investigate and if acceptable shall afford him a practical, clinical, oral examination not less than six months subsequent to the date of application.

This is not really "reciprocity" but the endorsement of licenses issued by other state. Reciprocal relations with other states, therefore, are unnecessary.

AN UNSUITABLE PRESCRIPTION

To the Editor:—Please criticize the following prescription:

| | | |
|----|---------------------------|----------|
| Rx | Ac. hydrocyanic dil. | m xx |
| | Bismuthal | ℥ ii |
| | Magnesiae lactis | ℥ ii |
| | Aquae menthae piperitae | |
| | Elix. lactopeptin | āā ℥ ii |
| | M. S. 3i before meals. | A. L. W. |

ANSWER.—This is a typical example of what a prescription should not be; it is an evidence of lack of knowledge on the part of the prescriber as to what he is prescribing. It contains two proprietaries, one of which contains nine ingredients, and the other, six. Both are said to contain pepsin, hydrochloric acid and lactic acid. The mixture will do neither good nor harm.

In the treatment of diseases of the stomach the use of simple remedies designed to meet the most prominent indication is especially to be commended. In this case the various alkalies have other properties than that of antacids and each should be used only when indicated—to meet a special purpose. Thus, bismuth compounds would be suitable to hyperacidity accompanied by diarrhea, while magnesia is suitable to those cases characterized by constipation. In the prescription presented they would tend to neutralize each other so that the mixture could not well have been intended for a special case.

BOOKS AND PERIODICALS ON TUBERCULOSIS

To the Editor:—Please give a list of about twenty-five books that you can recommend for a library in a tuberculosis sanatorium for the use of the doctors in charge.

ROSA HIBBARD, Kansas City, Mo.

ANSWER.—The following list is offered as a suggestion:

Tr. Nat. Assn. for the Study and Prevention of Tuberculosis, 1905 to date.
Beiträge zur Klinik der Tuberkulose. Würzburg, Curt Kabitzsch, 16 marks a year.
Cornet, G.: *Tuberculosis and Acute General Miliary Tuberculosis* (Nothnagel's Practice), Philadelphia, W. B. Saunders Company, \$5.
Cheyne: *Tuberculous Diseases of the Joints*, New York, Oxford University Press, \$5.50.
Klebs: *Tuberculosis*, New York, D. Appleton & Co., \$6.
Bonny: *Pulmonary Tuberculosis and Its Complications*, Philadelphia, W. B. Saunders Company, \$7.
Knopf: *Tuberculosis a Preventable and Curable Disease*, New York, Moffat, Yard & Co., \$2.
Walters: *Open Air or Sanatorium Treatment of Pulmonary Tuberculosis*, New York, William Wood & Co., \$2.25.
Hillier: *Tuberculosis, Its Nature, Prevention and Treatment*, New York, Cassell & Co., \$1.25.
Hoffman: *Mortality from Consumption in Dusty Trades* (Labor Bulletins 79 and 82), U. S. Bureau of Labor, 1908, 1909.
Kelynack: *Tuberculosis in Infancy and Childhood*, New York, William Wood & Co., \$4.
Ely: *Joint Tuberculosis*, New York, William Wood & Co., \$2.50.
Burton-Fanning, F. W.: *Open-Air Treatment*, New York, Paul Hoeber, \$1.50.
Maylard: *Abdominal Tuberculosis*, Philadelphia, P. Blakistoun's Son & Co., \$4.
Riviere and Morland: *Tuberculin Treatment*, New York, William Wood & Co., \$3.
Thomson: *Consumption in General Practice*, New York, Oxford University Press, \$4.50.
Hamman: *Tuberculin in Diagnosis and Treatment*, New York, D. Appleton & Co., \$3.
Robin: *Treatment of Tuberculosis*, Philadelphia, P. Blakistoun's Son & Co., \$7.
Bandelier and Roepke: *A Clinical System of Tuberculosis*, New York, William Wood & Co., \$6.
Bernhard, Oskar: *Helliotherapie im Hochgebirge mit besonderer Berücksichtigung der Behandlung der chirurgischen Tuberkulose*, Stuttgart, Enke, 1912.

- Sahli: Sahli Tuberculin Treatment, Including a Discussion of the Nature and Action of Tuberculin and of Immunity to Tuberculosis, New York, William Wood & Co.
- Carl Spengler: Tuberkulose und Syphilis—Arbeiten (1890-1911), Herausgegeben von seinen Schülern und Freunden, Davos, II. Erfurt, 1911.
- König: Die spezielle Tuberkulose der Knochen und Gelenke auf Grund von Beobachtungen der Göttingen Klinik, Berlin, Hirschwald.
- Bardswell: Diet in Tuberculosis, New York, Oxford University Press, \$2.50.
- Wilkinson: Treatment of Consumption, New York, The Macmillan Company, \$3.
- Wolff-Eisner: Ophthalmic and Cutaneous Diagnosis of Tuberculosis, New York, William Wood & Co., \$2.75.
- Lake: Laryngeal Phthisis, New York, William Wood & Co., \$2.
- Senn: Tuberculosis of the Bones and Joints, Philadelphia, F. A. Davis Company, \$4.
- Sabourin, C.: Traitement rationnel de la phthisie, Edition 4, Paris, Masson, 1913.
- Petruschky: Grundriss der spezifischen Diagnostik und Therapie der Tuberkulose, Leipzig, Leinerweber, 1913.
- Koch: Gesammelte Werke von Robert Koch unter Mitwirkung von Professor Gaffky und Professor Pfuhl, Leipzig, Thieme, 1912.
- Tuberculosis Directory, National Association for Study and Prevention of Tuberculosis.
- Tuberculosis Hospital and Sanatorium Construction, National Association for Study and Prevention of Tuberculosis, \$1.50.
- Tuberkulose-Arbeiten aus dem kaiserlichen Gesundheitsamte, Berlin, by Julius Springer.

SODIUM CITRATE IN INFANT-FEEDING

To the Editor:—Please discuss the use of sodium citrate to render delicate the cow's-milk clot in the stomachs of infants. I have not observed that the use of this drug in infant-feeding is well known or widely used. If prolonged use of the drug is harmless, then it should very much simplify infant-feeding, as milk modification would become a measure rather to meet the physical needs of the infant than to render milk more easily digestible. I am not specializing in infant-feeding, but in one case in which a child was given full rich cow's milk in 8-ounce quantities five times a day after six months' breast-feeding, it showed not the first indication of indigestion. This seems to me to be due rather to the sodium citrate, a grain to the ounce, which was added, than merely to an extraordinarily strong digestion. The few clots of cow's milk which were regurgitated were of the same consistency as those of the breast-milk. What are the chances of delayed calcification, rickets, or what not, as the result of using sodium citrate, say up to the end of the first year? J. S. L.

ANSWER.—Sodium citrate will render the curd of cow's milk more delicate. Practically the same result can be obtained by boiling the milk. If the question of feeding infants were merely the question of the casein content of milk, the addition of sodium citrate would be a very simple answer. Recent experiments have gone to prove (Benjamin's *Zeitschrift für Kinderheilkunde*, 1914, x) that the absorption of the protein of cow's milk is about as good whether the large curds occur or not, so that one cannot draw conclusions as to the effect of cow's milk on the child from the presence or absence of large curds in either the vomitus or the stool. The fact probably is that the large curd in either the vomitus or the stool represents rather a non-digestion than an indigestion. So far as we know, sodium citrate given over a long period has no effect on calcification, nor has it any tendency toward the production of rachitis.

ULRICH'S FORMULA

To the Editor:—In THE JOURNAL, Feb. 28, 1914, p. 686, in an article on albuminuria in life-insurance examinations, appears a method for preparing a test solution for albumin according to Ulrich's formula. In this "a saturated and filtered saline solution is acidulated to 2 per cent. acetic acid." Can you tell me how to accomplish this? H. C. J., M.B., Edmonton, Alta.

ANSWER.—A saturated solution is made by continued agitation of the solvent with a little more of the substance than will dissolve, or else by warming the solvent with an excess of the substance for some time and then cooling to the normal temperature under repeated agitation. Salt is only slightly more soluble in hot water than in cold, but if on cooling a precipitate separates, the solution should be filtered. To acidulate to 2 per cent. it is merely necessary to add 2 gm. or 2 c.c. of glacial acetic acid to 100 c.c. of salt solution. This is sufficiently accurate for clinical purposes.

STERILIZATION OF DRESSINGS

To the Editor:—Can gowns, sheets, gauze, etc., be satisfactorily sterilized in an ordinary double-walled Rochester steam sterilizer, and, if so, about what time is necessary to sterilize them properly? H. F. KILBOURN, M.D., Perrinton, Mich.

ANSWER.—Yes; such articles should be sterilized under 10 pounds' pressure for a period of one hour, or in a low-pressure sterilizer, such as the Rochester, for an hour and a half, allowing half an hour for the material to dry.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

THE PLACE OF MEDICAL MEN IN THE MODERN STATE

Some Interesting Facts from Mr. Lloyd-George

The place and influence of scientifically trained physicians in the modern state was interestingly discussed at a dinner recently given to Christopher Addison, M.D., F.R.C.S., M.P., chairman of the Board of Intermediate Medical Studies of the University of London, and reported at length in the *British Medical Journal*. At the dinner, Dr. Addison's health was proposed by Mr. Lloyd-George, chancellor of the exchequer, who discussed the value of physicians in politics and their influence in the House of Commons, of which Dr. Addison is a member.

THE NATIONAL INSURANCE ACT

Speaking of the national insurance act, with the drafting and passage of which he has been intimately identified, Mr. Lloyd-George said that it was estimated that there were 22,500 general practitioners in Great Britain, and that of these 20,000 were now on the panels, and assisting in the administration of this act. During the past year four and one-half million pounds (\$22,500,000) had been paid to physicians for medical services under the act. This meant an average of £230 (\$1,150) for each physician. This was in addition to the income derived from private practice. Mr. Lloyd-George stated that the figures secured so far showed an increase of from \$750 to \$1,000 per year in the average physician's income. This increased pay meant more work, but was also a very good thing from the point of view of the community, as it meant that millions of persons were now getting proper medical attention who previously had none at all. The general result was that the remuneration of the medical profession was increased. The act as it stands at present could be improved, amended and altered in the light of experience. The state was feeling a deeper sense of responsibility for the well-being of every individual. A general health survey of the British nation was now being taken, which would include families and individuals who have never before had proper care or attention. The hand of the state to-day, instead of being the hand of punishment, was a hand of mercy, which through the doctor, was going down to rescue many poor wretches from the conditions under which they live.

RESPONSE OF DR. ADDISON

Dr. Addison, in responding, said that a new phase was coming over public opinion. Ill health had always meant a great loss of both energy and treasure; but now that sickness could be expressed in the terms of so many thousands of pounds weekly and yearly, it appealed directly to the British pocket. The problem of public health had emerged from the general into the particular. It now arrested the attention of every citizen, and demanded well-considered scientific and practical effort, not only toward an earlier and more effective treatment of sickness, but also for increased prevention of its occurrence. There was need for more men in the medical profession than heretofore, as the demands for public service are greater.

In this connection, it was interesting to contrast the situation in England, where enough properly trained men cannot be secured to do the work that is needed, with the situation in Austria where, as already reported in THE JOURNAL,¹ the medical profession has issued a warning to the public that there are now in the medical schools of Austria as many students as the profession can absorb in the next six years.

Discussing the influence of physicians on legislation and administration, Dr. Addison said that their knowledge and

1. Warning against the Medical Career, Vienna Letter, THE JOURNAL A. M. A., March 21, 1914, p. 947.

experience would be of increasing value to the community. Public interest must always come first. It is a short-sighted and suicidal policy that seeks to promote the interest of any class at the expense of the general interest. The people would welcome any help and guidance that modern, scientific knowledge could afford. Discussing the present organization of the British public health service, Dr. Addison said that no one looking fairly into this question could fail to recognize the confusion that now existed. It was at present a medley of authorities with an enormous waste of effort. Two of the greatest items of expense were those connected with tuberculosis and the illness of old age. The large grants for tuberculosis made to county authorities would make it possible to remove tuberculosis gradually from the operation of the poor law, while the workings of the national insurance act, providing care for aged working people, would insure them proper attention. Even with these changes, however, the present situation regarding public health administration could clearly be simplified by establishing a common aim and direction for public health activities. The numerous inspectors, the overlapping boards and authorities and the conflicts of authority all increased the defects of public health administration without increasing its efficiency.

POSSIBILITIES OF THE FUTURE

Looking into the future Dr. Addison said that when discussing possible developments, certain elementary facts must be kept in mind, which no government can possibly ignore. Any service, in order to be satisfactory, must be one that will attract and keep an adequate number of capable men, that in its operations contains incentives to, facilities for, and encouragement of, increased efficiency, and that makes use of that intimate personal relation and trust which must exist between physicians and their patients. It might be of great value if arrangements could be made for medical men to work in groups, where they might combine for mutual help and have access to better means and facilities for work. The great question of providing adequate hospital accommodations for the sick of the nation is one which must be solved in the future. The most important function of the medical profession, however, Dr. Addison conceived to be the use of all the power of medical organization, all the knowledge and all the art and science of medicine toward an increased prevention of disease. The duty of physicians is clear. The duty of the state must be equally clear. Dr. Addison's statement on this point is worth quoting in full:

"The state, however, has no right to ask any class of men to do the impossible. It confronts the medical profession with six hundred thousand ill-nourished children in our elementary schools, with three hundred thousand who have adenoids and so forth; it deplores the waste of infant life; it points to an army of factory girls and women workers with anemia, chronic indigestion, etc., and it is beginning to say to the medical profession, 'We want these things altered. We want these people to be healthier. Will you help us to treat them?' It would be invaluable if the medical profession after fair, complete and organized consideration, but in a full and fearless manner, were to say to the state:

"'Yes! we will turn to the task with all good will and do the best we can, but we cannot undertake to make these children healthy by drugs. They need good food, fresh air, a clean and well-ventilated home. So long as these things are absent, so long as many of these children, with too little sleep, pass half their hours in the stuffy, stagnant air of an overcrowded room, so long will they crowd into our clinics and outpatient departments.'

"I hope also that they will add: 'We claim also that those whose duty it is to make reports on the conditions of labor and home life of the people should be free to tell the truth, and the whole truth, without fear or favor. These anemic girls, these dyspeptic women, are not to be put right by medicines alone. The hours they work, the conditions they work under, are often also concerned, as well as their habits of life and diet. It is useless for us to tell people to take proper food who have not the means of obtaining it, who sometimes are ignorant of how to cook it when they get it, and who often enough are paying what should be an economic rent for a decent home but are obtaining only tenement quar-

ters without any facilities for decent life. It is the duty of the state to use its schools and other agencies to the full and give to the people a knowledge of these matters, of an appreciation of the value and meaning of cleanliness and temperance, and of other things which are of so grave importance in their daily life.' There is no limit to the usefulness of a proper and enlightened cooperation between the medical profession and the state, and its influence would be felt in every department of national life."

In conclusion, Dr. Addison said:

"The community has a growing need for the services of medical men in the wider sphere to which I have referred. There is a place for them there in which their help and influence as citizens and as trained men should be felt, in the education and preservation of healthy and clean-living people, in the molding of our laws, in the administration of them, and throughout the whole organism of society. This is a place they well may occupy, and in doing so in a public and collective as well as in a private and individual capacity, they become trusted counselors and honored servants of the commonwealth."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 7. Sec., Dr. John Wix Thomas, Phoenix.
ARKANSAS: Little Rock, May 12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bk. Bldg., Pine Bluff. Homeopathic: Little Rock, May 12. Sec., Dr. I. J. Brooks, 219 East 10th St., Little Rock. Eclectic: Little Rock, May 12. Sec., Dr. C. E. Laws, Ft. Smith.
CANADA: Alberta, April 24. Dr. Cecil E. Race, Registrar of the University of Alberta, Edmonton.
COLORADO: Denver, April 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
IDAHO: Wallace, April 7. Sec., Dr. John F. Schmershall, Jerome.
ILLINOIS: Coliseum Annex, Chicago, May 12-14. Sec., Mr. Amos Sawyer, Springfield.
LOUISIANA: New Orleans, May 4. Homeopathic Board, Sec., Dr. Edward Harper, 702 Machee Bldg., New Orleans.
MINNESOTA: Minneapolis, April 7-10. Sec., Dr. Thomas McDavitt, 814 Lowry Bldg., St. Paul.
MONTANA: Helena, April 7. Sec., Dr. Wm. C. Riddell, Helena.
NEVADA: Carson City, May 4. Sec., Dr. Simeon L. Lee, Carson.
NEW MEXICO: Santa Fe, April 13. Sec., Dr. W. E. Kaser, East Las Vegas.
OKLAHOMA: Oklahoma City, April 14. Sec., Dr. John W. Duke, Guthrie.
PROVINCE OF ALBERTA: April 24. Dr. Cecil E. Race, Registrar of University of Alberta, Edmonton.
TENNESSEE: Memphis, Nashville and Knoxville, first week in May. Sec., Dr. A. B. DeLoach, Memphis.
UTAH: Salt Lake City, April 6-7. Sec., Dr. G. F. Harding, 403 Templeton Bldg., Salt Lake City.
WEST VIRGINIA: Charleston, April 21. Sec., Dr. S. L. Jepson, 81-12th St., Wheeling.

South Dakota January Report

Dr. Park B. Jenkins, secretary of the South Dakota State Board of Health and Medical Examiners, reports the written and practical examination held at Pierre, Jan. 13-14, 1914. The number of subjects examined in was 13; total number of questions asked, 105; percentage required to pass, 75. The total number of candidates examined was 10, of whom 7 passed and 3 failed. Five candidates were licensed through reciprocity. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|--|------------|------------------|-----------|
| Georgetown University | | (1899) | 85.1 |
| Bennett Medical College | | (1913) | 85.7 |
| Rush Medical College | | (1887) | 84.2 |
| University of Illinois | | (1912) | 80.7 |
| Iowa Medical College | | (1886) | 83.5 |
| University of City of New York, Med. Dept. | | (1894) | 84.6 |
| University of Virginia | | (1909) | 87.1 |
| FAILED | | | |
| Atlanta College of Physicians and Surgeons | | (1909) | 73.9 |
| Bennett Medical College | | (1913) | 73.9 |
| American Medical College, St. Louis | | (1912) | 73 |
| LICENSED THROUGH RECIPROCITY | | | |
| College | Year Grad. | Reciprocity with | |
| Rush Medical College | | (1897) | Minnesota |
| Kentucky University | | (1904) | Nebraska |

University of Louisville (1909) N. Dakota
Cotner Medical College (1904) Nebraska
University of Nebraska (1909) Nebraska

The following questions were asked:

CHEMISTRY

1. What use has a physician for knowledge of chemistry? 2. Name ten elements, giving valence and atomic weight. 3. Give chemical name, common name, physical appearance and common use of: (a) $MgSO_4$, 7 H_2O ; (b) Na_2CO_3 , 10 H_2O ; (c) CH_3Cl ; (d) C_2H_2 ; (e) H_3BO_3 . 4. Give chemical name, formula, physical appearance and common use of: (a) sal ammoniac; (b) saleratus; (c) calomel; (d) corrosive sublimate; (e) lunar caustic. 5. What is glycerin? How is it produced? 6. On what chemical substances do hardness of water usually depend? What would you use to soften water? How does that do it? 7. Boil acid urine; if a cloud or precipitate appears, what substances may the cloud or precipitate be? How determine which it is? 8. (a) Describe your favorite test for sugar in urine. What are its fallacies? (b) Name all the ingredients of your reagent. (c) What color change takes place? (d) What is the chemical reason for the color change? 9. Give a test for copper in canned vegetables. 10. Is there chemical or pharmaceutical incompatibility in the following prescription? Where is it and why?

| | | |
|--------|--------------------------------|--------------------------|
| R | Strychninae sulphatis | gr. ss ($\frac{1}{2}$) |
| | Ammonii chloride | 3i |
| | Ammonii carbonatis | 3i |
| | Aquae purae | 3i |
| | Syrupus pini strobi comp. | q. s. ad. 3iv |
| Misce. | | |

PHYSIOLOGY

1. What is lymph and how formed? 2. What is circulation of the blood? Follow it from and until it returns to the heart. 3. What is the object of circulation? Describe the changes that take place in the blood as it passes through the body. 4. Describe digestion in the mouth and stomach. 5. What is respiration and what causes it? 6. What are the enzymes? Give their chemical composition. 7. Describe intestinal digestion. What juices enter into it? 8. Name the excretory organs. What do they excrete? 9. Name the ductless glands. What are their specific office in the human economy? 10. How is heat produced and how maintained in the human body?

EMBRYOLOGY, HISTOLOGY AND ANATOMY

1. Describe the maturing and fecundation of the ovum. 2. From what embryonic layer does the respiratory tract develop? What other structures are developed from the same layer? 3. Describe microscopic difference in appearance of heart-muscle and skeletal muscle. 4. Describe microscopically superficial cells lining trachea. 5. Describe the patella. What is its function and how does it functionate? 6. Describe the shoulder-joint. 7. Name the muscles participating in tranquil respiration. 8. Give the blood-supply of the stomach. 9. Give origin and distribution of trifacial nerve. 10. Draw and describe the dorsal surface of the tongue.

PATHOLOGY

1. What is the cause of death following burns? 2. What is thrombosis? Describe the manner of its formation. Where are emboli most frequently found? Of what do emboli most frequently consist? 3. What general pathologic lesion characterizes chronic alcoholism? 4. What is ischemic paralysis? 5. State the result of stenosis of the tricuspid valves of the heart. 6. Carcinoma of stomach: Is it usually primary or secondary to carcinoma elsewhere? Where is it usually situated? Give most common type. 7. What conditions may cause dropsical effusion in the abdomen and in the lower extremities? 8. What diseases of the mother may be transmitted to the fetus? 9. Explain the process occurring in necrosis of bone. Give the pathologic condition characteristic of necrosis and caries of bone. 10. What determines the benign or malignant nature of a new growth?

BACTERIOLOGY

1. What is the cause of difference in the virulence of diphtheria? 2. What pathogenic conditions may be produced by the colon bacilli? 3. What is tuberculin? How is it produced? What is it used for? 4. Describe in detail the bacterial findings in puerperal septicemia. 5. How does the tetanus bacillus induce its effect? On what theory is tetanus antitoxin administered?

SKIN AND GENITO-URINARY

1. Diagnose secondary syphilis and outline treatment. 2. Give causes and treatment of orchitis. 3. Give etiology, diagnosis and treatment for urticaria. 4. Give symptoms, diagnosis and treatment of urethral stricture. 5. Give etiology, diagnosis and treatment of erysipelas.

EYE, EAR, NOSE AND THROAT

1. Treat a case of severe corneal ulcer. 2. Describe and give treatment for dacryocystitis. 3. What do you understand by the following: hypopyon, Argyll Robertson pupil, mydriasis, presbyopia, ptosis? 4. What would be your treatment for penetrating wound of the cornea? 5. Give four common symptoms caused by nasal obstruction. 6. Give symptoms and treatment for hypertrophied turbinate. 7. Treat a case of chronic otitis media. 8. Describe the eustachian tube, giving anatomy and function. 9. Give your method of differentiation between middle and internal ear disease. 10. Give three common causes for deafness and treat a given case.

OBSTETRICS

1. Conduct a case of normal labor. 2. Would you use chloroform in labor? If so, why? If not, why? 3. What is meant by puberty? What is meant by nubility? What is meant by menstruation? At what age in this climate do these begin? 4. How many, and describe briefly the different circulations during fetal development and immediately after birth. 5. Give the usual length of time in normal gestation. Give maximum and minimum length of time. 6. Give positive signs of pregnancy. 7. What is placenta praevia, and how would you manage a case? 8. Give indication for the use of forceps. 9. Give indication for version, and how would you proceed to accomplish it? 10. Give cause for post-partum hemorrhage and how would you manage the same?

GYNECOLOGY

1. What advice about bathing, sponging and exercise during normal menstruation would you give to a healthy young woman accustomed to warm tub-bath twice per week, cold sponging every morning and 2 miles' brisk walk daily? Why? 2. Give all causes of uterine hemorrhage. 3. Diagnose, treat and prognose chronic gonorrhea. 4. Diagnose, treat and prognose chronic leukorrhea. 5. Name all probable ailments and treat the most probable one: A patient, unmarried, aged 16, 5 feet 2 inches, 125 pounds, erect, pale, walks into your office at 4 p. m. Temperature 98.6, pulse 100, respiration 20, mucous membranes pale, teeth bad, complains of having missed two menses, always regular before, sharp pain and tenderness 2 inches below ensiform process, constant for three weeks, worse at 4 p. m. daily, better after eating. Pain in lumbar, sacral, uterine and ovarian regions; no discharge. Dyspnea on exercising; no heart-murmurs; constipated as a rule, sometimes blood in stools. Nausea in morning and when pain is bad, vomits almost daily, some days several times. Mother was sick in same way at same age for two years. Tired all the time.

SURGERY

1. A man is brought into your office with both lower limbs crushed off, having fallen under a passing engine; he is in full shock, has lost considerable blood and is almost pulseless. What would be your immediate treatment? 2. Called to attend a patient who is suffering from a troublesome epistaxis. Describe the method you would pursue to check it. 3. How would you treat a perforating gunshot wound of the abdomen? 4. Describe a Colles' fracture and give your treatment for same. 5. How would you manage a case of empyema? 6. Give the technic of an operation for the cure of a mastoid abscess. 7. Give the technic of taxis in inguinal hernia. 8. Describe the operation for strangulated hernia. 9. Describe a proper method of amputating the hip-joint. 10. Under what circumstances would you consider circumcision a proper procedure?

REGULAR THERAPEUTICS AND PRACTICE

1. Define hyperchlorhydria. Give the causes, symptoms, diagnosis and treatment. 2. If summoned to a middle-aged person discovered in a comatose condition, explain how to recognize on what disease the condition depends, and give treatment for the uremic type of coma. 3. Differentiate between pyelitis and cystitis. 4. What are the four characteristic symptoms of exophthalmic goiter? Give the supposed etiology. 5. Differentiate catarrhal from croupous pneumonia. 6. On what symptoms would you base a diagnosis of typhoid fever? 7. How should acute nephritis accompanying or following scarlet fever be treated? 8. Name four diseases contraindications for general anesthesia, and state which of the four named you would consider the most important. 9. In the treatment of syphilitic node or gumma, state which should be used, a mercurial or an iodid, and give the reason therefor. 10. Describe the treatment of a case of diphtheria.

HYGIENE AND SANITARY SCIENCE

1. How would you fumigate a residence containing approximately 10,000 cubic feet of space? Name materials employed and amount of each. 2. Describe how sewage is purified in sedimentation tanks. 3. Describe the life-cycle of the common house-fly. 4. Instruct briefly a patient suffering from pulmonary tuberculosis as to the precautions he should adopt to avoid the spread of the disease. 5. Instruct briefly your nurse attending a case of diphtheria.

MEDICAL JURISPRUDENCE

1. A, attending a confinement case, finds it necessary to use instruments and calls B to administer the anesthetic. A does not sterilize the instruments and the patient becomes infected and brings suit to recover damages. Does B share the responsibility with A? 2. A, in performing a laparotomy, relies on B, a trained nurse, to pack the abdominal cavity with sponges. B also removes the sponges, but in so doing one is overlooked. Who is liable: A, the surgeon, or B, the nurse? 3. If in your practice you are called to treat an injured wrist, said injury according to your judgment is a severe sprain and you treat it accordingly, using reasonable care and skill. Later the patient calls another surgeon who discovers the injury to be a fracture. Would you be guilty of malpractice? 4. Can an unauthorized or unlicensed physician maintain an action for libel or slander against one who charges him with misconduct or incapacity in the discharge of his professional duties? 5. Would a physician be liable who takes an unprofessional, unmarried man with him to attend a case of confinement when there is no emergency requiring his presence?

HOMOEOPATHIC THERAPEUTICS AND PRACTICE

1. What is the chief sphere of action of belladonna? Give characteristic indications for its use. 2. Differentiate diphtheria and follicular tonsillitis. Give two remedies for each, with indications for their use. 3. Name one remedy, with indications for its use, in each stage of pneumonia. 4. Name and give indications for two principal remedies in acute gastritis. 5. Give differential diagnosis between uremia, alcoholic coma and cerebral hemorrhage. 6. Outline your treatment for eclampsia, giving dose and potency of remedies used. 7. Name three diseased conditions in which you would prescribe arsenicum, giving symptoms fully. 8. Give indications for podophyllum in diarrhea. 9. Give symptoms and treatment of gastric ulcer. 10. Outline your treatment for cholera infantum.

ECLECTIC MATERIA MEDICA, THERAPEUTICS AND PRACTICE

1. Give differential diagnosis between small-pox, varicella, measles and scarlet fever. Treat a case of small-pox. 2. What is Bright's disease? What is diabetes? Differentiate between them and give treatment. 3. Diagnose and give treatment for typhoid fever. Should hemorrhage occur, how would you control it? 4. Give specific indications and dose for veratrum, rhns tox, podophyllum, macrotys and cactus grand. 5. Give differential diagnosis between tonsillitis and diphtheria. Treat a case of diphtheria. 6. What is ulcerative stomatitis? Give cause and treatment. 7. What is diaphoresis? Give three diaphoretics and dose of each. 8. What is a sedative? What is a stimulant? Name three of each. 9. Name three cardiac and three nerve stimulants. Give dose of each. 10. How would you treat a case of poisoning by arsenic, morphin, phenol (carbolic acid)?

Book Notices

HYGIENE FOR GIRLS, INDIVIDUAL AND COMMUNITY. By Florence Harvey Richards, M.D., Medical Director William Penn High School. Cloth. Price, 75 cents. Pp. 257, with illustrations. Boston: D. C. Heath and Company, 1913.

The author's experience as a teacher of hygiene in a girls' school has enabled her to write a fairly practical book. The language is clear and concise, and few technical terms are used. There are one or two things, however, which should be changed or omitted in future editions. While patent medicines and habit-forming drugs are condemned, it seems unwise to state the names of such drugs, even though the sequels of their use are given as follows: "Opium, chloral and the bromids deaden pain and produce sleep, but they do so at the expense of the nervous system, the nerves of which they deaden." And further on (page 208): "Hasheesh is the juice of the Indian hemp, or *Cannabis indica*. It produces a happy delirium with visions of beautiful scenes and persons. . . . Cocain taken internally causes a pleasant excitement." After reading such a statement a girl of immature mind or weak will might decide that she would like to experience these sensations and risk the after-effects. On page 41 it is stated that "gray hair may come suddenly from fright, joy or grief, though such cases are much more rare than we are commonly led to believe." So far as authenticated cases are concerned, such an occurrence is not only rare but unknown and a statement like that quoted should not find a place in a book that assumes to speak with authority.

PRACTICAL PATHOLOGY, INCLUDING MORBID ANATOMY AND POST-MORTEM TECHNIC. By James Miller, M.D., D.Sc., F.R.C.P.E., Lecturer on Pathology and Bacteriology, School of Medicine of the Royal College, Edinburgh. Cloth. Price, 7 shillings, 6 pence. Pp. 395, with 109 illustrations. London: Adam and Charles Black, 1914.

The author states that it was his aim to supply in handy form the information required for practical work in relation to pathology. In this he has succeeded; short descriptions are given of the appearances in the more common morbid processes encountered in organs and tissues; at the same time these are correlated with the changes in the other organs and tissues of the body in the various diseases. The main points in the microscopic appearances are also given briefly, for the purpose, evidently, of reminding the student what to look for when he is examining his slides. In dealing with post-mortem technic and microscopic technic, the author gives one reliable method in each case. Hence the book is for the beginner and not the specialist. The medicolegal aspects of post-mortem work are also discussed. The general arrangement of the book is the same as that of other text-books. A departure from custom, however, is the binding of the illustrations together in the form of an atlas at the end of the book following the index.

LEHRBUCH DER NERVENKRANKHEITEN FÜR STUDIERENDE UND PRAKTISCHE AERZTE IN 30 VORLESUNGEN. Von Robert Bing, Dozent für Nervenheilkunde an der Universität Basel. Paper. Price, \$4.75. Pp. 606, with 111 illustrations. New York: Rebman Company, 1913.

The author, one of the most lucid writers in medical literature, discusses the entire subject of nervous diseases in thirty lectures. Writing for medical students and practitioners, he groups his material according to etiologic and physiopathologic values and not in conformity with the customary topographic and anatomicopathologic divisions. For instance, under syphilogenous diseases of the nervous system he not only describes cerebrospinal syphilis and syphilogenous combined system diseases, but also general paresis and tabes dorsalis. The chapter on dysglandular symptom-complexes embraces the lecture on myxedema, insufficiency of the adrenals and Addison's disease, acromegaly, dyspituitarism and dyspineal-ism. The lectures are concise and contain everything of importance, not omitting treatment. The therapeutic directions are sound and up to date in every respect. This book can safely be recommended to physicians and students as a most readable short German text-book on nervous diseases.

BIBLIOGRAPHY OF THE EDUCATION AND CARE OF CRIPPLED CHILDREN. A Manual and Guide to the Literature Relating to Cripples, Together with an Analytical Index. By Douglas C. McMurtrie. Cloth. Price, \$2. Pp. 99. New York: Douglas C. McMurtrie, 298 Metropolitan Tower, 1913.

As a justification for the compilation of this book, McMurtrie describes the dearth of references to books and papers on the care and treatment of crippled children in the catalogs in many of the libraries which he consulted. This was a matter of surprise also to the various librarians, who had not realized the meagerness of their lists on this subject. By dint of considerable hard work, much corresponding and considerable time, however, McMurtrie succeeded in gathering about 725 references, and they are set forth in alphabetical order and also in the form of an analytic index by which different phases of the subject of crippled children may be looked up. This book will be of great value to those persons taking a commendable interest in these handicapped members of society.

LECTURES ON TUBERCULOSIS TO NURSES. Based on a Course Delivered to the Queen Victoria Jubilee Nurses. By Olliver Bruce, M.R.C.S., L.R.C.P., Joint Tuberculosis Officer, County of Essex. Cloth. Price, \$1 net. Pp. 134. New York: Paul B. Hoeber, 1913.

This little book goes over the field of tuberculosis in an interesting way, but it would almost seem as if the author had lost sight of his audience. Nurses are destined, in his opinion to fulfil important functions in the campaign against tuberculosis. Whether they will find use for the pathology and therapeutics contained in the author's lectures is somewhat doubtful. The opsonic index, methods of diagnosis, and tuberculin and sanatorium treatment are discussed at considerable length. The author considers that ordinary sanatorium treatment is an antiquated method compared with the method of graduated labor. In regard to drug treatment he is commendably conservative. He rejects iodine, cod-liver oil and creosote. Directions for the use of tuberculin are given with considerable detail.

A TEXT-BOOK OF BIOLOGY. For Students in Medical, Technical and General Courses. By William Martin Smallwood, Ph.D., Professor of Comparative Anatomy in the Liberal Arts College of Syracuse University. Cloth. Price \$2.75 net. Pp. 285 with 256 illustrations. Philadelphia: Lea & Febiger, 1913.

This book is well adapted to the purpose for which it was written—to be an aid to the student who is somewhat familiar with laboratory methods. The author has kept the needs of the student constantly in mind and so has produced a book which, while thoroughly scientific, may yet be read with pleasure. The chapters on embryology and the biology of cells are so clearly written that they furnish a valuable aid to the understanding of the complex process of fertilization. The book is marred here and there by bad proof-reading and slipshod English, but will be a distinct addition to any student's library.

FORTSCHRITTE DER NATURWISSENSCHAFTLICHEN FORSCHUNG. Herausgegeben von Prof. Dr. Emil Abderhalden, Direktor des Physiologischen Institutes der Universität Halle a.S. Ninth Volume. Paper. Price, 15 marks. Pp. 280, with 104 illustrations. Berlin. Urban & Schwarzenberg, 1913.

Among the several articles of interest to the educated reader there is one of especial importance to the medical man, namely, the study on the "Importance of the Thymus in the Human Organism," by Dr. Arno E. Lampé. The article is practically a monograph on this subject, well written and richly illustrated, with an extensive bibliography at the end. An interesting biologic study is the lengthy article on the mode of the housing of fresh-water insects, by Dr. C. Wesenberg.

AMERICAN RED CROSS TEXT-BOOK ON ELEMENTARY HYGIENE AND HOME CARE OF THE SICK. By Jane A. Delano, R.N., Chairman of the National Committee, Red Cross Nursing Service, and Isabel McIsaac, R.N., Member of the National Committee Red Cross Nursing Service. Prepared for and Indorsed by the American Red Cross. Cloth. Price, \$1. Pp. 256, with 17 illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

This is a practical little book containing much good common sense. Home nurses should find it particularly useful, and it might be used as a reference book in any home.

Miscellany

Water-Supply of Ships on the Great Lakes

An investigation by the U. S. Public Health Service of the water-supply of ships on the Great Lakes indicates that there is room for great improvement in the quality of water supplied on these vessels. In an investigation of three vessels during the summer of 1913, among 750 persons there were over 300 cases of diarrheal disease and fifty-two cases of typhoid fever with seven deaths which could reasonably be attributed to defective water-supply on these vessels. This would indicate that typhoid and diarrhea among the passengers and crews of the entire shipping of the lakes must amount to large figures, as few of the vessels have proper equipment or methods for providing a pure water-supply. Not only is the water polluted from the habit of vessels of discharging all wastes immediately into the lakes in the main lanes of travel, but the discharge of sewage into the lakes by the large cities and towns on their banks affords a still greater source of contamination, as care is not always exercised to fill tanks outside of harbors. In 1907 it is stated that seventy-seven cases of typhoid followed a short cruise of one of the lake vessels, traced to impure drinking-water taken from the Detroit River. The water-supplies of cities along the lakes is also said to be contaminated at times by vessels discharging sewage too near to water intakes. H. De Valin, who reports on the water-supplies of ships in *Public Health Reports*, Feb. 13, 1913, says that ship-owners should pay more attention to the equipment of their vessels in order to insure safe water-supplies. Filtering will not answer the purpose as it cannot be depended on for complete removal of harmful bacteria. Apparatus for distilling or sterilizing the water should be provided. Raw water of safe quality may be obtained from the municipal supplies of some cities along the lakes, and in some instances water is taken from this source by boats while lying in the harbors. Chicago now requires that vessels using that port must install carrying devices so that sewage shall not be discharged within a certain distance of water intakes, or while in the harbor.

Rocky Mountain Spotted Fever in Montana

The investigation of this disease in Montana was continued during 1913 by Surgeon L. D. Fricks of the Public Health Service, in connection with the state health authorities of Montana, who were granted an appropriation by the legislature for that purpose. Dr. Fricks succeeded Dr. T. B. McClintie of the Public Health Service, who became infected and died during 1912 while carrying on investigations in the Bitter Root Valley. In *Public Health Reports*, Feb. 20, 1914, Fricks gives an account of the efforts to rid the most heavily tick-infested areas of the ticks by dipping the domestic animals, killing off the small wild animals and pasturing certain areas with sheep. The latter expedient was in continuation of an experiment begun in 1912 with a small band of sheep. It was found that ticks on sheep usually died before becoming engorged and fertilized, and while the experiment of 1913 was not conclusive, yet it was found in tick surveys in various parts of the valley in 1913 that areas pastured by sheep contained no ticks, while in areas pastured by cattle ticks were fairly abundant. On cultivated land practically no ticks were found on the west side of the Bitter Root Valley, extending up to the foothills; then there was a zone of heavy tick infestation along the hills where horses and cattle were pastured. Above the range of the domestic animals there was a zone of moderate infestation, and above this an area called the goat country, on account of roaming herds of Rocky Mountain goats, infested with ticks estimated at millions per square mile. The presence of these infested areas just beyond the zone of cultivated or pastured land increases the difficulty of permanent tick eradication, and Fricks says that some method of protection must be provided or buffers interposed against the introduction from above of ticks of wild animals, a comparatively high per-

centage of which are known to be infected, before there can be any lasting protection against spotted fever. The article includes brief reports concerning Rocky Mountain spotted fever in California, Oregon, Washington and the other Rocky Mountain states in which this disease is found.

A System of Stethoscopic Abbreviations

Professor Saugmann of Vejle fjord has proposed a list of abbreviations to be used in reporting stethoscopic findings. It was adopted by the conference at the eleventh meeting of the International Antituberculosis Association in Berlin, October, 1913. We print it together with the Latin, German, French and English words which the abbreviations represent:

| | | | | |
|---------------------|-------------------------|---|---|---|
| d. | dexter | rechts | droit | right |
| s. | sinister | links | gauche | left |
| a. | anterior | vorne | antérieur | anterior |
| p. | posterior | hinten | postérieur | posterior |
| sup. | superior | oben | supérieur | superior |
| inf. | inferior | unten | inférieur | inferior |
| C. | costa | Rippe | côte | rib |
| C ₂ etc. | costa II etc. | | | |
| interc. | spatium intercostale | Zwischenrippenraum | espace intercostal | intercostal space |
| Cl. | clavicula | Schlüsselbein | clavicule | clavicle |
| Pap. | papillula mammae | Papille | mamelon | nipple |
| Sp. | spina scapulae | Schultergräte | épine de l'omoplate | spine of scapula |
| Ang. | angulus scapulae | Schulterblattwinkel | angle de l'omoplate | angle of scapula |
| 1/2 Sc. | medio scapulae | Mitte der Reg. infra-spinata | au milieu de la région sousépineuse | middle of infrascapular region of scapula |
| Th. | usque ad Thorax | bis zu | jusqu' à | up to |
| Th. applan. | applanatus | abgeflacht | aplati | flattened |
| dilat. | dilatatus | ausgedehnt | dilaté | dilated |
| retard. | retardatus | nachschleppend | retardant | slowed |
| Margo | margo pulmonis | Lungenrand | limite du poumon | lung border |
| mobil. | mobilis | beweglich | mobile | movable |
| immobil. | immobilis | unbeweglich | immobile | immovable |
| M.* | mutito, mutus | Dämpfung | matité | dulness |
| Tymp. | tympanismus | Tympanic | tympanisme | tympanitic sound |
| Met. | metallia | Metallklang | résonnance métallique | metallic sound |
| Resp. | respiratio | Atmung | respiration | respiration |
| Insp. | inspiratio | Einatmung | inspiration | inspiration |
| Exsp. | expiratio | Ausatmung | expiration | expiration |
| ves. bronch. | vesicularis bronchialis | vesikulär bronchial | souffle bronchique | bronchial |
| amph. | amphoricus | amphorisch | souffle cavitaires | amphoric |
| sacc. prolong. | saccatus prolongatus | saccadiert verlängert | saccadé prolongé | cog-wheel prolonged |
| forte | fortis | verschärft | exagéré | strong |
| dim. | diminutus | abgeschwächt | affaibli, diminué | diminished |
| RL† | | grossblasiges Rasseln | gros râles | coarse râles |
| RI† | | Mittelblasiges Rasseln | râles moyens | moderate râles |
| rl† | | Kleinblasiges Rasseln | râles fins | fine râles |
| () | | nur nach Husten zu hören | après la toux seulement | only after coughing |
| (RI) | | spärliches mittelblasiges Rasseln, nur nach Husten zu hören, etc. | râles peu nombreux, perceptibles seulement après la toux etc. | few medium râles only after coughing |
| sicc. | siccus | trocken | sec | dry (râles) |
| cons. | consonans | klingend | consonnant | tinkling |
| crep. | crepitans | crepitierend | crépitant | crepitant |
| subcrep. | subcrepitans | subcrepitierend | souscrépitant | subcrepitant |
| craq. | | knackend | craquements | crackling |
| rh. | rhonchi | Rhonchi | râles | rhonchi |
| frict. | frictio | Reiben | frottements | friction |
| Frem. | fremitus vocalis | Stimmfremitus | vibrations vocales | vocal fremitus |
| Brph. | bronchophonia | | | |

* All quantitative variations of phenomenon are indicated by the figures 1 to 3 added to the principal sign, the number 1 to represent the minimum degree and the number 3 the maximum of the said phenomenon. For example, M₁, M₂, M₃ signify slight dulness, marked dulness, and complete dulness; RL₁, RL₂, RL₃—few râles, several râles, and many râles, and so forth.

† Note the meaning of the capital and small letters.

The Causes of Fatigue

Dr. William Stirling, professor of physiology in the University of Manchester, recently delivered an address on "Health, Fatigue and Repose." Most of the breakdowns in man's life were due to himself, because of ignorance, recklessness, or both. Overwork, without sufficient repair of an organ, whether brain or eye, digestive organs or muscles was the primary cause of fatigue. All the organs of the body could not run at full speed at the same time. Mental fatigue greatly impaired bodily activity, and physical or muscular fatigue had a distinct effect on brain activity. The observations of Dr. Leonard Hill on the effects of a liberal supply of oxygen in fatigue were most important. Somnolence in churches and chapels seemed on occasion to occur at sermon-time, but it was not in all cases to be attributed to the sermon. The explanation lay rather in the badly ventilated atmosphere, and in the fact that Sunday, though the first day of the week, was to most church-goers the close of the week. The fatigue problem was all important to both the teacher and the child at school. It was well known that certain school subjects produced fatigue sooner than others. The following represented the order of subjects arranged according to difficulty: mathematics (standard), 100; Latin, 91; Greek, 90; gymnastics, 90; history and geography, 85; French and German, 82; natural history, 80, and drawing and religion, each 77. The energy of our nerve-cells and our muscles exhibited rhythmic variations in the course of the day. In each case they were most energetic between 10 and 11 in the morning, and these periods should be selected for the lesson that was apt to cause most brain fatigue. As to the causes of fatigue, the view that the chemical substances in the muscle or in the blood were used up more rapidly than they were replaced was substantially true. That muscular fatigue was partly a chemical process was shown by the fact that if an extract were made from the muscles of an animal that had been fatigued and injected into the muscles of a fresh animal, the muscles of the fresh animal showed phenomena which could not be distinguished from those of fatigue. If the blood-vessels of a fatigued muscle were washed with oxygenated water containing a little common salt—a liquid which had no nutritive properties, the waste-products were removed. Nothing that could yield energy to the muscles was added, yet the muscle retained its activity.

Pellagra Investigations in the West Indies

After leaving the North American continent, L. W. Sambon proceeded to the West Indies, where he visited Jamaica, Barbados, Trinidad, Grenada and other islands. In the hospitals, asylums and rural districts he met many cases of pellagra, and proved the existence of the disease in several areas in which its presence had previously been unknown. Dr. Sambon also visited British Guiana and found pellagra along the coast from Demarara to the Berbice River. In part of his trip Dr. Sambon was accompanied by Captain Siler, U. S. Army, chief of the American Pellagra Commission, and by Mr. Jennings of the Entomological Bureau, Washington, D. C. The observations made will certainly add much to the knowledge of the distribution of the disease. Besides the study of pellagra in its etiologic and epidemiologic aspects, a great deal of useful and interesting information has been gathered on the causation and topographic distribution of other tropical ailments, more especially blackwater fever, filariasis and elephantiasis, as well as on the subject of leprosy.—*Brit. Med. Jour.*

Beriberi in New Jersey

During a period extending over three years Dr. Livingood, jail physician at Elizabeth, N. J., has tabulated twenty-two cases of "jail edema" among the prisoners confined in the county jail. There is a history of this disease having occurred in the jail periodically during the last ten or fifteen years. It is stated that at least 80 per cent. of the prisoners serving more than ninety days contract the disease, and the belief that these were cases of beriberi has been confirmed. Herman B. Parker of the U. S. Public Health

Service, in company with Dr. Livingood, saw six cases in the jail or in the hospital, all of which were diagnosed as beriberi. Of three patients seen in the jail, one had practically recovered and one presented typical symptoms of the paralytic form of the disease, dilated heart, absence of patellar reflexes, areas of anesthesia over the peroneal side of both legs, atrophy of muscles and pain on pressure over nerves. In the third case, although the prisoners had not previously come under medical observation, well-marked areas of anesthesia over peroneal muscles and tibia, pain on pressure, a moderate grade of anemia and beginning edema of the left leg were found. Exaggerated patellar reflexes were found also in this case. No data are given in regard to diet or the sanitary surroundings of the prisoners in the report given by Parker in *Public Health Reports*, Feb. 6, 1914.

Medicolegal

Chiropractors for State Board Must Have Complied with Medical Practice Act

(*Green et al. vs. Hodges, Governor (Kan.)*, 138 Pac. R. 605)

The Supreme Court of Kansas holds unanimously that Chapter 291 of the laws of that state of 1913, relating to the practice of chiropractic, and creating a board of chiropractic examiners, does not require the governor to appoint on that board persons who have not complied with the statutes regulating the practice of medicine and surgery.

The plaintiffs asked that the governor be required by mandamus to appoint the board. The first section of the act creates a state board of chiropractic examiners, to be composed of "one ordained minister, one school-teacher, and three practicing chiropractors of integrity and ability, who shall be residents of the state of Kansas and shall have practiced chiropractic continually in the state of Kansas for a period of not less than two years." The governor, in giving the matter consideration, asked and obtained the opinion of the attorney-general, in which that officer advised that there was such ambiguity in the statute that action by the governor ought not to be taken.

The plaintiffs averred that they were engaged in the practice of chiropractic, were graduates of schools and colleges of chiropractic, possessed the necessary qualifications, and were desirous of obtaining a certificate to practice chiropractic in the state, and that there were many others for whom they also appeared, who were entitled to such certificates. But it was not stated in the petition that the plaintiffs, or any of the persons represented by them, had complied with the statutes relating to the practice of medicine and surgery, although the law required such compliance. The statute referred to, before its amendment in 1913, declared that: "From and after the first day of September, 1901, any person who shall practice medicine and surgery or osteopathy in the state of Kansas without having received and had recorded a certificate under the provisions of this act, or any person violating any of the provisions of this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall pay a fine of not less than fifty dollars nor more than two hundred for each offense. . . ." The amendment of this section consisted only in the omission of the words "or osteopathy." That a certificate, as provided in the act from which this quotation is made, was a condition precedent to the right to practice chiropractic in Kansas was settled in *State vs. Johnson*, 84 Kan. 411, and adhered to in *State vs. Peters*, 87 Kan. 265, and *State vs. Cotner*, 87 Kan. 864, and is therefore not an open question.

As the practice of chiropractic without such a certificate is a criminal offense, the petition, which alleged such practice for two years, showed on its face violations of the law, and a criminal prosecution might be instituted for each specific act of practice defined in the statute, unless it should be presumed, without any averment of the fact, that the plaintiffs and others for whom they sued had such certificates. In

passing the statute creating a chiropractic board, the legislature did not attempt to condone past offenses or relieve violators of the existing law in any way from its penalties.

The governor, by constitutional mandate, is charged with the duty to see that the laws are faithfully executed. It would be inconsistent to require the governor to reward with office under one law those who have persistently broken another law on the same general subject, which it is his equal duty to enforce. The court is persuaded that it was not within the legislative contemplation that he should do so, but that he should appoint the chiropractors on the board from those who had complied with the statute regulating the profession of medicine and surgery. There is no necessary conflict in these provisions. Indeed, Section 6b provides that "applicants for license under this act shall be required to pass the same examination in physiology, anatomy and hygiene and systematology required of licensed practitioners of medicine and surgery in this state." Whether the clause quoted refers to an examination by the same board licensing practitioners of medicine and surgery, or by the board created by this act, is not clear, and is not important to the present inquiry. The important fact is that chiropractors must pass an examination on the subjects named the same as other practitioners in medicine and surgery.

Validity as a Sanitary Measure of an Enactment Prohibiting the Discharge of Dense Smoke

(*People vs. New York Edison Co. (N. Y.), 144 N. Y. Supp. 707*)

The First Appellate Division of the Supreme Court of New York reverses a lower-court decision holding unconstitutional the section of the sanitary code providing that, "No person shall cause, suffer or allow dense smoke to be discharged from any building, vessel, stationary or locomotive engine or motor vehicle, place or premises within the city of New York, or on the waters adjacent thereto, within the jurisdiction of said city," etc.

The court says that, at the common law, smoke was neither included in the classification of public nuisances, nor embraced in the enumerated causes of such nuisances; but, since the early development of the common law, conditions with respect to the kinds and use of fuel have so materially changed that its ancient doctrines on the subject have long since ceased to be adequate. The marvelous growth of our manufacturing and transportation industries, the rapidly increasing urban population, congested in small areas, and the progress in scientific investigations with respect to conditions affecting health, have rendered it necessary in the interest of the public welfare to impose specific limitations and restraints on the use of private property that were unknown to the common law.

The possible effect of such smoke on those afflicted with weak or unhealthy lungs who are obliged to live in overcrowded tenements and for whose safety both the state and thousands of charitable people have been and are solicitous, as is shown by the establishment and maintenance of sanatoriums, is alone sufficient to indicate that this was a proper subject for legislative investigation and would warrant the enactment of appropriate regulations and restrictions of which the court may take judicial notice. Moreover, it is common knowledge that there would be great public discomfort and injury, both to health and to property, if the unrestricted use of soft coal were permitted in a large city.

It is evident that the object of this enactment was the prevention of the discharge of smoke of such a character and in such quantities that it might injuriously affect the public health or comfort, or injure property, and the court would not be warranted in convicting for a violation of this section, excepting on evidence from which an inference to that effect might be drawn. The application of this section was not intended to be limited to cases in which evidence is adduced embracing every element on which a conviction as for maintaining a public nuisance might have been had at common law, or even under the penal law, and it should not be so limited. The section should have a reasonable construction

which would preclude a conviction for a mere accidental or occasional momentary discharge of dense smoke, but which would insure the prevention of a continuous discharge or a discharge at intervals of large volumes of smoke, such as is caused by the use of soft coal.

That there has been wide-spread progressive public agitation for the suppression of smoke nuisances is shown by the fact that in at least three states the legislature itself has declared dense smoke to be a public nuisance in and of itself, or it was so declared under authority clearly delegated by the legislature, after ordinances to the same effect had been declared void, as unauthorized, and the later legislation was in every instance sustained.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

- Alabama Medical Association, Montgomery, April 21-24.
- Am. Assn. of Genito-Urinary Surgs., Stockbridge, Mass., May 15-16.
- Am. Assn. of Pathologists and Bacteriologists, Toronto, Apr. 10-11.
- American Dermatological Association, Chicago, May 14-16.
- American Gynecological Society, Boston, May 19-21.
- American Neurological Association, Albany, May 7-9.
- American Ophthalmological Society, Hot Springs, Va., May 12-13.
- American Surgical Association, New York, April 9-11.
- Arizona Medical Association, Tucson, April 21-22.
- Arkansas Medical Society, Eldorado, May 19-22.
- Association of American Physicians, Atlantic City, May 12-13.
- California State Medical Society, Santa Barbara, April 14-16.
- Connecticut State Medical Society, New Haven, May 20.
- Florida Medical Association, Orlando, May 13-15.
- Georgia Medical Association, Atlanta, April 14-16.
- Illinois State Medical Society, Decatur, May 19-21.
- Iowa State Medical Society, Sioux City, May 13-15.
- Kansas Medical Society, Wichita, May 6-7.
- Louisiana State Medical Society, New Orleans, April 20-23.
- Maryland Medical and Chir. Faculty, Baltimore, April 28-30.
- Mississippi State Medical Association, Columbus, April 14-16.
- Missouri State Medical Association, Joplin, May 12-14.
- Nat. Assn. for Study and Prev. of Tuberculosis, Washington, May 7-9.
- Nebraska State Medical Association, Lincoln, May 12-14.
- New Hampshire Medical Society, Concord, May 13.
- New York State Medical Society, New York, April 28-30.
- North Dakota State Medical Association, Grand Forks, May 13-14.
- Ohio State Medical Association, Columbus, May 5-7.
- Oklahoma State Medical Association, Guthrie, May 12-14.
- South Carolina Medical Association, Florence, April 14-16.
- Tennessee State Medical Association, Memphis, April 7-9.
- Texas State Medical Association, Houston, May 12-14.
- West Virginia State Medical Association, Bluefield, May 13-15.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

March, XXXV, No. 3, pp. 115-178

- 1 Factors of Safety in Treatment of Fractures. J. L. Bendell, Albany.
- 2 Diseases of Nasal Accessory Sinuses. E. A. Stapleton, Troy City.
- 3 Autogenous Vaccines in Colon Bacillus Infections. W. B. Stone, Schenectady.

American Journal of Medical Sciences, Philadelphia

March, CXLVII, No. 3, pp. 313-468

- 4 *Etiology and Pathogenesis of Bronchiectasis. C. P. Howard, Iowa City, Ia.
- 5 Spontaneous Rupture of Spleen in Typhoid; Report of Case Cured by Splenectomy. L. A. Conner and W. A. Downes, New York.
- 6 *Pathology of Thyroids from Cases of Toxic Non-Exophthalmic Goiter. L. B. Wilson, Rochester, Minn.
- 7 Prognostic Value of Renal Function. L. G. Rowntree, Baltimore.
- 8 *Iron in Cells of Central Nervous System. D. J. McCarthy, Philadelphia.
- 9 *Apparatus for Production of Therapeutic Pneumothorax. S. A. Knopf, New York.
- 10 *Tonsillar Infection. G. B. Wood, Philadelphia.
- 11 Broader Issues of Psychoanalytic Movement. J. J. Putnam, Boston.

- 12 *Improvement of Benedict Method for Determination of Sugar in Urine. W. Weinberger, New York.
13 Application of Calculus to Medical Sciences. I. J. Schwatt, Philadelphia.
14 *Fibroma Molluscum Gravidarum. R. L. Sutton, Kansas City, Mo.
15 *Rheumatoid Arthritis. R. Pemberton, Philadelphia.

4. **Etiology and Pathogenesis of Bronchiectasis.**—Four cases are analyzed by Howard. He points out that bronchiectasis is not an infrequent clinical condition, and is too often mistaken for pulmonary tuberculosis. The possibility of a foreign body or syphilitic stenosis must always be excluded as etiologic factors. Roentgenograms are helpful in the case of a foreign body, but bronchoscopy should be carried out to exclude a foreign body and to treat a possible stenosis of a bronchus. The etiology is manifold, but the inflammatory causes are the most common. Of the various theories Howard believes that advanced by William Ewart is the most rational and scientific. It considers a faulty distribution of air space as a predisposing factor common to all cases. The general mechanism of dilatation is found in obstruction in the broadest sense of the word.

6. Also published in *Journal-Lancet*, February 15, and abstracted in *THE JOURNAL*, March 14, p. 881.

8. **Iron in Cells of Central Nervous System.**—A careful investigation was made by McCarthy of ganglion cells in the brain of a patient who suffered from an extensive hemorrhagic encephalitis in the cortex. The iron reaction was not demonstrated in the cortical ganglion cells in this case, but was obtained in a striking cell reaction in the plasma-like cells of the pia-arachnoid and in the elastic coats of the smaller cortical arteries.

9. **Apparatus for Production of Therapeutic Pneumothorax.**—This new apparatus described by Knopf was originally the Forlanini apparatus, which was modified by Saugman, again by Muralt and Nebel, and then on Knopf's suggestion made in a little more substantial form, more easy to transport, more clearly graduated, and with glass tubes inserted in the rubber hose connecting the apparatus with the thoracic cavity.

10. **Tonsillar Infection.**—This is a preliminary report concerning the passage of anthrax bacilli through the tonsillar tissues as determined by experimental research. Wood found that the tonsils in the hog are more readily infected by the anthrax bacillus than any other portion of the buccal or pharyngeal mucosa. The clinical history of this disease in the hog shows that in a great majority of idiopathic cases, the pharynx is the site of the invasion, and in all these cases of pharyngeal disease the tonsils are the portal of entrance. In none of Wood's experiments was there any involvement of the pharyngeal or buccal mucosa other than the tonsils.

While the culture of anthrax was generally brought into the more intimate contact with one of the tonsils it was impossible to limit the bacilli to the tonsillar surface and they must have come in contact with a large part of the pharynx. At the inoculation an effort was made to rub the emulsion into one tonsil only, but in only one case were the lesions limited to only one tonsil, and in this case the tonsil affected was not the one on which the culture had been rubbed.

Anthrax bacillus penetrates through the cryptal and not the surface epithelium and probably always gains access to the parenchyma of the tonsil by passing through the living, unaltered cryptal epithelium, and having gained access through the superficial layers of this epithelium it tends to multiply in the deeper layers and then pass into the interfollicular tissue. The anthrax bacillus penetrating through the living normal epithelium causes a devitalization of the tissue which paves the way for a secondary infection from the staphylococci or other pathogenic organisms. The rapidity of the invasion is influenced both by the virulence of the organism used and by the susceptibility of the individual animal. Following the invasion the subsequent course of the disease is similar to that in other tissues.

12. **Benedict Method for Sugar in Urine.**—The modification of this list by Weinberger consists in the addition, just before heating, of approximately 10 grams (two heaping teaspoon-

fuls) of powdered calcium carbonate to the contents of the porcelain dish (25 c.c. of Benedict's solution, 10 to 20 gm. of crystallized sodium carbonate or one-half the weight of the anhydrous salt, and a small quantity of powdered pumice stone). Thereon the titration is conducted in the usual manner. The snow white calcium carbonate, insoluble and suspended in the alkaline solution, appears to act in a manner similar to that of sulphocyanate of copper, by effectively obliterating all color except the blue of the unreduced copper compound. The end-point obtained is sharp, the blue color being visible up to the addition of the last two drops of urine that are necessary for complete reduction, a pure white residue remaining. It is necessary, however, to add a sufficient amount of calcium carbonate, about 10 gm., otherwise the residue will appear gray and the end-points less distinct. In order to prevent sudden violent ebullition of the hot concentrated solution, it is advisable to dilute the latter with a few cubic centimeters of distilled water.

Weinberger's experiments show that the addition of calcium carbonate does not cause any unfavorable effect on the accuracy of the titration.

14. **Fibroma Molluscum Gravidarum.**—Sutton claims that the lesions of fibroma molluscum gravidarum are histologically identical with those of fibroma molluscum (the neurofibromas of von Recklinghausen).

15. **Rheumatoid Arthritis.**—Pemberton holds that rheumatoid arthritis is a preventable disease. In most instances, except where the general health is undermined by great deformities and sequelae of long standing, the disease can be arrested. For clinical purposes at least it seems to belong in the category with diabetes and gout, in that there is in each case a limit of toleration for carbohydrates, on the one hand, and proteins on the other. The rôle of the fats is not yet entirely clear, but they may prove to be borne analogously to the carbohydrates and proteins. After arrest of the arthritis the diet can generally be gradually increased until in some cases it differs but little from that of health. Both hypertrophic and atrophic arthritis respond to these measures, and their common etiology seems probable. The presence of an intercurrent or possibly causative infection is not necessarily a contra-indication to treatment, and recovery may take place in spite of it, though such factors should be eliminated if possible.

The large group of cases in which a causal source of infection cannot be found or removed, Pemberton says, lends itself particularly to these measures. Care is necessary to determine the highest level of metabolic equilibrium at which the arthritis will subside, and at or near that point the patient should be maintained. While the general health improves with the subsidence of the arthritis, and though the patients seem to acquire a toleration for a larger dietary, the general principles above described must be observed rigidly or relapse will occur. The disease is apparently not due to faulty elimination through the bowels or kidneys. It is clearly not due to "intestinal putrefaction" so-called. There is no reason to exclude protein in dietary treatment, and the ordinary carbohydrate food-stuffs are also clearly capable of causing the disease.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

March, LXIX, No. 3, pp. 409-580

- 16 Ovarian Pregnancy, with Case Report. M. Caturani, New York.
17 Two Cases of Formation of Artificial Vagina by Intestinal Transplantation. H. J. Boldt, New York.
18 Cesarean Section for Complete Prolapse of Cervix. S. P. Warren, Portland, Me.
19 Newer Conception of Syphilis and Parturition. R. W. Lobenstein, New York.
20 Extensive Rupture of Uterus in Fifth Month of Pregnancy; Supravaginal Hysterectomy: Recovery. R. Wallace, Chattanooga, Tenn.
21 Clonus in Toxemia of Pregnancy. T. C. Merrill, Washington, D. C.
22 Colon Bacillus Infections of Urinary Tract in Women. H. D. Furniss, New York.
23 Colon Bacillus Infection of Uterus, Tubes and Ovaries. E. Foskett, New York City.
24 Determination of Patency of Fallopian Tubes by Use of Collargol and Roentgen-Ray. W. H. Cary, Brooklyn.

- 25 Technic of Cranial Perforation of Fetus. H. C. Bailey, New York.
- 26 New Form of Obstetric Table. B. B. Wechsler, Pittsburgh.
- 27 Present Status of Fibroids of Uterus. A. J. Schoenberg, Chicago.

Archives of Pediatrics, New York
February, XXXI, No. 2, pp. 81-160

- 28 St. John's Guild of New York City. W. M. Hartshorn, New York.
- 29 Study of Child in Tuberculous Milieu. (To be Continued.) M. Fishberg, New York.
- 30 Theories of Acidosis in Children. M. Y. Marshall, Ann Arbor, Mich.
- 31 Literature on Osmosis and Edema in Infancy and Childhood. L. Watermann, Ann Arbor, Mich.

Bulletin of Johns Hopkins Hospital, Baltimore
March, XXV, No. 277, pp. 69-99

- 32 Cases Received in Henry Phipps Psychiatric Clinic. D. K. Henderson, Baltimore.
- 33 Essential Sialorrhea in a Dog. Cured by Excision of Parotid, Submaxillary and Portion of Sublingual Glands. J. W. Churchman, Baltimore.
- 34 *Use of Collargol in Pyelography. C. W. Vest, Baltimore.
- 35 Koplik's Spots on Tonsils of a Child Found to be Anaphylactic to Egg-Albumin. S. R. Miller, Baltimore.
- 36 Brief History of Quarantine. W. W. Ford, Baltimore.
- 37 Tattoo Marks for Identification of Animals in Laboratories. J. A. Hunnicutt and A. P. Jones, Baltimore.

34. Use of Collargol in Pyelography.—At operation, collargol has been found by Vest in the kidney and perirenal tissues in five cases, and in one case in the peritoneal cavity. The kidney and perirenal tissues in these cases were colored dark brown or bluish black and were edematous. The amount of discoloration was noticed in one instance to extend throughout the entire retroperitoneal space of the side injected. In this case a retroperitoneal abscess developed which necessitated a second operation. The time between the injection and operation varied from one to five days. Both 10 per cent. and 15 per cent. solutions were used. No difference in the resulting clinical symptoms was noted. Pain may be quite severe, lasting for two or three days, and once for ten days. There may be a definite rise in temperature from 102 F. being reported in two cases and 104 F. in another.

While no case of nephritis has been shown to accompany these symptoms, there are definite urinary changes. The examinations have shown white and red blood corpuscles with hyaline and granular casts to be present three days following the injection; casts for nine days; and albumin in two cases for twenty-four days; while in a third case a trace was detected after 118 days. In three cases where collargol was used, death has followed, but it is not evident that it was precipitated by the collargol.

Vest urges that collargol should be used only when absolutely necessary. It should be allowed to run into the renal pelvis in small amounts and under very low pressure. A freshly prepared solution, not over 15 per cent. should be used. It is necessary that the symptoms mentioned be known by those using this method of pyelography, and that especial care be exercised to avoid their occurrence. On account of the results here shown Vest believes that some other medium must be sought which will give a shadow but not injure the renal substance. After a more extensive use of silver iodid emulsion, this material may be found to serve well.

Canadian Medical Association Journal, Toronto
March, IV, No. 3, pp. 181-276

- 38 Hypertrophy of Falcial Tonsil and Its Treatment. J. Price-Brown, Toronto.
- 39 Case of Primary Endothelioma of Pleura. F. A. Clarkson, Toronto.
- 40 Treatment of Tabes Dorsalis and General Paresis with Salvarsan. G. Bates, G. S. Strathy and C. S. McVicar, Toronto.
- 41 Septic Puerperal Infection. H. N. Vineberg, New York.
- 42 Loose Bodies in Knee-Joint. S. A. Smith, Winnipeg.

Iowa State Medical Society Journal, Washington
March III, No. 9, pp. 547-614

- 43 Surgical Treatment of Uterine Prolapse. G. G. Cottam, Sioux Falls, S. D.
- 44 Gastrocoloptosis. D. Macrae, Jr., Council Bluffs.
- 45 Associated Abdominal Troubles. W. F. Cram, Sheldon.
- 46 Doctor's Wife. O. L. Chaffee, Waverly.
- 47 Diagnosis and Treatment of Cholelithiasis. A. G. Hejinian, Anamosa.

- 48 Public Health Work of Twenty-Seven Iowa Cities and Towns. M. F. Boyd, Boston.
- 49 *Operative Treatment of Mammary Carcinoma. C. E. Ruth, Des Moines.
- 50 Value and Limitations of Cystoscopy in Diagnosis. E. J. Harnagel, Des Moines.
- 51 Pyelo-Cystitis in Childhood. M. J. Moes, Dubuque.
49. Abstracted in THE JOURNAL, February 7, p. 487.

Journal of Biological Chemistry, Baltimore
March, XVII, No. 2, pp. 99-304

- 52 *Determination of Total Fats of Undried Feces and Other Moist Masses. G. J. Saxon, Philadelphia.
- 53 Ives Replica Diffraction Grafting in Spectroscopic Analysis. G. J. Saxon, Philadelphia.
- 54 *Theory of Diabetes. A. I. Ringer, Philadelphia.
- 55 Action of Anesthetics in Suppressing Cell-Division. R. S. Lillie, Woods Hole, Mass.
- 56 Organic Phosphoric Acid of Cotton Seed Meal. R. J. Anderson, Geneva, N. Y.
- 57 Phytin in Oats. R. J. Anderson, Geneva, N. Y.
- 58 Phytin in Corn. R. J. Anderson, Geneva, N. Y.
- 59 Chemistry of Phytin. R. J. Anderson, Geneva, N. Y.
- 60 Carotin, The Principal Natural Yellow Pigment of Milk Fat. L. S. Palmer and C. H. Eckles, Columbia, Mo.
- 61 Id. L. S. Palmer and C. H. Eckles, Columbia, Mo.
- 62 *Yellow Lipochrome of Blood Serum. L. S. Palmer and C. H. Eckles, Columbia, Mo.
- 63 Fate of Carotin and Xanthophylls in Digestion. L. S. Palmer and C. H. Eckles, Columbia, Mo.
- 64 *Pigments of Human Milk Fat. L. A. Palmer and C. H. Eckles, Columbia, Mo.
- 65 Lactochrome, Yellow Pigment of Milk Whey. L. S. Palmer and L. H. Coledge, Columbia, Mo.
- 66 *Absorption and Fate of Tin in Body. W. Salant, J. B. Rieger and E. L. P. Treuthardt, Washington, D. C.
- 67 Limitations of Kjeldahl Method. H. D. Dakin and H. W. Dudley, New York.
- 68 Chemistry of Gluconeogenesis. A. I. Ringer, Philadelphia.
- 69 Composition and Properties of Caseinates of Magnesium. L. L. Van Slyke and O. B. Winter, Geneva, N. Y.
- 70 Influence of Hydrazine on Glycogen Storage and on Blood Composition. F. P. Underhill, New Haven, Conn.
- 71 Effect of Hydrazine Derivatives on Blood-Sugar. F. P. Underhill, New Haven, Conn.
- 72 *Role of Muscle in Hydrazine Hypoglycemia. F. P. Underhill and A. L. Prince, New Haven, Conn.

52. Determination of Total Fats of Moist Feces.—The procedure detailed by Saxon is essentially a combination of the method of Folin and Wentworth for the determination of the total fats of powdered dried feces, and the method of Meigs for the determination of the fat of milk.

54. Theory of Diabetes.—Ringer's experiments suggested to him the rôle of glucose in the normal individual in preventing acidosis to be such as to deviate the *B*-hydroxybutyric acid from its ordinary course of oxidation, by combining with it and thereby changing its structural configuration so as to give rise to non-acetone genetic products. Two factors seem to be necessary for the prevention of acidosis: (1) The presence of an abundance of carbohydrates in the diet to combine with all of the *B*-hydroxybutyric acid as it produced in the intermediary metabolism of the fatty acids, leucin, tyrosin, etc. (2) The ability of the individual to accomplish the "glucosid union" with *B*-hydroxybutyric acid.

Ringer assumes that glucose acts antiketogenetically by forming a glucosid compound with *B*-hydroxybutyric acid. It seems reasonable to him to assume that since glucose and *B*-hydroxybutyric acid circulate in abundance in the blood of the diabetic, the immediate cause of acidosis may be due to the failure of that individual to accomplish this glucosid union. As *B*-hydroxybutyric acid rises in metabolism, it circulates in the blood as such, and becomes partly oxidized to aceto-acetic acid, which, in turn, is converted into acetone, all three substances being finally eliminated in the urine.

Ringer also believes that the failure of diabetics to form glycogen may be explained on exactly the same basis. In the formation of glycogen a glucose molecule attaches itself to another glucose molecule, forming a glucose-glucosid or maltose.

This glucose-glucosid with its free aldehyd radical attaches itself to a similar molecule giving rise to a carbohydrate with four glucose components. This reaction goes on, constantly increasing the size of the molecule, until the glycogen stage is reached. The chemical characteristic of all these unions is the same, namely "glucosid formation."

The failure to accomplish the glucosid union is at the bottom of all the chemical disturbances in diabetic individuals.

The failure to form glycogen, with the consequent hyperglucemia, the failure to burn glucose, and the disturbance in the combustion of the lower fatty acids, can all be explained on the basis of this theory. This failure may come on gradually, affecting first the maltose and glycogen formation, which becomes manifested by lowered sugar tolerance, hyperglucemia and alimentary glucosuria. As the disease progresses the glycogen formation becomes more and more interfered with, until there is permanent glucosuria.

As long as enough glucosid-genetic function remains to cause the conjugation of all the hydroxy fatty acids as they rise in the intermediary metabolism of the fatty acids and of protein, so long will acidosis not come into evidence. When, however, this begins to fail, acidosis appears, and the diabetic enters on the "moderately severe" stage when even the sugar that originates from the metabolism of protein is not completely utilized. When the glucosid-genetic power of the individual fails completely, there ensues the most severe type of diabetes, which is associated with complete failure in sugar combustion, giving a $D \div N$ ratio of about 3.6, when on a fat protein diet and a degree of acidosis which corresponds to almost the theoretical amount of *B*-hydroxybutyric acid that can rise from the fat and protein metabolism.

62. Lipochrome of Blood Serum.—These papers by Palmer and Eckles on the pigment of cows' milk fat may be summarized as follows: The well-known lipochrome of the blood serum of the cow is, like the lipochrome of the milk fat, body fat, etc., of the same animal, composed principally of carotin, the widespread hydrocarbon pigment of plants. Associated in small quantity with the carotin of the serum, probably dissolved in the fat of the blood, are one or more xanthophyll pigments which are always found in more or less variable quantity associated with the carotin of plants.

The carotin and xanthophylls of the blood serum are derived from the blood and furnish the normal source for these pigments in the milk fat and body fat, etc. A variation in the quantity of these pigments in the food results in a corresponding variation in the amount found in the blood serum and milk fat. Body fat formed during this time will also be affected. The carotin is carried by the blood serum in combination with an albumin. The combination is a very firm one. Lecithin and cholesterol are probably a part of the combination. Palmer and Eckles propose the name caroto-albumin for the new chromo-protein of the blood. The caroto-albumin of the blood serum of the cow is probably of importance in the formation of milk fat, body fat and the corpus luteum of the cow. It is doubtful if this new pigmented protein is of importance in the oxygen respiration of the body. The lactalbumin of cows' milk may, among other factors, be related to the color of the milk fat. There appears to be a special relation here in connection with the high color and high albumin content of colostrum milk.

64. Pigments of Human Milk Fat.—The fat of human milk may be tinted by carotin and xanthophylls, the pigments which characterize the fat of cows' milk. The relative proportion of carotin to xanthophyll in human milk fat is much more nearly equal than in the fat of cows' milk. The colostrum fat of human milk is characterized by a very high color as is the case with the fat of the colostrum milk of cows. The authors are convinced that the pigment of human body fat is no doubt identical with the pigment of human milk fat.

66. Absorption and Fate of Tin in Body.—After the subcutaneous injection of soluble tin salts the authors noted that the metal may be found in the urine and in the contents of the gastro-intestinal canal, smaller quantities being present in the urine. Twenty to twenty-five per cent. was found in the skin; the liver contained amounts carrying between 1.5 and 8 mm., or an average of about 5 per cent. of the amount injected. After feeding soluble salts of tin to rabbits for three or four days, and to dogs for two to four weeks, only traces could be detected in the urine. After feeding soluble tin salts to rats for four months, appreciable quantities were found in the body. Soluble tin salts given intravenously disappeared from the circulation within two to three hours.

These data the authors believe justify the conclusions that the gastro-intestinal tract is the chief organ for the elimination of tin; that the kidney plays a subordinate though an important rôle. Elimination of the metal is very slow; appreciable quantities are eliminated during the first and second days. Absorption of tin from the gastro-intestinal tract may take place under certain conditions.

72. Rôle of Muscle in Hydrazine Hypoglycemia.—Underhill and Prince found that hydrazine subcutaneously administered to rabbits causes no greater quantity of sugar to disappear from a solution perfused through the heart than that obtained with hearts of non-hydrazinized animals in a comparable nutritive condition. With non-hydrazinized rabbits the nutritive condition, and hence possibly the quantity of glycogen present in the tissues, as indicated by starvation experiments, is apparently a factor in determining the sugar disappearance mentioned.

In confirmation of the work of previous investigators it is shown that sugar disappearance from the perfusion fluid with the beating heart is little different from that obtained when the heart is not beating and is relaxed to a minimum. These experiments therefore fail to answer the question as to the cause of diminution of blood sugar content after hydrazine administration.

Journal of Cutaneous Diseases, New York

March, XXXII, No. 3, pp. 187-256

- 73 Nevus Follicularis Keratosus. C. J. White, Boston.
- 74 Hypernephroma with Adrenal Deficiency, Scleroderma and Sclerodactylia. H. Brooks, New York.
- 75 Case of Lingual Tuberculosis (Primary). W. B. Trimble, New York.
- 76 Intestinal Microorganisms with Reference to Skin Lesions. J. S. Willock, Baltimore.
- 77 Investigations in Psoriasis. L. W. Ketron, Baltimore.
- 78 Dermatitis Exfoliativa. A. Ravogli, Cincinnati.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

March, V, No. 4, pp. 317-424

- 79 *Quantitative Studies of Vagus Stimulation and Atropin. J. D. Pilcher and T. Sollmann, Cleveland.
- 80 *Alkaloids of Quebracho. D. Cow, Cambridge.
- 81 *Changes in Circulatory System in Periodic Respiration. A. J. Clark and P. Hamill, London.
- 82 Calibration of Waller Gas Balance and Connell Anesthetometer. W. M. Boothby and I. Sandiford, Boston.
- 83 *Determination of Anesthetic Tension of Ether Vapor in Man; Mode of Action of Common Volatile Anesthetics. W. M. Boothby, Boston.
- 84 Two Types of Periodic Respiration Due to Morphin. H. G. Barbour, London.

79. Vagus Stimulation and Atropin.—The experiments conducted by Pilcher and Sollman showed that the heart rate after division of the vagi is influenced by the rate prevailing before the vagi were divided. The cardiac accelerator tone probably plays an important rôle in maintaining the normal heart rate. Simultaneous stimulation of the vagi with subliminal currents gives no summation, but with submaximal currents, there is a limited tendency toward summation. The current necessary to arrest the heart is only one-fourth to three times greater than the highest current which produces no noticeable showing. The dose of atropin to produce the full effect is only two to four times as great as the smallest effective dose. A partial atropin effect can be overcome by strengthening the stimulation, but the antagonism is limited. The left vagus is less susceptible to stimulation, and more susceptible to atropin than is the right vagus. This renders the animals more susceptible to atropin and less so to vagus stimulation.

The duration of atropin paralysis varies with the dose. Small doses of atropin have no effect on blood-pressure when the vagi are divided; with intact vagi, the rise is secondary to the increased heart rate and not to vasomotor stimulation.

The authors conclude that the susceptibility of the vagi to electrical stimulation and to atropin paralysis are governed by the same factors, but inversely: whatever increases the susceptibility to stimulation lowers the susceptibility to atropin, and vice versa. The threshold and the maximal value lie rather close together, both for stimulation and for atropin. Within this narrow range, summation and antagonism are

additive; outside of this range, they are not influenced by one another. Therefore, a maximal atropin effect (though the dosage is not very much greater than the threshold) cannot be overcome by the strongest vagus stimulation; or a sub-threshold vagus stimulation cannot be brought above the threshold by stimulating the other vagus.

80. Alkaloids of Quebracho.—Quebrachine, according to Cow, is by far the most toxic of the four alkaloids investigated. In small doses it exerts a stimulating action on the central nervous system; as also do the other alkaloids. The only obvious objective effect of this is seen in the respiration, which becomes both quicker and deeper. The chief action of quebrachine in large doses is a paralyzing effect on nerve-cells; this includes nerve-cells on the autonomic system, the brain and cord. After first paralyzing nerve-cells, quebrachine in still larger doses paralyzes the vagus, the sympathetic and motor nerve-endings. Cow places quebrachine in the curare-nicotine-coniine group of drugs. It causes death by paralyzing the respiratory center at a time when the motor nerves are still responsive to electrical stimulation.

81. Changes in Circulatory System.—In the four cases of periodic respiration described by Clark and Hamill definite circulatory changes were associated with the end of the apneic period. In one case these changes were extremely pronounced. The circulatory changes observed were, a slowing of the pulse, a fall in the blood-pressure, and an increase in the a-v interval. These clinical results agree with the results obtained by Barbour on animals, and show that in some cases of periodic respiration the asphyxial changes in the blood during apnea are sufficient to affect the heart tissue directly. The administration of pure oxygen will relieve the irregularity of the respiration and of the cardiac action, even in extreme cases of periodic respiration, provided that the oxygen be given at an efficient concentration. The occurrence of periodic changes in the circulation when associated with depression of the respiratory center will assist in maintaining periodicity of respiration.

83. Anesthetic Tension of Ether Vapor.—The term "anesthetic tension," is employed by Boothby to indicate the partial pressure of ether vapor that, after equilibrium is established, can, for an indefinite period, maintain the subject in the stage of ideal surgical anesthesia. Curves are given showing the anesthetic tension of ether vapor for man is between 47 and 54 mm., probably 51 mm. A working hypothesis based on the theory of Meyer and Overton is suggested to explain the mode of action of the volatile inhalation anesthetics which can be summarized in the quantitative reversible equation $Mn + An \rightleftharpoons MnAn$ in which the percentage saturation of the susceptible molecules in the nerve cells (Mn) and, therefore, the inhibition of the cell function (the depth of anesthesia), is dependent on the tension of the anesthetic vapor (An) to which these susceptible molecules are exposed.

To harmonize the fact that large variations occur in the amount of ether required by the usual methods of anesthesia with the fact that the same ether tension produces the same degree of anesthesia in all patients, it is pointed out by Boothby that the apparent variation can be accounted for by (a) changes in volume of respiration; (b) changes in rate of circulation, and (c) by a possible alteration in the rapidity with which the above reversible reaction takes place under a slightly different chemical environment.

Lancet-Clinic, Cincinnati

March 7, CXL, No. 10, pp. 265-296

- 85 Non-Suppurative Disease of Labyrinth. Von Eicken, Hess, Germany.
- 86 Hospitals and Their Relation to Medical Colleges and Training of Interns. C. R. Holmes, Cincinnati.
- 87 *Classification of Gastro-Intestinal Diseases of Infancy. I. A. Abt, Chicago.
- 88 *Feeding of Sick Infant. F. C. Neff, Kansas City, Mo.
- March 14, CXL, No. 11, pp. 297-328
- 89 *Points in Treatment of Acute Ileocolitis. J. R. Snyder, Birmingham, Ala.
- 90 Essentials of Modern Artificial Feeding of Infants. R. A. Strong, Pass Christian, La.
- 91 Syphilis of Nervous System; Its Mode of Attack, Diagnosis and Treatment. E. A. North, Cincinnati.
- 92 Quarantine in Diphtheria. E. A. Fennell, Cincinnati.

- 87-88. Abstracted in THE JOURNAL, Nov. 15, 1913, p. 1840.
- 89. Abstracted in THE JOURNAL, Nov. 15, 1913, p. 1841.

New York State Journal of Medicine

February, XIV, No. 2, pp. 57-118 (Omitted from THE JOURNAL, March 21, p. 967)

- 93 Desirability of Greater Uniformity in Tests for Heterophoria. L. Howe, Buffalo.
- 94 Operative Treatment of High Myopia. W. E. Lambert, New York.
- 95 Conservative Treatment of Chronic Aural Suppuration. R. L. Loughran, New York.
- 96 Operative Findings and Results in Mastoiditis, Acute and Chronic. J. M. Ingersoll, Cleveland.
- 97 Tuberculous Affections of Ear. T. H. Farrell, Utica.

Northwest Medicine, Seattle, Wash.

March, VI, No. 3, pp. 61-90

- 98 Diagnosis and Treatment of Suppurative Diseases of Nasal Accessory Sinuses. R. Levy, Denver.
- 99 Interrelation between Systemic Diseases and Diseases of Eye, Ear, Nose and Throat. A. P. Lensman, Seattle.
- 100 *Decortication of Lung for Old Empyema. E. H. Beckman, Rochester, Minn.
- 101 Summary of Electrotherapeutics. E. Myers, Portland, Ore.
- 102 Crushing Injuries of the Extremities. R. S. Joyce, Ogden, Utah.
- 103 Use of Iodin in Emergency Wounds. D. K. Thyng, Tacoma.
- 104 Mycosis Fungoides. C. M. Cole, Caldwell, Ida.
- 105 Gastroenterostomy Under Local Anesthesia with Case Report. M. M. Null, Seattle.

100. Decortication of Lung for Old Empyema.—Five cases are cited by Beckman to illustrate the possibilities of this operation. The patients have their normal capacity restored, which, Beckman says cannot be said of any other operation for this condition. In his experience the procedure is not as severe as a complete Schede operation, although it appears much more formidable. Hemorrhage from the denuded lung is not ordinarily severe. In several instances it was extremely slight and, while the lung was injured enough to allow air-bubbles to escape in almost every case, no harm has arisen from such injury and apparently no infection in the lung has occurred.

Beckman does not claim that this operation is suitable for all cases of empyema with a large cavity, but with the patient in suitable physical condition it should be attempted before any other operative procedure for obliterating the cavity. It has not produced as much shock as the Schede operation and with reasonable care can be performed in many instances when the Schede operation was formerly indicated. But one death occurred in 11 cases in the Mayo clinic in which this procedure was used. This patient was physically below normal and had gone through a severe attack of typhoid and measles within the year. A large cavity existed which extended to the mediastinum with a connection into a large bronchus. Beckman believes that in this case the operation was carried too far or that the patient received a shock from too much manipulation along the pneumogastric nerves.

Ohio State Medical Journal, Columbus

March, X, No. 3, pp. 129-192

- 106 Practical Points in Obstetrics. J. F. Baldwin, Columbus.
- 107 Relation of Mouth and Teeth to Health and Disease. H. C. Brown, Columbus.
- 108 Simple Operation for Removal of Spurs and Deflections of Nasal Septum. C. P. Linhart, Columbus.
- 109 *Treatment of Delirium Tremens by Subdural Injection of Sodium Bromid. S. P. Kramer, Cincinnati.
- 110 Hysterics. M. K. Isham, Columbus.

109. Treatment of Delirium Tremens.—After some experimentation on the lower animals with various salts Kramer found that 1 per cent. solution of sodium bromid might be injected into the spinal canal of animals without immediate or remote harm to the nervous system of the animal. He then applied this knowledge to the treatment of delirium tremens. He has used the treatment in a series of twenty cases and vouches for its safety and efficacy. The technic of the treatment consists in the withdrawal of cerebrospinal fluid through lumbar puncture in amounts as great as possible—namely 50 to 60 c.c. The same amount of a sterile 1 per cent. solution of sodium bromid is injected with a syringe. There is absolutely no danger from increased subdural pressure. This amount and even as high as 80 c.c. of fluid has been

injected into the subdural cavity in an interval of one minute without the least sign of increased intracranial pressure. Sodium bromid is not toxic to the nervous system. The potassium salt must not be used since it is slightly irritating. The patients as a rule show an immediate improvement, a lessened delirium within a few minutes after the injection. This immediate improvement, however, disappears after a short time, to be followed in from twelve to fifteen hours by a permanent disappearance of the delirium. Occasionally after a few days there may be a relapse which is usually controlled by a repetition of the injection.

Ophthalmic Record, Chicago

March, XXIII, No. 3, pp. 109-162

- 111 Parinaud's Conjunctivitis. G. F. Keiper, Lafayette, Ind.
- 112 Unusual Complicated Case of Sphenoidal Abscess Causing Amblyopia. C. M. Harris, Johnstown, Pa.
- 113 Set of New Lacrymal Probes. W. B. Weidler, New York.
- 114 Observations During Recent Trip to Europe. J. S. Clark, Freeport, Ill.
- 115 New Operation for Detached Retina. F. B. Tiffany, Kansas City, Mo.
- 116 Steel Lodging in Sclera. E. E. Krider, Oelwein, Ia.
- 117 Shield for Graefe Cataract Knife and Angular Keratome. F. P. Lewis, Buffalo.

Public Health Journal, Toronto

March, V, No. 3, pp. 139-206

- 118 Dental Inspection and School Dental Clinics. W. H. Doherty, Toronto.
- 119 Importance of Oral and Dental Conditions. W. P. Caven, Toronto.
- 120 Relationship of Medicine and Dentistry. I. H. Cameron, Toronto.
- 121 Medical Inspection of Schools in British Columbia, Quebec, Ontario.
- 122 Feeble-Minded and Backward Children. G. S. Mundie, Montreal.
- 123 Housewives' League. E. Curnett.
- 124 Typhoid Inoculation. W. B. Leishman, London.

Texas State Journal of Medicine, Fort Worth

March, IX, No. 11, pp. 333-362

- 125 Local Anesthesia with Special Reference to Hernia. C. W. Allen, New Orleans, La.
- 126 Embryology and Anatomy of Colon. O. L. Norsworthy, Houston.
- 127 Colonic Membranes. J. H. McLean, Fort Worth.
- 128 Injuries to Hip Joint and Surrounding Tissues. W. N. Wardlaw, Corpus Christi.
- 129 Amenorrhea and Dysmenorrhea. G. T. Hall, Big Springs.
- 130 Perineal Prostatectomy. T. J. Bennett, Austin.

West Virginia Medical Journal, Wheeling

March, VIII, No. 9, pp. 291-326

- 131 Etiology and Classification of Rheumatism. O. F. Covert, Moundsville.
- 132 Medical Notes on Central American Trip. J. E. Cannaday, Charleston.
- 133 Prevention of Typhoid by Vaccination. M. R. Stoue, Parkersburg.
- 134 One Hundred Cataract Cases. J. L. Dickey, Wheeling.
- 135 Tuberculosis. I. C. Hicks, Huntington.
- 136 Relation of Lactic Acid in Stomach Contents to Carcinoma of that Organ. C. L. Holland, Fairmont.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

February 28, I, No. 2774, pp. 461-516

- 1 Anthropologic Study of Portraits of Shakespeare and Burns. A. Keith.
 - 2 Hygienic Aspect of Coal Mining Industry in United Kingdom. (To be continued). F. Shufflebotham.
 - 3 *Pathologic Changes of Thyroid in Disease. R. Farrant.
 - 4 Dissemination in Carcinoma of Rectum. J. W. Heslop.
 - 5 Effects of Epinephrin. M. Donaldson.
 - 6 Alcohol, Housing Conditions and Tuberculosis. H. Vallow.
- March 7, I, No. 2775, pp. 517-572
- 7 Visceral Lesions of Purpura and Allied Conditions. W. Osler.
 - 8 Oral Sepsis Simulating Heuch's Purpura. T. S. Bradburn.
 - 9 Case of Hysterical Monoplegia Following Electric Shock. P. Stewart.
 - 10 Hygienic Aspect of Coal Mining Industry in United Kingdom. (Concluded). F. Shufflebotham.

3. Pathologic Changes of Thyroid in Disease.—The object of Farrant's paper is to point out those diseases and toxemias that do and those that do not produce an alteration in the thyroid, to describe the pathologic changes in the gland, to compare them with those seen in goiter, and to note when these

changes are associated with signs of thyroid excess. The work is based on some 700 thyroids of man and guinea-pigs collected from post-mortem examinations during the last five years.

Farrant found that the first change that the thyroid undergoes as the result of an acute toxemia is an alteration in the colloid material. It loses its staining capacity, becomes granular, vacuolated and finally disappears. During this change the gland is congested with perhaps intervesicular hemorrhage. The walls of the empty vesicles become plicated, the short or flat epithelial cells lining the vesicles become high cubical and finally columnar and greatly increased in number. The plication of the walls and the cell increase go on until the vesicles, as such, are indistinguishable; during the transition the appearance is given of villous processes growing from the walls of the vesicles. When the hyperplasia is complete, the gland is hypertrophied, but its store of secretion is exhausted. The distinction between the acute and the complete hyperplasia is that in the acute the intervesicular hemorrhage is the most marked feature, the cell and vesicular changes have not progressed as far as that seen in the complete. The length of time that it takes to undergo a complete hyperplasia varies with the toxemia and its intensity; the whole change may take place in twenty-four hours.

So certain is this hyperplasia that the thyroids taken from any one of these acute infections can be arranged in the order of the duration of the disease as it corresponds to the degree of hyperplasia, allowance being made for the very acute infections which can be noted by the extreme degree of intervesicular extravasation. An acute toxemia thus causes a cycle of thyroid changes. First, there is an acute hyperplasia in which the gland becomes hypertrophied and exhausted; when the toxin is overcome the gland involutes back to normal, but the effect of the toxemia is evident by the diminution of thyroid tissue and the intervesicular fibrosis. In the less acute toxemia the cell hyperplasia is more marked and the subsequent formation of excess of colloid during involution.

There are three characteristic stages in chronic hyperplasia: first, when the vesicles are of equal size the colloid is partially absorbed and coarsely granular and the cells are proliferated; second, when the vesicles are of unequal size and packed with colloid with cell hyperplasia between them; and third, when the gland is cirrhotic with deficiency of thyroid tissue.

Glasgow Medical Journal

March, LXXXI, No. 3, pp. 161-239

- 11 Retraction Ring as an Obstruction in Labor. R. Jardine.
- 12 History and Prevention of Venereal Disease. D. Newman.
- 13 Drug Treatment of Phthisis Pulmonalis. J. Craig.

Journal of Laryngology, Rhinology and Otology, London

March, XXIX, No. 3, pp. 113-168

- 14 Technic of Intranasal Operation for Aurial Sinus Suppuration. P. Watson-Williams.
- 15 Treatment of Catarrh of Eustachian Tube, with Analysis of Results in Seventy-One Cases. J. W. Wood.
- 16 Reports for 1913 from the Ear and Throat Department of Royal Infirmary, Edinburgh. J. Hewat.
- 17 Abscess of Nasal Septum Secondary to Furuncle of Vestibule. D. McKenzie.

Journal of Pathology and Bacteriology, Cambridge

January, XVIII, No. 3, pp. 305-444

- 18 Malakoplakia of the Bladder and Kidneys. S. McDonald and W. T. Sewell.
- 19 Technic of Cultivating Adult Animal Tissues in Vitro, and the Characteristics of such Cultivations. A. J. Walton.
- 20 *Experiments on Hemolytic Icterus. J. W. McNee.
- 21 Congenital Aneurysm in Young Rabbit. W. H. Harvey.
- 22 *Arsenious Acid-Glycerin-Gelatin ("Arsenious Jelly") Method of Preserving and Mounting Pathologic Specimens. S. Delépine.
- 23 Water Storage and Its Advantages. A. C. Houston.
- 24 *Typhoid Bacilluria: Description of Certain Atypical Coli-typhoid Bacilli Found in Urine in Enteric Fever. A. Patrick.
- 25 *Standardization of Bacterial Vaccines by Wright, Hemocytometer and Plate Culture Methods. E. Glynn, W. Powell, A. A. Rees and G. L. Cox.

20. Experiments on Hemolytic Icterus.—There is no doubt in McNee's mind that after removal of the liver, in geese poisoned with AsH, no marked icterus occurs. The weak icterus which occurred in some of his experiments after removing the liver, he believes must depend either on the functional activity

of the spleen and bone-marrow, or on continued activity of the small piece of liver tissue left behind the vena cava. The reason why no marked icterus follows extirpation of the liver is not that the liver cells have been removed, but depends on the removal of the tissue enclosed within the liver which breaks down hemoglobin, namely, the endothelial cells of v. Kupffer. These cells have, at any rate, to do with the first phase in the production of bile, since they split off the iron part of the hemoglobin molecule and set free the pigment portion.

Neither from the experiments of Minkowski and Naunyn, nor from his own, can McNee draw a definite conclusion that a true hemolytic icterus cannot occur at all. On the contrary, the histologic appearances, especially the proliferation and desquamation of the Kupffer cells, their circulation in the blood-stream, and their destruction there, speak strongly in favor of the occurrence of an icterus without any action of the liver cells at all. The argument that when the liver is removed the homologous endothelial cells in the spleen and marrow do not take up the work is met by an extreme smallness of these latter organs in birds, and the short duration of the experiments.

An important question McNee says is how far these conclusions arrived at by experiments on geese can be applied to human pathology. Experiments certainly show that the structure of the liver is different in birds from that in higher animals. Quite apart from the relative difference in size of the organ in birds, there is in them a very special iron metabolism in the liver, with which, not the liver cells but the endothelial cells lining the vascular capillaries, have to do.

The appearances in a hemolytic icterus induced by toluylen-diamin in dogs are not in any essential feature different from what he has observed in geese. The chief point of difference is that normal structure in dog's liver is different from that of birds. In dogs the endothelial Kupffer cells are much less numerous, and normally give no iron reaction. Thus in dogs the liver does not seem to be so directly associated with the iron metabolism as it is in birds. It is likely, McNee suggests, that the spleen in higher animals has taken on this function. But in icterus the endothelial cells of the dog's liver show changes quite similar to those found in geese, namely, phagocytosis of red corpuscles, disintegration of them and appearance of a diffuse iron reaction in the protoplasm. The cells being much fewer in number, these appearances are not so prominent and readily recognized.

In the spleen the changes seen in dogs and geese during icterus are also similar, but it has been sufficiently emphasized already how much larger an organ the spleen is comparatively in higher animals than in birds. In the lymph-nodes of dogs the changes are also very marked, and of a similar nature to those found in the spleen. In geese it was generally a matter of extreme difficulty to find lymph-nodes at all, and hence no observations were made on them. Taking all these points into consideration, it seems to McNee quite probable that, with modifications depending on the different importance of the spleen all that he has suggested in connection with the etiology of hemolytic icterus, from his experiments on geese, can be applied to higher animals and to man.

22. Preserving Pathologic Specimens.—The fixing agents which have given Delépine the best results are a 2 per cent. watery solution of bichromate of potash and a 4 to 8 per cent. watery solution of formaldehyd. To both these fixing and hardening reagents sulphate of soda may be added, so as to bring the specific gravity of the solution up to 1.024 to 1.028. These solutions allow one to give to the object the consistency suitable for cutting it into slices or for carrying out of necessary dissections; they do not affect the transparency of membranes, of colloid, or of mucous products; they do not alter, materially, the appearances of fat, muscular tissue, fibrous tissue, bone, etc. With hemoglobin they both produce insoluble compounds which have a color resembling closely the normal color of that product after passage of the fixed tissues through alcohol and embedding in "arsenious jelly."

The bichromate method has a serious disadvantage, owing to the fact that when the chrome salt is not entirely removed

by long washing after hardening, a green discoloration is gradually produced. This difficulty is easily overcome when very thin slices of organs are treated, and Delépine has kept sections prepared by the bichromate method twenty-five years ago which have not altered in appearance. In the case of whole organs or thick sections, formaldehyd solution is better; it is also applicable to thin sections.

The method which Delépine now generally adopts is as follows: (a) Fixing Solution: Liquor formaldehyd (40 per cent. solution), 100 c.c.; water, 900 c.c.; to which may be added sulphate of soda, 20 gm. The specimens are left in this solution for from three days to two weeks, according to thickness. (b) Alcohol (80 to 90 per cent.). The specimens are left in this fluid until the color has returned as nearly as possible to its original tint. (c) Arsenious Acid Glycerin Fluid: Arsenious acid solution (made by boiling an excess of arsenious acid in water for two hours, and allowing the fluid to stand for twelve hours), 400 c.c.; pure glycerin, 600 c.c. The specimens are transferred from the alcohol to this solution, where they must be kept for one or two days at least. (d) Arsenious Acid Glycerin Jelly (formula for about 8 liters): (1) Coignet's gelatin (Gold label), 425 mm.; arsenious acid, saturated watery solution (see c), 1,500 c.c.; the dry gelatin, thoroughly cleansed, is added to the hot arsenious acid solution, in which it should be entirely dissolved in less than half an hour. (2) Hot arsenious acid jelly (see 1), 1,925 c.c. (say 2,000). Pure glycerin (hot), 5,760 c.c. (say 5,800). The two are mixed together and allowed to cool to about 20 C., then the white of six eggs and their broken shells are added and mixed thoroughly with the mass. The mixture is brought again to nearly boiling-point to coagulate the albumin, and is maintained at this temperature for two hours.

The hot fluid is strained through flannel and then filtered through filter paper, the temperature of the fluid being kept at about 50 C. This takes from one to three days. This medium is absolutely transparent, and when set does not melt in the highest summer temperature.

24. Atypical Colityphoid Bacilli in Urine in Enteric Fever.—It was found by Patrick during the investigation of bacilluria in men suffering from enteric fever, that in six cases out of seventeen the bacilli were not typhoid bacilli, but members of the typhoid-coli group not previously described. *B. coli* did not occur in any of the seventeen cases. In seven instances of bacilluria in women with enteric fever, on the other hand, the bacillus present was found, in all but one, to be *B. coli*. These atypical bacilli appeared in the urine, on the average, rather after the date for typhoid bacilluria, and persisted for quite a short time, in three instances for one day only. Their appearance was not attended by any constitutional disturbance, and in general the cases resembled ordinary cases of typhoid bacilluria.

These bacilli, though practically unaffected by artificial anti-typhoid serum, were agglutinated in varying degrees by the serum of the patient from whom each was isolated, in one instance to a greater extent than was the stock typhoid bacillus by the same serum. The six bacilli were stored on agar slopes at a temperature of about 6 C., and on re-examination a year later were found to have acquired greater fermentative powers with regard to certain sugars. This property has usually been described as developing by continued growth and subculture of an organism in a solution of the sugar, but with these bacilli the power, though afterward increased by subculture, developed in many instances spontaneously.

25. Standardization of Bacterial Vaccines.—The most scientific method of enumerating bacteria according to these authors is in some form of hemocytometer chamber. An optically plane cover slip must be used with such apparatus, for it is recognized as essential when counting blood, and is still more essential when counting bacteria, where accuracy is of greater importance. Owing to the small free working distance of oil-immersion lenses, most optically plane cover slips are too thick. A weak solution of carbol thionin was found to be the best diluting and staining fluid.

Journal of Tropical Medicine and Hygiene, London

March, XVII, No. 5, pp. 65-80

- 26 *An Intestinal Protozoal Parasite Producing Dysenteric Symptoms in Man. A. Castellani.

26. Intestinal Protozoal Parasite Producing Dysenteric Symptoms.—In three cases presenting dysenteric symptoms Castellani observed a peculiar large protozoal parasite which most probably was the cause of the condition. In all three cases the clinical symptoms were those of an ordinary mild type of dysentery, either amebic or bacterial. The onset was rather abrupt with severe abdominal pain, tenesmus and diarrhea, with stools containing mucus and blood. The motions soon lost any trace of fecal matter and consisted only of mucus and blood.

In all cases the microscopic examination showed absence of löschiae, coccidians, trichomonads, balantidia and ova of worms; instead several large motile parasitic bodies were seen, rather elongated motile bodies, which on superficial examination gave the impression of being very large flagellates moving about. On close examination, however, no flagella could be detected. The parasitic bodies are large, elongated or oval; one extremity, the one which in stained preparations appears mammillary, is, so to speak, shaken by a peculiar, extremely frequent, vibrating movement, which makes one suspect the presence of flagella or an undulating membrane or cilia. Neither in fresh preparations nor in stained preparations has Castellani been able to detect flagella or cilia. The protoplasm has the same appearance all over the body of the parasite, presenting numerous roundish vacuoles, none of which are contractile. No distinct nucleus is evident, and there is apparently no distinct differentiation between ectoplasm and endoplasm. The parasite does not emit pseudopodia like an amoeba, in fact, the changes in shape of the body of the parasite are slight, and very similar to those slight changes in the shape as found in flagellates, such as *Trichomonas hominis*.

The parasites move about fairly rapidly, though not so quickly as coccidians or trichomonads; how motility is produced it is difficult to say. No pseudopodia are protruded and the body of the parasite shows only slight changes in shape. The anterior portion, as already stated, shows extremely rapid vibratory movements, but no flagella or cilia are seen, nor apparently, a definite undulating membrane, nor has Castellani been able to satisfy himself that there is emission of filiform pseudopodia. Attempts at cultivation have failed. Castellani is inclined to consider the parasite to represent a new genus and species, and as a temporary generic term, suggests the term "*entoplasma*."

Lancet, London

March 7, I, No. 4723, pp. 659-730

- 27 Glycosuria and Albuminuria of Adolescents. J. F. Goodhart.
28 Infantilism. H. Gilford.
29 *Morbid Anatomy of Tuberculosis in Man. (Concluded.) T. Shennan.
30 Significance of Diabetic Family History in Life Assurance. O. May.
31 Acute Suppurative Appendicitis Complicated by Gangrene of Ileum. B. Hughes.

29. Morbid Anatomy of Tuberculosis in Man.—In Scotland Shennan says the maximum death-rate from tuberculosis occurs during the 25 to 35 age period; in England during the 35 to 45 period. The maximum percentage death-rate from tuberculosis calculated on the number of deaths from all causes, at each age period, occurs in the female during 15 to 20 age period, and in the male during the 20 to 25 age period. The percentage of deaths from tuberculosis in females during the 15 to 20 age period is 52.69. The death-rates from tuberculosis in different towns and cities in Scotland bear no clear relationship to the number of inhabitants or to the density of population. Therefore, Shennan concludes that other factors must be involved. Hypersensitiveness due to a primary infection he thinks is probably of great importance in relation to reinfections. Reinfections arise not necessarily from a previous focus in the body, but must frequently be new infections from without.

The majority of cases of tuberculosis of the lungs and their regional glands are the result of aerogenic infection. Retro-

grade infections do occur. There is no evidence in favor of a spread by direct continuity from the deep cervical glands to the lungs. The right lung and its regional glands are more often the seat of tuberculosis than the left. In children manifest tuberculosis of the lung is very frequently a sequel of tuberculosis of the bronchial glands. Little satisfactory is known of the factors which determine the localization of the disease in the lung. Chronic fibrocaseous tuberculous foci in the lungs and caseation of the related bronchial glands may be caused by separate infections. In Scotland bovine infections in childhood are commoner than in most other parts of the world. The relative frequency with which bovine or human infections occur in any given organ or tissue, and the differing incidence of these infections in different localities Shennan states depend on the relative general frequency of infections with these two types of the tubercle bacillus. This differs in different localities.

Sei-I-Kwai Medical Journal, Tokyo

February, XXXIII, No. 2, pp. 1-12

- 32 Primary Carcinoma of Lung. Inada.
33 On Volvulus. M. Takayasu.
34 Sixty-Four Cases of Ileus in Kagoshima-Byoin. S. Asahara.

Journal de Médecine de Bordeaux

February 22, LXXXV, No. 8, pp. 125-138

- 35 Industrial Accidents to the Head Aggravating Incipient Paralysis, and Question of Workmen's Compensation. J. Vitrac and H. Verger.

Journal d'Urologie, Paris

February, V, No. 2, pp. 121-246

- 36 *Hematuria with Appendicitis. G. Nové-Josserand and H. Fayol.
37 High Frequency Currents in Local Treatment of Tuberculosis of the Bladder. M. Heitz-Boyer.
38 *Determination of Tubercle Bacilli in the Urine. E. Gautier.
39 *Bladder Stones in Mohammedans. (Lithiase vésicale primitive de l'enfant et de l'adulte chez les musulmans de l'Afrique du Nord.) J. Coudray.
40 Importance of the Ultramicroscope in Diagnosis of Syphilis in Early Stage. Lévy-Bing.

36. Hematuria with Appendicitis.—Three personal cases are reported and twenty-eight from the literature are reviewed; the diagnosis may be difficult when the appendicitis is in a torpid, chronic stage. The hematuria may not appear until just after the appendix has been removed, but it generally comes on with the stormy onset of acute appendicitis. Hematuria of appendicitic origin is generally brief but intermittent, and the appendix is usually found adherent to the ureter and kinking it. This explains the inability to introduce the ureter catheter, which in turn leads to the erroneous diagnosis of a concrement in the ureter. In the hematuria with acute appendicitis, the appendix is often found stretching backward and upward and the kidneys are the seat of intense congestion. This reflex congestion in the kidneys throws light on the mechanism of hematuria secondary to appendicitis, as both the appendix and the ureters are innervated from the abdominal sympathetic.

38. Tubercle Bacilli in the Urine.—Gautier declares that the Ziehl-Neelson technique may be regarded as absolutely reliable for tubercle bacilli in the urine provided the decoloration is done with extreme care with 33 per cent. nitric acid and with alcohol. The method requires much patience, long centrifuging, with plenty of fluid, and the slides must be examined all over. If the first examination gives negative findings, the procedure must be repeated with urine voided a few hours later. If a specimen stained with methylene blue shows red corpuseles, degenerated polynuclears, but no microbes, the search for tubercle bacilli must be resumed with renewed energy. The findings in twenty-eight cases are briefly summarized.

39. Bladder Calculi in Northern Africa.—Coudray lists the brief history of ninety cases in Mohammedans in northern Africa, including fifty children. The mortality was 11 per cent. but among the adults alone it was over 17 per cent. The first sign of the trouble in children is pain on micturition and sudden stoppage of the jet of urine. In men, the disturb-

ances are usually those accompanying chronic cystitis. As the patients are seldom seen until the lithiasis has caused more or less local disturbance, a suprapubic incision is generally necessary. A special advantage of this technic in this African region is that the calculus which is given the patient to take home is a most potent aid in winning the confidence of the native population, so that the operated send their friends for relief in an earlier stage.

Lyon Médical, Lyons

February 22, XLVI, No. 8, pp. 389-452

- 41 Neurasthenia with Involvement of the Meninges. C. Maurice.

Presse Médicale, Paris

February 21, XXII, No. 15, pp. 141-152

- 42 Mycosis in Man from Chalara; Two Cases. (La Chalarose.) H. Roger, A. Sartory and P. J. Ménard.
43 *Vaccine Therapy in Chronic Gonorrheal Arthritis. V. P. Sémionov.
February 25, No. 16, pp. 153-160
44 The Permanganate Test in Obstetric Cases. (La réaction de Moriz Weisz en obstétrique.) G. Keim and M. Vigot.
45 Improved Needle for Intravenous Injections. (Aiguille intraveineuse à obturation facultative.) R. Bayeux.
46 Reducing of Fractures. (La réduction en un temps des fractures de date récente.) D. de Frenelle.

43. Vaccine Therapy of Gonorrheal Arthritis.—Sémionov states that six patients treated by him in 1912 with polyvalent antigonococcus vaccine found their chronic gonorrheal arthritis very much improved. For a clinical cure from eight to twenty injections of the vaccine are necessary, small doses at first, not over 0.2 or 0.8 c.c., at intervals of four or six days, and then gradually increasing the dose to 0.8 up to 2 c.c. with seven-day intervals. The discharge from the genital organs may become more profuse under the influence of the vaccine, and it extremely rarely happened that the gonococci disappeared from the genital secretions under the influence of the vaccine. The vaccine may induce diarrhea but no other untoward by-effects were observed. The relief from pain is an important effect of the treatment, and the continued use of the vaccine brings the temperature down to normal. The benefit from the vaccine is generally so marked that it serves to differentiate the gonorrheal origin of the joint affection in dubious cases.

Revue de Médecine, Paris

February, XXXIV, No. 2, pp. 81-160

- 47 A New Function of the Vessel Walls: Transudation of Ferments. (Nouvelles sécrétions internes et nouvelle fonction des vaisseaux.) R. Lépine.
48 The Determination of Amino-Acid in the Urine after Giving Peptone as a Diagnostic Test in Insufficiency of the Liver. M. Labbé and H. Bith.
49 *The Antigen Reaction in Tuberculosis. (La réaction de l'antigène.) R. Debré and J. Paraf. Commenced in No. 1.
50 Nephritis and Hyperglycemia. A. Landan.

49. The Antigen Reaction in Tuberculosis.—Ordinarily in the complement-fixation reaction a known antigen is used to demonstrate the presence of antibodies in the blood or other body fluids. Debré and Paraf conceived the idea of using a known antibody to demonstrate the presence of an antigen in tuberculosis. A serum rich in antibodies was obtained by immunizing the horse against tuberculosis. The fluids used for examination are urine, sputum or exudates taken from local foci of tuberculosis. In cases where the bacilli themselves cannot be demonstrated, their products in the form of antigen may be thus demonstrated. They describe their technic in detail and tabulate the results in the examination of the urine from 155 patients. They conclude that the reaction is not only exact but of great practical value, its chief value being in differentiating tuberculosis of the urinary apparatus. If only one kidney is diseased the reaction is positive on that side and negative on the other. In chronic pulmonary tuberculosis it is generally negative. In acute tuberculosis it is positive. In nephritis it is positive if the condition is tuberculous in origin, otherwise negative. This reaction seems to be the only means for differentiating tuberculous from non-tuberculous orthostatic albuminuria. By its use a rapid diagnosis can be made of the tuberculous nature of pleural, peritoneal or joint fluids with tuberculosis, and in primary pleurotuberculosis it has given encouraging results

in the examination of sputum and milk, but has not been satisfactory in the examination of cerebrospinal fluid or blood serum.

Semaine Médicale, Paris

February 25, XXXIV, No. 8, pp. 85-96

- 51 *Recurring Abdominal Colic in Children. (Douleurs abdominales et coliques ombilicales récidivantes chez les enfants.) L. Cheinisse.

Berliner klinische Wochenschrift

February 23, LI, No. 8, pp. 337-384

- 52 *Recurring Umbilical Colic in Children. II. Moro and J. K. Friedjung.
53 Cholera in Balkan Campaign. (Zur Diagnose und Therapie der Cholera asiatica.) R. Rosenthal.
54 *Keratin in Treatment of Cirrhosis of Liver. S. M. Zypkin.
55 *Tuberculosis, Bacillemia and Miliary Disease. E. Rautenberg.
56 Theoretical Explanation of the Abderhalden Reaction. U. Friedemann and A. Schönfeld.
57 Serum Sickness. (Zur Serumkrankheit.) F. C. R. Schulz. Concluded in No. 9.
58 Embryologic Study of the Blood. (Demonstration färbiger Mikrophotogramme nach Lumière zur vergleichenden Entwicklungsgeschichte des Blutes.) C. S. Engel.
59 *How Soon Can Patients Get Up After Operations? (Das Frühaufstehen nach Operationen.) W. Hofmann.
60 Serodagnosis of Cancer and Tuberculosis. (Verwendung der Abderhalden'schen Reaktion bei Carcinom und Tuberkulose.) E. Fränkel.

51-52. Recurring Abdominal Colic in Children.—A communication on the subject of recurring colic in the region of the umbilicus was summarized in these columns recently, p. 971. The special features are the regularity of the attacks, that they are not accompanied by fever, and that the children thus affected are excitable and nervous, with unstable vasomotor system, and are being brought up injudiciously. Although the pains may suggest appendicitis, yet Moro does not regard the appendix as in any way responsible for them, while an ultimate cure can be brought about by diet and training, aided by suggestion. He cured the children completely in all his cases by a few suggestive measures such as painting the site of the pains with iodine, strapping it with plaster and giving belladonna or valerian or both internally. He has recently reexamined some of the children whom he had thus treated years ago, and found that the umbilical colic had never returned after his treatment. Most of the children are now in good health but some show signs of a general nervous instability. Küttner ascribes the whole trouble to the appendix, and has reported some cases in which a complete cure followed appendectomy, but Moro asks what is the necessity for an operation when a few suggestive measures, application of electricity or strapping with plaster, answer the purpose equally well, as he shows by some new examples.

Friedjung states that he described the same set of symptoms in 1904 after a four-year study of these recurring colics in the umbilicus region. He attributes the trouble to hysteria. Differentiation of this manifestation of hysteria is important as it is speedily cured by appropriate treatment while treatment on the assumption of diastasis of the linea alba, entailing incarceration, is bound to fail as having no foundation in fact. The diastasis of the rectus muscles is a physiologic phenomenon in children. It is evident in about 63 per cent. of all children after birth and the diastasis and its frequency grow larger with increasing age. He reported thirty-seven cases of the kind then but remarks now that no one seemed to pay any attention to his article, and the syndrome has been "discovered" anew nine years later and ascribed to the appendix by one writer and to simple nervous excitability by another. Recovery is liable to follow any measure that impresses the little patient; appendectomy, removal of adenoids or almost any therapeutic measure.

54. Summarized when it first appeared (in Russian). See THE JOURNAL, February 28, p. 740.

55. Tubercle Bacilli in the Blood.—Rautenberg reports clinical and experimental research which confirms anew the importance of the information to be derived from inoculation of animals in cases suspicious of tuberculosis and in which tubercle bacilli have been found in the blood. The findings with the microscope are unreliable.

59. When Should Patients Be Allowed to Get Up after a Major Operation?—Hofmann insists that in discussing

whether patients should be allowed to get up early after an operation or delivery, too little attention has been paid to the heart. The shock of the operation, the loss of blood and the anesthetic all cooperate to injure the heart muscle. This is the case even with a herniotomy or other small operation; and with local anesthesia the heart suffers from the operative shock and loss of blood. This injury of the heart can be detected and measured by the behavior of the pulse and blood-pressure before and after the femoral arteries are compressed by pressing on Poupart's ligament with the fingers. When the femoral arteries have thus been blocked in this way for from two and a half to five minutes, the blood-pressure in the finger runs up by 5 or 10 mm. mercury if the heart is sound or functioning normally, while the pulse persists unmodified or grows a little slower. If the heart is slightly incapacitated, the pulse and blood-pressure do not show much change. If the heart is seriously damaged, the blood-pressure drops while the pulse remains unmodified; if the heart is absolutely incompetent, the pressure drops and the pulse goes up. By this simple means it is possible to estimate the functional capacity of the heart before and after the operation and thus learn with precision to what lengths we can go. Of course if the heart has been seriously damaged, it is very hazardous to inflict such a strain on it as is involved in getting up soon after the operation. He cites a number of typical examples to confirm these statements. In one of the cases related the pressure and pulse before resection of the stomach had been 90 and 72 respectively; twenty-four hours after the operation the figures were 100 and 116, and after compression of the femoral arteries the pressure was 98 and then 90 while the pulse was 124 and then 132 by the end of two and a half minutes. The third day the pressure was found 115 and pulse 78; on compression of the femoral arteries the pressure kept at 115 but the pulse increased to 84 and 90. The heart was thus seen to have recuperated to a certain extent, and by the eighth day pressure and pulse were 80 and 78, and these figures were not modified by compression of the femoral arteries. That is to say, the heart behaved by the eighth day as it had before the operation, having required a whole week to get back to its condition prior to the resection. Hofmann has his patients exercise their limbs systematically while still in bed, and promotes the venous circulation with deep breathing, while he gives drugs to reduce the coagulability of the blood. By this means he wards off danger of embolism and heart failure. He does not approve of letting the patients get up before the eighth to the tenth day when the femoral-arteries sign described above points to danger.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena

February 19, XVIII, No. 2, pp. 141-204

- 61 *Operative Treatment of Facial Paralysis of Peripheral Origin. D. G. Zesas.
62 *Cardiospasm and Fusiform Dilatation of the Esophagus. F. Geppert.
63 *Senile Osteomalacia. H. Schlesinger.

61. **Operative Treatment of Facial Paralysis of Peripheral Origin.**—Zesas has compiled from the literature seventy-three cases of chronic facial paralysis treated by nerve grafting. The results have been disappointing; no benefit was realized in over half the cases, especially when the muscles were already atrophied and had lost their electric excitability. Even in the cases regarded as successful, the improvement was meager and there were numerous annoying by-effects. Much better results have been obtained by plastic operations on the muscles; this technic has been applied in five cases to date, three in Roumania, by Gomoiu and Jianu; the other operations were by Lexer and Hildebrand. Zesas gives the particulars of the technic, as also of Busch's wire-loop and Stein's fascia-flap method. The latter takes a strip of fascia from the thigh, 20 cm. long by 2 cm. wide, and works it down through the cheek to the corner of the mouth and back again, thus suspending the sagging corner of the mouth in a sling hanging from the malar bone. Three weeks previously a small amount of paraffin had been injected under the skin at the corner of the mouth, to give a hold to the loop of

fascia when it was passed around it. The outcome of the operation was satisfactory and has persisted unimpaired for a year to date in the case reported.

62. **Cardiospasm and Dilatation of the Esophagus.**—Geppert's article is a comprehensive study of 70 cases from the literature and 1 unpublished case. The patients were 39 men between 20 and 60; 21 women between 20 and 30; 3 approaching 45, and 8 children between 9 and 16. When treatment was commenced before there had been much debility from lack of sufficient food, 23 per cent. of the patients were cured by appropriate treatment, and 50 per cent. improved. The measures useful in treatment are mainly dietetic, rinsing out the esophagus with astringents, giving atropin and narcotics, feeding through a tube, and efforts to dilate the stenosis mechanically from above or below. Other operations that have been applied are resection of the lower segment of the esophagus or its enlarged wall; plastic operations on the cardia, and anastomosis between the stomach and esophagus. This compilation supplements Neumann's series of 70 cases in 1901. The details are tabulated.

63. **Senile Osteomalacia.**—Schlesinger analyzes fifty articles on this subject, remarking that the apparently regional occurrence of senile osteomalacia is probably due to the greater diagnostic skill of certain physicians. In a few cases on record, true generalized osteomalacia followed a local trauma. It seems to occur with unusual frequency among the insane, especially with dementia praecox, although there may be an interval of thirty-six up to sixty years after the first symptoms of the dementia. Demange has reported a case of osteomalacia in a man of 40 after trauma; he recovered, but it returned anew at 80. H. Curschmann has encountered at Mainz fourteen cases in five years. The affection generally begins with intense pain in the sacral region and throughout the skeleton of the trunk, gradually spreading over the whole body. At first there may be pain only on pressure, then with movement, and the patient notices that he has grown shorter. A characteristic gait develops, with or without contracture and changes in the pelvis.

The development may be rapid. Sternberg had one patient who became bed-ridden in a few weeks after the first symptoms. In contrast to its abrupt beginning, the chronic course may be long in developing and ten or twenty-five years may elapse before serious disturbances result. In differentiation, multiple tumors of the bones must be excluded. Multiple myeloma is more frequent in elderly men, and it may be accompanied by two symptoms seldom, if ever, encountered with osteomalacia, namely, albumosuria and signs of compression of the spinal cord. Other bone tumors entail progressive cachexia and anemia, and these are not encountered with osteomalacia. At first it may be difficult to decide whether the trouble is not a simple neuralgia. Schlesinger reports the details of four cases in which the osteomalacia had developed entirely without symptoms and was a necropsy surprise. Intermittent claudication may accompany senile osteomalacia. Curschmann noticed a tendency to vascular cramps in the hands and feet in five out of six cases, subsiding entirely as the osteomalacia was brought under control. Phosphorus seems to be the sovereign remedy, either in pills of 0.0005 gm. twice a day or a teaspoonful twice a day of a mixture of 0.01 gm. in 100 gm. of cod-liver oil. Curschmann has reported complete recovery under this treatment, but Schlesinger has only succeeded in obtaining marked improvement.

Deutsches Archiv für klinische Medizin, Leipzig

CXIII, Nos. 3-4, pp. 209-440. Last indexed Feb. 7, p. 497

- 64 Simulation of Heart-Block. (Ueber vorgetäuschten Herzblock.) L. Roemheld.
65 Analysis of the Electrocardiogram by Means of the Roentgen-kymograph. T. Becker.
66 Clinical Value of Determining the Concentration of the Blood. W. H. Veil.
67 Nitrogen and Mineral Metabolism in Scleroderma. (Stickstoff- und Mineralstoffwechseluntersuchungen bei Scleroderma diffusum.) A. Elfer and H. Geber.
68 *Testing the Functional Capacity of the Heart. (Zur Funktionsprüfung des Herzens.) J. Kahn.
69 Antipyretics. (Zur Kenntnis temperaturherabsetzender Substanzen.) R. von den Velden.

- 70 *Diagnosis of Uremia by Indican Content of Blood Serum, Transudates and Exudates. G. Dorner.
71 Temperature Curves in Leishman's Anemia in Children. G. Caronia.
72 Growth and Perforation of Aneurysms. P. Baetge.
73 *Effect of Hypophysis Extract on Human Blood Pressure and on Growth of Young Animals. E. Behrenroth.
74 Intra-Abdominal Pressure and the Distribution of Blood with Enteroptosis. E. Schulz.

68. **Testing Functional Capacity of the Heart.**—Kahn recommends v. Waldvogel's method of testing the heart function by measuring the systolic blood-pressure as the patient reclines, and then again as he stands. This method gives dependable results, is simple and can be used by any physician at the bedside, while most other methods are complicated and the results not uniform. Tables and curves are given showing the results in over fifty cases.

70. **Diagnosis of Uremia by Indican in the Serum.**—Dorner gives twenty-six case histories which confirm his belief that the appearance of indican in the blood serum is indicative of uremia. If it is present in large quantities in the blood, it may also be demonstrated in the pleural effusion or ascitic fluid, but not in the cerebrospinal fluid. It does not seem to have any toxic effect. In uremia caused by lack of functioning kidney tissue, there may not be indican in the blood. In marked indicamuria without kidney disease, there is not much indican in the blood serum. It is not certain that the liver is the source of the indican; it is probably partly formed by the kidney. The appearance of indican in the blood or transudates is generally a sign of approaching death, but patients with a slight indican content may improve.

73. **Effect of Extract of Hypophysis on the Blood-Pressure.**—Behrenroth found that the effect of hypophysis extract on the human blood-pressure was by no means uniform, and did not correspond to the striking results obtained in animal experimentation. His results confirm those of von der Velden in his research on the effect of hypophysis extract on the human kidney. The latter found there was no constant rise in blood-pressure and no change in the pulse-rate. The respiration-rate was not altered and there was no special effect on the general condition.

Deutsche medizinische Wochenschrift, Berlin

February 19, XL, No. 8, pp. 369-416

- 75 *Embolism in Pulmonary Artery. (Behandlung der Lungenarterienembolie und des Lungeninfarkts.) Grober.
76 *The Spleen as a Factor in Anemia. (Bedeutung der Milz bei anämischen Zuständen in Bezug auf Pathogenese und Therapie.) W. Türk.
77 *Splenectomy in Blood Diseases. (Die Blutkrankheiten und ihre chirurgische Behandlung.) R. Mühsam.
78 Febrile Intestinal Syndrome from the Bacillus Fecalis Alcaligenes. H. Straub and W. Kraus.
79 *Neurasthenia in Lead Poisoning. S. Hirsch.
80 Metabolism of Cholesterol. (Zur Physiologie und Pathologie des Cholesterinstoffwechsels.) Baumeister and Havers.
81 Subconjunctival Injection of Hypotonic Salt Solution plus Instillation of Sedative Cures Subconjunctival Extravasation and Suggillation in the Lids. T. Mohr.
82 Technique for Local Electric Bath. (Heilwirkungen von Licht und Wärmestrahlen.) C. Brill.
83 The Prophylaxis of Tuberculosis in Infancy. Effler. Continued in No. 7.

75. **Pulmonary Embolism and Infarct.**—Grober remarks that generally the exertion which was followed by the embolism was one in which the abdominal muscles were strained, especially turning over without help in bed during convalescence from a major operation, or movements of the arms or legs. Physical rest is therefore the main point in warding off further embolism if the patient has survived the first symptoms. The danger of embolism is an argument against allowing patients to get up soon after an operation on the pelvis; if a thrombus has already formed it is liable to be swept away by any physical exercise. The formation of new thrombi must be carefully prevented, the circulation promoted, and inflammation combated with ice and antiseptic dressings, or by resection of the inflamed segment of the vein if nothing else will answer. It often happens that the embolism is the work of a single loose portion of the thrombus; the rest may cling so tight that there is no further embolism. Camphor or ether may be necessary to tone up the pulse; the blood-pressure thus heightened may open new routes for the

blood in the lungs. If the patient survives the first hour, his pain and distress must be relieved with morphin. This is particularly useful in case of embolism in the smaller branches of the pulmonary artery which often is accompanied by intense pain in the pleura. This can be combated with ice or mustard, cold water bandaging or wet cupping. These measures may relieve pleural pain from any cause, frequently rendering morphin unnecessary.

76. **The Spleen in Anemia.**—Türk discusses the present state of our knowledge in regard to the connection between the spleen and the blood-producing organs, also the clinical pictures which result when the spleen is pathologically active, and under what conditions we may expect benefit from removal of this source of active disturbance. He has encountered several cases in which there could be no doubt that a tumor in the spleen was responsible directly or indirectly for the production of toxins which had a decidedly injurious action on the bone marrow. The consequence of this toxic functional disturbance in the blood-producing apparatus was a kind of anemia with none of the features of hemolysis. The removal of the spleen does away with the source of the toxins in this case. The benefit from splenectomy in Banti's disease—which seems to be an anemia of this type—confirms this assumption.

The spleen may become enlarged in consequence of an old pyelephlebitis which may be traced to infection of the umbilicus soon after birth. This may lead to hemorrhages from the enlarged veins in the gastro-intestinal mucosa, with severe anemia as the result. He has encountered a number of cases of this kind since the one he reported in 1902; there is nothing in the clinical picture or case history here to suggest that any toxic injury of the bone marrow may be responsible for the anemia or any process of hemolysis. Removal of the spleen under these conditions would be absolutely futile while it would be fraught with grave danger on account of the extreme congestion in the splenic vein. When there is excessive destruction of blood in the spleen-liver system there is no bile in the urine, but bilirubin is found in the blood, urobilin in large amounts in stools and urine and the bone marrow shows signs of hyperfunctioning. This familial hemolytic jaundice may in one member of the family cause merely enlargement of the spleen, without jaundice or much anemia; another may have the enlarged spleen, anemia and urobilinogenuria but no jaundice, and a third may have all the above but with less fragile reds. The same symptoms characterize the type which develops without any known inherited tendency. In one such case it came on in childhood after a septic scarlet fever. The exacerbations may resemble gall-stone trouble, and the anemia may assume the pernicious type during the exacerbations; they are inclined to be more abrupt than in the familial type. In all these hemolytic groups the removal of the spleen has proved the means of curing most if not all of both subjective and objective disturbances; only occasionally the reds may still display a certain fragility.

The results of splenectomy in such cases point unerringly to the spleen as the cause of the trouble, and show that any symptoms on the part of the liver can be readily explained as secondary to the spleen affection. This suggests that possibly splenectomy might help in morbid conditions in which the liver seems to be playing the more important rôle, and in fact this has proved to be the case with Hanot's cirrhosis of the liver with hypertrophy and recurring paroxysmal attacks resembling gall-stone mischief, but without anemia. Eppinger has reported several cases of a practical cure after splenectomy, and full earning capacity restored after long, serious illness for periods up to ten years.

With pernicious anemia, splenectomy induces a marked change for the better, but the blood does not return to the normal type; the patients are much improved but in none of the seven cases in which splenectomy has been done for pernicious anemia during the last ten months has the blood-picture returned to normal. But a remarkably rapid and thorough-going remission may almost be counted on in apparently almost moribund patients; it acts more rapidly than

arsenic and as promptly as thorium, but it does not seem to remove the cause of the pernicious anemia. The morbid spleen functioning is merely one link in the chain of factors causing the disease, but by removing it we make a gap in the chain and even this is great gain.

77. Operative Treatment in Banti's and Other Blood Diseases.—Mühsam has found records of 29 European cases of Banti's disease treated with splenectomy; 5 of the patients died, 3 from infection and one from pneumonia or gastro-intestinal hemorrhage. All agree that done in time the operation can save the patient's life. The results from splenectomy have been surprisingly fine in the 14 cases on record in which it was done for hemolytic jaundice. He has a personal experience with 11 cases of pernicious anemia treated with splenectomy; 3 of the patients died, one young man and one young woman succumbing to the excessive hemorrhagic tendency accompanying the pernicious anemia. Two have died since, one from myelitis; the other patients are in good health to date. The blood-picture has improved in all but has not become normal. The patients gained materially in weight and strength.

79. Neurasthenia from Lead Poisoning.—Hirsch gives the details of seven cases out of a large number in his experience in which lead poisoning was responsible for affections of the central nervous system, mostly merely subjective disturbances. This lead neurasthenia, he says, is far the most frequent manifestation of lead poisoning, but the lack of specific characteristics has led to its neglect hitherto. He knows of no instance in which the neurasthenia has progressed to actual brain disease. Violent and protracted headache was the predominant symptom in four cases, and vomiting in the morning in three. Violent abdominal pain is also frequent, differing in many respects from lead colic. The patients may become depressed, irritable and timid. Except for exaggerated knee-jerk, the line on the gums, tremor of the hands, and dermatographism, there were no somatic signs of trouble, and these were not always present. His article is based on considerable personal experience and the records of two painters' organizations, including nearly 2,000 individuals.

Deutsche Zeitschrift für Chirurgie, Leipsic

January, CXXVI, Nos. 3-4, pp. 213-428

- 84 *Post-traumatic Ossification in the Elbow. E. Lehmann.
- 85 Chronic Peritonitis with Adhesions. N. Kron.
- 86 Serodiagnosis of Staphylococcus Surgical Affections. (Verwendbarkeit der serologischen Staphylokokkenreaktion in der chirurgischen Diagnostik.) F. Rost and Saito.
- 87 Painful Pronation. (Subluxatio radii perannulare.) P. Erlacher.
- 88 Congenital Cyst in Side of Neck; Two Cases. (Zur Kasuistik und Therapie der angeborenen seitlichen Halsfistel.) Nobe.
- 89 Appendicitis; 295 Cases with 7 per cent. Mortality. H. Berger.
- 90 Prolapse of Intestine through Artificial Anus. (Ueber Darmvorfälle aus Kotfisteln und Kunstastern, insbes. Zweihörnige.) M. Schmidt.

84. Posttraumatic Ossification in the Elbow.—Treatment gives poor results when the ossification has progressed to the point of causing severe functional disturbance. This renders prophylactic measures all the more important, especially keeping the arm quiet after the accident and applying moist heat and similar measures to promote the absorption of the extravasated blood in the region. Vigorous massage is of course contra-indicated as repose of the region is the main thing. Experiences with ossifying myositis have shown that it may be possible in this way to ward off ossification and induce the retrogression of circumscribed infiltrations which might otherwise lead to ossification. Puncture may aid in certain cases. Thiosinamin might be given a trial, possibly injected directly into the joint, although the danger must not be forgotten that this drug may loosen up and release hitherto encapsulated bacilli in some old focus in the lungs or elsewhere. The ossification process may retrogress spontaneously, so that operative treatment is called for only when there is severe functional disturbance or pressure on nerves. In Lehmann's 37 cases there had been a fracture in 11, merely dislocation in 20 and a possible fracture in 6. The cases are analyzed in detail with the Roentgen-ray findings. The patients were

all soldiers and during the same period, 1902-1910, only 18 cases of ossification in other joints were encountered. In a further series of 6 cases the ossification in the elbow was clinically certain but not confirmed by roentgenoscopy.

Medizinische Klinik, Berlin

February 22, X, No. 8, pp. 313-356 and Supplement

- 91 *Mental Derangement with Internal Diseases. A. Pilez.
- 92 Importance of Calcium for the Growing Organism. F. Lust.
- 93 Evolution of a Traumatic Neurosis. H. Stursberg.
- 94 Multiple Tumors. F. Vennet.
- 95 Bouillon Cubes. (Bouillonwürfel.) J. Schlesinger.
- 96 Subsidence of Symptoms in Knee-Chest Position when Retroversion of the Uterus Can Be Cured by Fixation. H. Arndt.
- 97 Anatomy of the Internal Ear. (Ueber das schallempfindende Endorgan im inneren Ohr.) J. Zange.
- 98 Present Status of Blood Diseases. (Neuere Forschungen und therapeutische Bestrebungen auf dem Gebiete der Blutkrankheiten. I.) F. Port.

91. Psychoses with Internal Diseases.—Pilez remarks that recent research and the new biologic reactions have confirmed more and more the assumption that mental derangement is not exclusively a matter of the mind but that the mental trouble is merely one part of the general process affecting the entire organism. The psychosis may be complicated with organic disease of the brain or meninges, but as a rule there is no parallelism between the severity of the mental disturbance and the severity of the infectious disease to which it is secondary. It is remarkable that diphtheria is so seldom accompanied by psychic disturbances, and the same may be said of tuberculosis except for the moods and changes in character which may be encountered with almost any wasting disease. Optimism is common, while delirium and imbecility as a consequence of tuberculosis are extremely rare. When the patient refuses to eat, he should be fed by gavage, not delaying for more than three or four days. Insomnia and agitation are best combated by the continuous bath and bed rest, after the bowels have been thoroughly emptied and attempts have been made to sterilize them with creosote, the salicylates, menthol, etc., supplemented by saline infusion. If sedatives are absolutely necessary to combat insomnia, special care must be paid to intestinal functioning thereafter.

The psychosis or confusion liable to come on with chorea minor generally subsides under symptomatic treatment, but in the chorea of pregnancy it shares the grave prognosis of the latter. When conditions are becoming aggravated, the pregnancy should be terminated without delay. He discusses further the mental derangement which may accompany exophthalmic goiter and myxedema; in either case it yields to the specific treatment for each. Tetany has sometimes been accompanied by hallucinations and stupor, and symptoms suggesting tetany have been observed in catatonia and other actual psychoses. With extremely severe neuralgia, the pain may induce a condition tending to delirium and morbid dread. This neuralgic dysphrenia subsides as suddenly as it came on when the attack of neuralgic pain is over. An injection of morphin may work wonders. The psychoses observed with diabetes are generally mere casual coincidences but sometimes the condition improves or becomes aggravated parallel to the rise or drop of the output of sugar. Psychoses have also been observed in leprosy, osteomalacia, trypanosomiasis and hypophysis disease. In conclusion Pilez discusses the influence on mental derangement which may be exerted by an intercurrent febrile affection. Many instances are known in which the beneficial influence of such an occurrence survived the intercurrent fever and persisted so that persons deemed incurably demented have been able to have their legal rights restored. The febrile affections which seem most potent in this line are those from streptococci and staphylococci. This experience, he adds, is the basis for Wagner von Jauregg's method of treating progressive paralysis with tuberculin, given to induce febrile reactions; it already has a record of highly satisfactory results. Pilez suggests that dementia praecox may possibly prove amenable to this form of treatment as also curable psychoses which are threatening to become chronic. By the time patients in such cases reach the asylums it is generally too late for treatment of such psychoses to be effectual. The fate of the patient therefore lies in the hands of the general

practitioner who sees him first, and therapeutic efforts along the above lines may yield unexpectedly satisfactory results.

Münchener medizinische Wochenschrift

February 24, LXI, No. 8, pp. 401-546

- 99 Improved Technic for Serodiagnosis. (Spezifische Wirkung der sogenannten Abwehrfermente.) E. Abderhalden.
- 100 Proteolytic Ferment in Blood in Inanition. (Auftreten eiweisspaltender Fermente im Blut bei vorgeschrittenem Hunger im Stadium der "Stickstoffsteigerung aus Fettschwund.") E. Heilner and F. Poensgen.
- 101 *Staphylococcus Sepsis; Eight Cases. L. Jacob.
- 102 *Thyroid Insufficiency in relation to Nervous Disturbances and Spastic Constipation in Women. E. Schrt.
- 103 *Erysipelas as a Factor in Diabetes. A. Welz.
- 104 Anemia of Pregnancy. (Zur Kenntnis der Schwangerschaftsanämie.) P. Jungmann.
- 105 A Single Inhalation of Volatile Oil of Mustard Relieves Toothache and Earache. (Ein sehr rasch und sicher wirkendes Riechmittel gegen Zahnschmerzen und Ohrenschmerzen.) A. Schwarz.
- 106 Persisting Thyrolingual Duct as Cause of Cough. (Hustenausgelöst vom persistierenden Ductus lingualis.) A. Strauch (Chicago).
- 107 Polyneuritis with Korsakoff's Psychosis after Salvarsan, Terminating Fatally. R. Pürekhauser and T. Mauss.
- 108 Grape Juice. (Traubensaft als Nahrung und als Heilmittel.) G. Bender.
- 109 Technic for Serodiagnosis and Its Value. (Verwertbarkeit des Dialysierverfahrens bei klinischen und serologischen Fragestellungen.) H. Oeller and R. Stephan.
- 110 Present Status of Resuscitation of the Apparently Dead. (Scheintod und Wiederbelebbarkeit im Lichte der neuen Forschungen.) F. Kuhn.

101. **Staphylococcus Sepsis.**—Jacob has encountered in the last two years eight cases in only three of which the course was of the classic type with osteomyelitis, a paranephritic abscess and severe bacteremia. In the others, the primary focus was in the tonsils, the intestines or bronchiectasia, and there was no suppurative metastasis which is the rule in 95 per cent. of such cases. Two of the patients died. This experience teaches the importance of bacteriologic examination of the blood and urine in dubious febrile cases, and shows that if it were more of a routine procedure mild forms of sepsis might be discovered oftener.

102. **Thyroid Insufficiency in Connection with Nervous Conditions and Spastic Constipation in Women.**—Schrt reviews nine cases of nervous disturbance accompanying hemorrhagic uterine affections, which he ascribed to defective functioning of the thyroid and treated with thyroid extract. Also eight cases of nervous disturbance accompanying retarded development of the internal genitals. The benefit from the thyroid treatment was constant and marked, the results so striking that he thinks they can be explained only on the assumption that the neuralgias and other nervous disturbances were due to excessive irritability of the nerve terminals which had gradually developed under the influence of protracted auto-intoxication from lack of normal thyroid functioning. This auto-intoxication may be the direct result of the thyroid deficiency or may be merely promoted and increased by it; in either event thyroid treatment has a distinct causal efficacy.

103. **Erysipelas and Diabetes.**—Welz reports a case in which a merchant of 52 convalescing from severe erysipelas of the face with slight participation of the heart, kidneys and liver in the infection, developed diabetes which gradually subsided again so that the urine was free from sugar by the twenty-fifth day. It reached 5.8 per cent. at one time. In a second case the diabetes had come on likewise during convalescence from severe erysipelas of the face; the patient was a previously healthy man of 49. The erysipelas had kept him in bed for four weeks and the diabetes following it proved fatal by the end of the sixth month. Severe organic changes were evident in both pancreas and liver at necropsy. There must have been some congenital predisposition to diabetes in these cases, he thinks, which was fanned into a flame by the severe erysipelas; without it or its equivalent the patients might have escaped the diabetes.

Therapeutische Monatshefte, Berlin

March, XXVIII, No 3, pp. 157-228

- 111 *Gynecology and the General Practitioner. M. Traugott.
- 112 Standardization of Digitalis. (Physiologische Wertbestimmungen einiger Digitalispräparate.) A. Lehnert and O. Loeb.

- 113 Local Application of Caustics to the Interior of the Uterus. (Ueber intrauterine Aetzungen.) W. Zangemeister.
- 114 Automassage of the Abdomen. (Instrumentelle Bauchmassage.) S. Auerbach.
- 115 Almond Milk as Vehicle for Emulsions. (Eine neue Methode der Emulsionsbereitung für die Behandlung der Magendarmaffektionen der Kinder.) M. J. Breitmann.
- 116 *The Work of the Council on Pharmacy and Chemistry. (Der pharmazeutisch-chemische Ausschuss des Amerikanischen Aerztebundes.) W. A. Puckner (Chicago).
- 117 *The German Council on Pharmacy and Chemistry. (Die Arzneimittelkommission des deutschen Kongresses für innere Medizin.) W. Heubner.

111. **The General Practitioner and Gynecology.**—Traugott remarks that specialist skill may be necessary for minute examination by palpation for gynecologic operations and radiotherapy, but that the general practitioner often has it in his power to ward off gynecologic disease and to cure a vast number of gynecologic disturbances which are really of psychic origin or in which the disturbances from some organic lesion elsewhere are erroneously ascribed to the genital organs. The progress which has been realized in conservative gynecologic treatment of late years has been in the restriction of the use of local measures, curetting, cauterizing, massage, pessaries, hydrotherapy and electrotherapy. These measures are being used less and less and attention and treatment are being applied to the unstable nervous system as a whole. Dubois' method of psychotherapy has an extremely wide field of application in gynecology, and here the general practitioner reigns supreme. It offers a well-founded, causal treatment of the psychogenic functional disturbances which seem to be becoming more numerous every day. The confidence in the physician is the main factor in the cure, and it is immaterial for the Dubois method whether the physician is a specialist gynecologist, an alienist or merely the trusted family physician. This method utilizes the influence of the mind over the body, the reaction of somatic processes to mental impressions, and it seeks to correct the mental impressions and render them sound and wholesome. If the patient is once convinced that her "leukorrhea," her vaginism, her various pains in the genital region, etc., are merely the manifestations of an over-excitability of her nervous system which in turn is the consequence of a morbid mode of thought and life—once convinced that this is the case and that her genital organs are sound and are merely being played on by her irritable nerves, the patient learns to look on them with indifference, and lo, they disappear. Training her to rise above envy, grief, jealousy, worry, etc., teaching her to see things in their true perspective and develop a stoical habit of mind, free the mind from the old emotional strains and tempests. This soothes it, reduces its irritability and puts an end to the disorders which this entailed. Among the functional disturbances amenable to this treatment he cites disturbances of all kinds in menstruation and secretion; sensations of prolapse when all is in its normal place; pains of all kinds in the pelvic region, and sensory disturbances causing sensations of distention of the abdomen simulating a pregnancy. The innervation of the abdominal muscles may become so irritated that labor contractions may be set up and abortion be induced purely from psychogenic influences. Of course the indispensable prerequisite to successful psychotherapy is the exclusion of organic disease.

116. **The Council on Pharmacy and Chemistry of the A. M. A.**—Puckner describes the work and aims of the Council and relates what it has accomplished in this country and suggests how a similar work might be successfully carried on under the conditions prevailing in Germany.

117. **The German Council.**—Heubner describes the German commission founded in 1911 for a purpose similar to that of the Council of the A. M. A., but he laments that the work of the commission has met with so much passive or active resistance in and outside of the profession that the results accomplished to date do not repay in the remotest manner the efforts expended. The generals alone cannot win a battle, he declares; when the troops hang back or go the other way there is not much hope for a victory. He draws an impressive picture of the evils which the present intolerable conditions have bred.

Wiener klinische Wochenschrift, Vienna

January 29, XXVII, No. 5, pp. 93-116

- 118 Exophthalmic Goiter as Contra-Indication for Roentgenotherapy in Gynecology. E. v. Graff.
119 Experimental Anaphylaxis from Intravenous Injection of Chemicals. (Ueber anaphylaxieähnliche Vergiftungsercheinungen bei Meerschweinchen nach der Einspritzung gerinnungshemmender und gerinnungsbeschleunigender Substanzen in die Blutbahn.) B. Busson and P. Kirschebaum.
120 Chemotherapy in Tuberculosis. H. Pohl.
121 Pathogenesis of Nephritic Edema. L. Pollak.
122 Housing Reform. (Wohnungs-Reformbewegung.) E. Hofmohl.
123 Medical Ethics. (Aerztliche Pflichtenlehre.) E. Finger.
124 *Priority as to Discovery of Protective Ferments. E. Abderhalden and F. Hamburger.

February 12, No. 7, pp. 141-168

- 125 Pathogenesis of Exophthalmic Goiter. F. Chvostek.
126 Symptoms of Pseudoleukemia Following Tiek Bite. W. and R. A. Habersfeld.
127 Correction of Stiff Elbow. (Zur Mobilisierung des ankylotischen Ellbogengelenkes.) D. Pupovae.
128 *Reduction of Abnormally Fat Abdomen. (Zur Reduktion des Bauchdeckenfettes.) Vesco.

124. **Priority in the Protective Ferments.**—Hamburger claims that he called attention years ago to the essential facts on which Abderhalden's serodiagnosis is based, and accuses Abderhalden of having suppressed all reference to his previous work in this line. Abderhalden replies by crediting the actual priority in the idea to Huppert, whose work on the conservation of specific properties was published in 1896, while Hamburger's dates from 1903.

128. **Removal of Fat from Abdominal Wall.**—Vesco removed wedges of fat from the anterior abdominal wall to a total of over 13 pounds in the case of an otherwise healthy man of 25 who had been previously materially annoyed and impeded in his business by his large girth. The operation was complete in thirty-five minutes and the patient made a rapid and smooth recovery and is delighted with the improvement in his appearance.

Zeitschrift für Urologie, Berlin

February, VII, No. 2, pp. 81-160 and Supplement

- 129 Congenital Cysts of the Raphe of the Penis. G. Fantl.
130 Spiral Spring Guard for Catheter. (Ueber Metallspiralen zum Pezzer-Katheter.) J. P. Habernern.
131 Nephrectomy with Bilateral Renal Tuberculosis. R. Bachrach.
132 The Prognosis in Nephritis. H. Höhlweg and H. Strauss.
133 Vaccine Therapy in Urology. R. Volk and others.
134 Enlargement or Atrophy of the Prostate. P. Steiner and others.

Zentralblatt für Chirurgie, Leipsic

February 28, XLI, No. 9, pp. 369-416

- 135 *Buried Tampon to Plug Hole in Thoracic Duct. Dobbertin.
136 *Reflex Disturbances Elicited from the Pleura. D. G. Zesas.
137 *Autodrainage of Ascites into the Bladder. (Ventilbildung an der Harnblase zur Ableitung der Ascitesflüssigkeit.) P. Rosenstein.

135. **Buried Tampon to Plug Fistula into Thoracic Duct.**—Dobbertin removed a large sarcoma in the left supraclavicular fossa, suturing afterward over a drain. The fifth day, when all seemed to be doing well, chyle poured out through the drain in large amounts, disclosing injury of the thoracic duct which had caused no disturbance at first on account of the ligation. No measures stopped the flow, tight tamponing, plaster strips drawn tight or folding in the skin and suturing—all were futile, and the bed was kept wet with the seeping through the dressings and the patient by the fourth day was almost exhausted. Dobbertin consequently opened the whole incision anew. The patient was too weak for any search for the duct in the depths of the granulating tissues. He consequently rolled up five tampons of ordinary cotton, each about the size of a nut, wrapped them in gauze and pushed the whole in deep toward the point whence the lymph was streaming out. He then sutured the fascia solidly over the tampon, with catgut, with a running suture above, suturing the skin with silk. Not a drop of lymph escaped thereafter. The wound healed without fever and the tenth day the bunch of tampons was removed through a small opening made in the lower end of the incision. In a few days all had completely healed and the patient rapidly recuperated.

136. **Reflex Action from the Pleura.**—Zesas comments on the fact that injury of the lungs is rarely discovered to explain

the disturbances which some ascribe to air embolism and others to reflex phenomena set up by injury of the pleura. He thinks these pleurogenous reflexes are much more frequent than the air embolism cases, even accepting the existence of the latter. Consequently, he emphasizes the necessity for morphin to deaden the nerves in the region before attempting any intervention involving the pleura. He cites two cases in which during an operation for empyema under general anesthesia the patients died suddenly—without convulsions. Whether these fatalities can be explained by pleurogenous reflex action is a question; the patients were both much debilitated children with purulent pleurisy.

137. **Drainage of Ascites into the Bladder.**—Rosenstein gives an illustrated description of a method with which he formed a kind of valve opening into the bladder permitting the accumulating fluid to drain away automatically through the bladder. His patient was a woman of 62 with cirrhosis of the liver and recurring ascites since 1911. About once a week she had to be tapped and nearly 10 liters of fluid withdrawn. He first made an Eck fistula but it had only transient effect. Then omentopexy was done but no benefit followed. Finally, on the patient's insistence, after warning of the possible dangers, he made a valve opening into the bladder which permitted the entrance of fluid into the bladder but did not allow any reflux as otherwise there would have been infiltration of urine and inflammation. He exposed the entire bladder and placed a silver ring, 3 cm. in diameter (about twice as large as an ordinary wedding ring), on the top of the bladder, drawing the bladder wall up through the ring into a peak which was then cut. The bladder tissue was turned back over the ring all around and sutured to hold the ring in place, the serous surfaces alone in contact. The bladder thus opened like a jar into the abdominal cavity. Then a strip 4 cm. wide was cut out of the wall of the bladder below the sutured-in ring. The excised strip included both serosa and muscle so that nothing was left of the bladder wall all around at this point except the mucosa lining of the bladder. The edges on each side of the excised strip were then drawn up together and sutured together all around the bladder. This forced the mucosa that had bridged the gap to fold inward all around; no stitches were taken in the mucosa at any point. Ascitic fluid promptly drained into the bladder and was voided with the urine while the cystoscope confirmed that the valve thus formed prevented any reflux of fluid. The operation has been a success although not as complete as had been hoped as all the ascitic fluid does not escape this way; some accumulates below the level of the opening in the top of the bladder. The patient has had to be tapped recently on this account; although eight weeks had elapsed, the total amount of fluid was not more than what had previously been drawn once a week.

Zentralblatt für Gynäkologie, Leipsic

February 28, XXXVIII, No. 9, pp. 329-360

- 138 Duration of Pregnancy. (Schwangerschaftsdauer.) Peters.
139 Diagnosis of Intra-Uterine Death of Twin. (Zur Kenntnis der Zwillingschwangerschaften.) J. Halban.
140 Advantages of Lactic-Acid Vaginal Douches during Pregnancy. (Berichtigung der Milchsäurespülungen in der Schwangerschaft.) B. Schweitzer.

Gazzetta degli Ospedali e delle Cliniche, Milan

February 22, XXXV, No. 23, pp. 233-248

- 141 Ileus from Meckel's Diverticulum. G. Baroni.

Policlinico, Rome

February, XXI, Surgical Section No. 2, pp. 53-104

- 142 Actinomycosis of the Cecum. (Actinomicosi appendicoccale con psioite e metastasi al fegato.) G. Paganelli.
143 Endothelioma of the Bladder. (Linfendotelioma della vescica.) A. Vecchi.
144 *Decapsulation of the Kidney. (Sullo scapsulamento del rene.) E. Lay.

144. **Decapsulation of the Kidney.**—Lay reports experiments on three dogs treated with methylene blue and three others with potassium iodid, all after decapsulation of one kidney. The ureter had been cut out from the bladder about two weeks before and sutured to the skin, and copious diuresis had been induced later by intravenous injection of a 30 per cent. solution of glucose or its equivalent. The results

observed confirm the assumption that decapsulation of the kidney does not affect its functioning nor its permeability, the kidney pursuing the even tenor of its way apparently undisturbed after decapsulation. Even when excessive functional demands were made on the decapsulated kidney, it continued functioning apparently as satisfactorily as its sound mate.

Riforma Medica, Naples

February 14, XXX, No. 7, pp. 169-196

- 145 Hydriodic Acid in Treatment of Certain Surgical Lesions. L. Raffaele.
- 146 Leishmaniasis in Man and Dog. Spagnolio.
- February 21, No. 8, pp. 197-224
- 147 Gastric Cancer; Present Status of Diagnosis and Treatment. Marenduzzo.
- 148 *Diet and Kidney Functioning in Chronic Nephritis. A. Crosa. Commenced in No. 7.
- 149 Colon-Bacillus Abscess in the Prostate. G. D'Aloia.
- 150 Vaccine Treatment in Tuberculosis. A. Bruschettini.

148. **The Kidney Functioning in Chronic Nephritis.**—Crosa gives the details of extensive research in ten cases of chronic nephritis to determine the influence on kidney functioning of a meat diet and other factors. The results show that a moderate amount of meat is not injurious in such cases, whether the nephritis is of the chronic interstitial type or of the subacute or chronic parenchymatous type. The results of the findings with the various functional tests applied did not always harmonize. It is evident that even with all the progress in modern diagnostic methods, the most valuable information is still as ever to be derived from the quantity, specific gravity and sediment in the urine and its albumin content.

Rivista Ospedaliera, Rome

February 15, IV, No. 3, pp. 117-172

- 151 Bradycardia from Digitalis. N. Sforza.
- 152 Technic for Intramuscular Injection of Calomel. C. Rühl.

Brazil-Medico, Rio de Janeiro

February 8, XXVIII, No. 6, pp. 51-60

- 153 *Correction of Femoral Hernia through the Inguinal Canal. (Da via inguinal na cura das hernias cruraes.) C. Werneck.

153. **Radical Cure of Femoral Hernia Operating through the Inguinal Canal.**—Werneck reports the case of a man with right epigastric, inguinal and femoral hernia. He corrected the femoral hernia by way of the inguinal canal, ligating and fastening by the Barker technic, treating the hernia otherwise by Bérard's "double curtain" method. The advantages of the technic followed were so striking in this case that he wonders why every one does not treat femoral hernia by the inguinal route as the routine technic. It permits the sac to be ligated much higher up, the advantages of which are obvious. It also does away with the long funnel of peritoneum left inevitably when the herniotomy is done entirely in the femoral region. With the latter technic the wall is much less solid than it can be made when working through the inguinal canal which permits other muscles to be drawn down to reenforce the wall. Another advantage of the inguinal route is that it permits at the same time measures to ward off inguinal hernia later; it is a frequent occurrence that persons who have been operated on for femoral hernia by the ordinary incision below Poupart's ligament develop inguinal hernia later.

Russky Vrach, St. Petersburg

January 4, XIII, No. 1, pp. 1-36

- 154 *Action of Poisons on the Coronary Vessels of the Heart. N. Kravkoff.
- 155 *Test for Typhoid Bacilli in Water. G. D. Bielonovsky.
- 156 Arsacetin Glycosuria. B. M. Hmelnitzky.
- January 11, No. 2, pp. 37-72
- 157 Technic for Wassermann Test. A. A. Melnikh.
- January 18, No. 3, pp. 73-108
- 158 *Prognosis in General Anesthesia. V. A. Stange.
- 159 *The Importance of Vitiating Air in the Etiology of Anemia. S. P. Krotkoff.

154. **Action of Poisons on the Coronary Vessels of the Heart.**—Kravkoff studied this question on the hearts of rabbits, using the Ringer-Locke fluid. He found that epinephrin (1:5,000,000, or 1:500,000) does not cause any marked contraction, but rather a dilatation of the cardiac vessels. Caffein and theobromin induce considerable dilatation, while contrac-

tion follows application of nicotin, pilocarpin, barium and histamin. The vasoconstricting action was less manifest than in the peripheral vessels, but the vasodilating action proved to be much more pronounced on the cardiac vessels than on the peripheral. This shows that the nervous system of the coronary vessels contains predominantly vasodilators, the vasoconstrictors being derived exclusively from the vagus nerve.

155. **Test for Typhoid Bacilli in Water.**—Bielonovsky used an agglutinating serum for detection of typhoid bacilli in river water. Two liters (4.2 pints) of water were mixed with enough agglutinating typhoid serum (titrated 1:1,500) to make a strong titrated serum of 1:100. For this purpose he added 2 gm. of dry serum, previously dissolved in physiologic salt solution. The mixture was placed in a thermostat at 37 C. Twenty-four hours later the supernatant fluid was decanted and the sediment spread on the culture medium of Drigalsky-Conradi. With this method he succeeded in detecting the typhoid bacilli in very great quantities in different sources of the water-supply of the town Reval in Russia. Bielonovsky considers this method, which is a modification of the Vindelbandt-Shepilefsky technic, much superior to other methods. With others, the presence of typhoid bacilli in the water could be proven only twenty times, while in more than 5,000 tests these methods failed.

158. **Prognosis in General Anesthesia.**—Stange emphasizes anew that the condition of the heart is the best indicator of the patient's ability to stand chloroform or ether general anesthesia. The death-rate for the former is 1:1,000 or 2,000; for the latter 1:4,000 or 5,000. To determine the condition of the cardiac muscles, he recommends the so-called respiratory test, that is, the ability to abstain from breathing for some time. This is for a healthy person 30 or 40 seconds, while a person with a weak heart muscle can hold his breath only for 10 or at most 20 seconds. The test is very simple. The patient, sitting, makes a deep inspiration and closes his mouth, the nostrils being slightly compressed to avoid involuntary expiration, and while the patient is requested to refrain from breathing as long as possible, the seconds are counted. These experiments showed that in pulmonary tuberculosis his patients could remain 25 seconds without breathing; in chronic bronchitis, 28 seconds; with emphysema of the lungs, 24 seconds; with mitral insufficiency, 22 seconds, and with mitral stenosis, 20 seconds; stenosis of pulmonary artery, 28 seconds; aortic insufficiency, 15 seconds; chronic myocarditis, 17, and with aortic aneurysm, 10 seconds. Stange recommends this test in every case before starting an operation, and if the patient cannot abstain from breathing for more than 20 seconds, local anesthesia should be used, or, if the operation is not urgent, the general condition of the patient and his heart ought to be improved first. He also states that some American insurance companies do not consider a candidate a good risk if he has a respiratory test below 40.

159. **Importance of Vitiating Air in the Etiology of Anemia.**—Krotkoff found from his experiments on rabbits that they can bear with impunity considerable polluted air, with 8 or 10 per cent. of carbon dioxide, the blood remaining normal, but with loss of weight, provided the animals are healthy. The rabbits were then rendered anemic by injection of phenylhydrazin which reduced the hemoglobin to 15 or 30 per cent., the number of reds to 1,050,000. Three rabbits were kept in the open air and three in boxes closed up for two months. In both series the hemoglobin and red count became normal; the white count remained unchanged. Krotkoff thinks that vitiating air can cause anemia in human beings only when there is some predisposition on the part of the blood-making organs to disease. Otherwise the bad air of prisons, workshops, etc., causes only pseudo-anemia, that is, pallor of the integument but with no changes in the blood.

Ugeskrift for Læger, Copenhagen

February 19, LXXVI, No. 8, pp. 315-376

- 160 Unilateral Paralysis of Sympathetic and Several Cranial Nerves. V. Christiansen.
- 161 Action of Ionized Air. (Paavirkes det menneskelige Legeme af ioniseret Luft og ad hvilke Veje? T. Brinch.

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RESPIRATORY EXPERIMENTS ON MAN

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The recent remarkable advances in the physiology of respiration have been largely based on observations made on man.¹ This fact, coupled with their simplicity and ease of performance, fits these experiments to fill a widely felt pedagogic need. In the training of medical students heretofore, experiments on animals under more or less unnatural conditions have predominated. On man, who is properly the chief interest of the future physician, relatively little has been attempted. Indeed, it is not the least of the contributions which recent advances in the field of respiration have made that they have shown that, given the ingenuity to devise proper experiments, man himself, the normal healthy subject as well as the patient exhibiting functional disturbances, becomes a more profitable *Versuchstier* than dog, rabbit or frog.

The development of the art of conceiving experiments suitable for performance on man, and a more general recognition of the fact that such experiments are possible, free from danger and peculiarly instructive, would go far toward effecting the long-needed but heretofore difficult cooperation of physiology and internal medicine. Respiration is a field peculiarly suited to such cooperation. It is already evident that the vogue in internal medicine, which the introduction of the sphygmomanometer and the methods for determining arrhythmia have given to circulatory problems during the past few years, will be exceeded during the period now beginning by interest in the application of physiologic methods to the clinical problems of respiration. Clinicians are beginning to realize that the alveolar carbon dioxide is a normal constant at least equal in clinical importance to arterial pressure. In fact, the variations of the former are probably of greater significance in disease than are those of the latter function. The method for determining the alveolar carbon dioxide is almost as easy and as readily applicable to clinical conditions as is the measurement of arterial pressure.

Up to the present time, however, respiratory experiments on man have been introduced into physiologic laboratory courses in very few medical schools, and into even fewer laboratory manuals. To meet this lack the experiments described below will, it is hoped, be found useful. They are susceptible of almost unlimited modification and extension. They are drawn from the work of many investigators. Their present interpretation as applied to the normal control of respiration

is mainly due to Haldane and his collaborators. On the abnormal side I have particularly attempted to emphasize their significance for respiratory failure under anesthesia and for a form of shock. Recent observations by a number of investigators both in laboratory and clinic suggest that the greatest value of the theory of respiration which they support will probably be found in the new point of view which it affords for attack on the difficult problems of acidosis. In cardiovascular and in diabetic cases, as well as in normal persons at great altitudes, the alveolar carbon dioxide is an index of the degree of acidosis.

I. FORCED BREATHING

1. *Forced Breathing and Apnea Vera.*—The subject, seated or lying down, breathes as deeply as possible about eighteen times a minute. Attention should be fixed on drawing deep inspirations. After from twenty to forty seconds the effort is discontinued, and the subject allows his respiration to act involuntarily. In typical cases, for a period varying from ten to thirty seconds thereafter, the subject either stops breathing altogether or breathes in a very shallow and ineffective manner. The carbon dioxide content of the blood having been decreased (acapnia), the respiratory center ceases to act until it reaccumulates up to the normal stimulating amount or "threshold value." In a large class of students one finds marked individual differences in the results of this experiment, some giving a perfect apnea, others merely a shallow or irregular respiration. Numbness and tingling in the hands and feet usually occur also. The principal difficulty is to keep the subject from breathing too fast and making such vigorous exertions, particularly in expiration, that the increase in carbon dioxide production is considerable and the increased elimination (the whole object of the experiment) only slight. Under these conditions of course no apnea occurs.

2. *Prolonged Forced Breathing Followed by Cheyne-Stokes Respiration.*—If the forced breathing is continued for two or three minutes or longer, and apnea vera then allowed to occur, many subjects toward the end of the period of apnea experience an oxygen want. The lips turn slightly blue. This oxygen lack may initiate Cheyne-Stokes breathing lasting sometimes for several minutes. Prolonged forced breathing induces "light-headedness," polyuria, shivering, muscular weakness and other functional disturbances.

3. *Forced Breathing without Excessive Elimination of Carbon Dioxide.*—A large paper bag (obtained from a grocery store) is held over the nose and mouth while the subject does forced breathing. The peculiar and disagreeable sensations of acapnia do not occur, as excessive loss of carbon dioxide is prevented by the

1. For a review of the entire literature see C. Gordon Douglas: *Ergebn. d. Physiol.*, 1914, xiv, 338.

rebreathing. The voluntary effort is found to be much less than in the previous experiments. If the bag has been so closely applied to the face that the same air has been breathed again and again, the subject subsequently experiences no apnea, and may even be unable to stop breathing if he tries. This experiment shows that the apnea in 1 and 2 was due to alteration in the blood gases (mainly decrease of carbon dioxide), and not to a nervous reflex set up by the distention and collapse of the lungs during the forced breathing. It was not apnea vagi.

For this and similar experiments the only recording apparatus necessary consists of a pneumograph fastened around the body and connected by means of a small rubber tube with a tambour writing on a smoked drum. An easily constructed form of pneumograph consists of a coil of spring wire from 16 to 20 cm. long, 2 cm. in diameter, covered with thin-walled rubber tubing, and fastened around the body with a small chain. For teaching purposes it is best to require students to get graphic records of everything possible. The record fixes their attention and they learn incidentally.

II. EXPERIMENTS ON HOLDING THE BREATH AS LONG AS POSSIBLE

1. The subject holds his breath after a moderate inspiration until the breaking-point is reached. This usually occurs after about forty seconds.

2. The breath is held after a very deep inspiration. Fifty seconds or a minute may elapse before the breaking-point is reached.

3. The subject performs forced breathing for a couple of minutes. The breath can then be held for two or three minutes.

4. The subject draws two or three deep breaths of oxygen from a bag. In some subjects the breath can then be held no longer than merely with air. In others it may be held a few seconds more.

5. The subject performs forced breathing for as long a time as in 3. He then draws two or three deep breaths of oxygen, and holds his breath with the lungs full of oxygen. It can be held much longer than in 3. The record (Vernon) for this experiment (after six minutes of forced breathing and with the lungs full of oxygen) is eight minutes and thirteen seconds.

These five parallel experiments show that the imperative demand to breathe (in 1 and 2) is chiefly due to accumulation of carbon dioxide and not to any great extent to lack of oxygen (compare 4); but that in a prolonged period of apnea vera and voluntary apnea a lack of oxygen occurs and reinforces the stimulus of carbon dioxide.

III. EXPERIMENTS ON REBREATHING

1. *The Immediate Effects of Total Rebreathing (Due Chiefly to Excess Carbon Dioxide).*—The nostrils are compressed with a nose-clip and the subject breathes from and into a rubber bag containing 20 to 40 liters of air. The amplitude of respiration is soon augmented, and in the course of a few minutes the subject is panting heavily forty times a minute. He usually develops a typical carbon dioxide headache, but this wears off in fifteen or twenty minutes after the experiment is ended.

2. *The Effects of Insufficient Oxygen without Excess of Carbon Dioxide.*—The bag is refilled with fresh air and the experiment performed again, but with this difference that a vessel of 1 or 2 liters capacity filled

with soda-lime or broken sticks of sodium hydrate is placed between the bag and the subject's mouth so that he breathes through it into and from the bag. The carbon dioxide exhaled by the subject is thus absorbed, and he gradually consumes the oxygen in the bag. As a rule there is no noticeable deepening or quickening of the breathing, and the subject will first become cyanosed and then unconscious without appreciable augmentation of breathing. This experiment should *always be carefully supervised*, as it is not free from danger. If continued for more than ten minutes it is usually followed by a severe frontal headache, developing slowly for several hours thereafter, together with other ill effects, and lasting from twenty-four to forty-eight hours.

3. *Cheyne-Stokes Breathing from Partial and Intermittent Lack of Oxygen.*—In place of the bag a tube or pipe from 3 to 5 cm. in diameter and from 80 to 150 cm. in length is attached to the soda-lime tin. After breathing through this device for a few minutes marked Cheyne-Stokes breathing usually results. The carbon dioxide exhaled by the subject is absorbed by the soda-lime close to his mouth, and the long dead space of the tube beyond produces a deprivation of oxygen. This deprivation induces a few deeper breaths. The subject thus gets more fresh air from the tube; the lack of oxygen is temporarily relieved; and apnea results because of the loss of carbon dioxide during the preceding deep breaths. Thus alternating periods of apnea and hyperpnea develop.

The vessel to hold soda-lime or sodium hydrate is conveniently made of a large tin can with a well-fitting top made air-tight with tire tape or plasticine. Into the top and bottom short pieces of metal tubing 2 cm. in diameter are soldered. Inside each end of the can is placed a slightly concave disk of wire gauze. Soda-lime must be granular and quite moist to act well. That on the market is much too dry and must be moistened. Soda-lime is easily made of slaked lime and sodium hydroxide solution mixed in an iron pot.

IV. EFFECTS OF CARBON DIOXIDE AND OXYGEN, RESPECTIVELY

1. *Carbon Dioxide as a Respiratory Stimulant.*—The bag is filled with fresh air to which from 2 to 4 per cent. of carbon dioxide gas has been added. Breathing this mixture induces immediately a considerable increase in the volume of breathing.

2. *Oxygen under Normal Conditions Neither a Stimulant Nor a Depressant.*—The bag is filled with pure oxygen gas, which the subject breathes through soda-lime. Neither increase nor decrease in the rate or volume of breathing is induced. This experiment is very conveniently performed with the so-called Hill's bag, in which oxygen is generated by the addition of water to sodium peroxide, for when the bag is merely shaken the sodium hydrate solution which remains absorbs the carbon dioxide. If a spirometer is used (as in VI) it is easily shown that the consumption is no greater from pure oxygen than from air.

V. REFLEX INHIBITION OF THE RESPIRATORY CENTER BY DISTENTION OF THE LUNGS

A spirometer is loaded so that the air within it is under a pressure of 8 to 10 cm. water gauge. This is connected either to a large T-tube or a large three-way tap. The spirometer is filled with fresh air, the connecting tube clamped, and the nose compressed

During a preliminary period the subject breathes through the tap or T-tube to the outside air. At the end of an expiration the outside air is suddenly shut off and the connection to the spirometer opened. Under the stimulus of pulmonary distention the breathing becomes markedly slower and deeper. After eight or ten seconds the connection to the spirometer is shut off and that to the outside opened. Normal breathing almost immediately returns.

This experiment was first performed by Miss Johanne Christiansen working with Dr. J. S. Haldane. The inhibitory influence on respiration which it shows occurs to some extent under the so-called positive and negative pressure conditions for spontaneous breathing after the opening of the thorax, and also under intratracheal insufflation. It is one of the principal advantages of insufflation that it thus tends to prevent the development of apnea by inhibiting spontaneous breathing, the jet of air supplying ample oxygen, but not washing out carbon dioxide to an equal extent.

VI. THE OXYGEN CONSUMPTION DURING REST AND WORK

The subject breathes from and again into a spirometer, exactly counterbalanced so as to move as easily as possible, through soda-lime or sodium hydroxid. As the oxygen is consumed, the spirometer sinks and this is easily recorded on a smoked drum. The spirometer is raised at intervals by running oxygen into it from a tank or generator of this gas. The consumption of oxygen by the subject is recorded first at rest, and then during exercise with the arms or legs. The student should then graduate the spirometer and the graphic records so as to determine the oxygen consumption in cubic centimeters per minute, by pouring measured volumes of water into a bottle from which the air is thus displaced into the spirometer. During rest the consumption may be less than 300 c.c. per minute, and during exercise on a stationary bicycle more than 3,000 c.c. per minute.

VII. ARTIFICIAL RESPIRATION

Both the Schäfer² and Sylvester methods of artificial respiration are tested by placing a clip on the subject's nose and a tube in his mouth. The tube is attached to a well counterpoised gasometer arranged to record on a smoked drum. Before each test the gasometer is filled with fresh air. A more accurate arrangement is to use a mouthpiece with inspiratory and expiratory valves connected with a large gas-meter. The experiments are repeated after the subject has performed forced breathing. Artificial respiration, when applied to a subject in apnea vera, affords far less tidal movement of air than when the subject is not apneic.

(In an experiment of this sort with Dr. J. S. Haldane in which I was the subject and the tidal volume was determined with a gas-meter, the effects of the Schäfer method after forced breathing were so markedly intermittent as to form a sort of artificial Cheyne-Stokes breathing. Such observations indicate that even when natural breathing has ceased, as after drowning, the condition of the respiratory center and of muscle tonus largely determines the efficiency of manual methods of artificial respiration.)

VIII. DETERMINATION OF THE ALVEOLAR CARBON DIOXIDE³

For this the apparatus consists essentially of a gas buret (a bulb and narrow tube) holding from 10 to 20 c.c., graduated in 0.01 c.c., and with a three-way stop-cock, one tube of which is connected with a bulb containing 10 per cent. potassium hydroxid solution. A rubber tube 100 to 150 cm. long and 2 cm. in diameter has a small hole punched near one end. This hole is slipped over the inlet tube of the gas buret, which is then filled with mercury or (for student purposes) with acidulated water.

1. While at rest and breathing naturally, the subject at the end of a normal inspiration makes a sudden and very deep expiration into the tube, and then holds his tongue against the end of the tube until the buret has been filled with the air from the depths of the lungs which is caught within the tube. This is termed the "inspiratory sample," as it gives the percentage of carbon dioxide in the alveolar air at the height of inspiration. It is sufficient for most purposes, although for very accurate work it is averaged with an "expiratory sample" obtained from a sudden deep expiration into the tube at the end of a normal expiration. The alveolar air of normal men contains 5.3 to 5.7 per cent. carbon dioxide.

2. The subject takes a few minutes of vigorous exercise (running up and down a flight of stairs five or six times) and then makes another determination.

3. He then performs forced breathing and makes a determination of the carbon dioxide content of the air of the lungs during the period of apnea and again (4) at the instant when spontaneous breathing returns.

(The instruments—the so-called portable Haldane apparatus—for such determinations are made by Siebe, Gorman & Co., 187 Westminster Bridge Road, London. They analyze for carbon dioxide, oxygen and combustible gases. I have recently suggested to Siebe, Gorman & Co. that they supply a smaller Haldane apparatus to analyze only for carbon dioxide and to be called "The Small Haldane Apparatus for Clinical Purposes." They are also sole makers of the Douglas bag, Hill bag, and other useful respiratory apparatus. Bohr gas meters [1 and 10 liters per revolution] are also very useful. They are made by the Dansk Maaler Fabrik, Copenhagen.)

IX. METABOLISM EXPERIMENTS DURING REST AND EXERCISE WITH THE DOUGLAS BAG

This apparatus consists of a nose-clip, mouthpiece, inspiratory and expiratory valves, a large three-way tap and a rubber bag carried on the back. During a measured period of time (from one to five minutes) the entire volume of the expired air is caught in the bag. The volume of this air is later measured and its oxygen and carbon dioxide content determined by analysis. The oxygen consumption, and carbon dioxide elimination per minute, and the respiratory quotient are thus determinable in man under normal conditions and forms of exercise.

X. THE DEAD SPACE OF THE RESPIRATORY TRACT

The large rubber tube is placed over the Haldane analyzer (as in VIII), the other end of the tube being connected either with a rubber bag (capable of contain-

2. The illustrated chart describing this method drawn up by the Commission on Resuscitation from Electric Shock may be obtained from the National Electric Light Association, 29 West Thirty-Ninth Street, New York City.

3. For the analytical methods in convenient and compact form see "Methods of Air Analysis," by J. S. Haldane, C. Griffin and Company London, 1912.

ing 3 or 4 liters) or with a small graduated spirometer. After a normal inspiration the subject suddenly makes the deepest possible expiration through the tube into the bag or spirometer. The alveolar air is thus obtained and determined as in Experiment VIII. A sample of the air in the bag or spirometer is also analyzed, and the total volume of the expiration measured. From these data, and the dead space of the apparatus, the volume of the dead space of the respiratory tract (assumed to have been filled with air containing no carbon dioxide) is easily calculated. This method which I devised has not previously been published. It is now being used in experiments to determine the influence of close, fresh and chill air on the dilatation and contraction of the bronchi.

THE CARDIAC EFFECTS OF IMMODERATE COLLEGE ATHLETICS*

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The frequency of cardiac lesions among the men participating in competitive sports at the University of Wisconsin has emphasized the urgency for a study of this subject from a clinical point of view. From this aspect it may be divided into three parts: first, the immediate effects of severe muscular strain on the heart; second, the effects of training and a series of severe athletic contests on the heart, and, third, the ultimate effects on the subsequent life of an individual of alterations brought about in the heart through athletic contests in early life.

Recent medical literature has been rich in the study of the immediate effects on the heart of severe prolonged muscular exertion.¹ From the physiologic point of view the results of the various investigations in this field coincide sufficiently to make it possible to draw the following rather definite conclusions:

1. Muscular exercise sufficient to cause an increase in cardiac activity causes a rise in the systolic and diastolic arterial blood-pressure, as well as in the venous blood-pressure.

2. As a rule, the rise in the systolic pressure is greater than in the diastolic, thereby giving an increase in pulse-pressure. Lowsley interprets this as meaning augmentation as well as acceleration of cardiac action.

3. The rise in the systolic pressure increases after the exercise is begun and increases to a maximum, after which it may decline, to increase again to the maximum, if renewed effort is made. It remains above normal, however, until the muscular effort ceases, after which it usually declines to and frequently below normal.² The

rise of the diastolic pressure reaches its maximum at about the same time as the systolic or a little later.³ It fluctuates little after the maximum is reached, and returns to normal more slowly than the systolic and invariably shows a fall to subnormal after exercise (Lowsley).

4. The pulse-pressure curve generally follows the contour of the systolic curve, because of the fact that the systolic pressure fluctuates more than the diastolic (Lowsley).

5. The venous pressure usually rises to a maximum, which is maintained throughout the period of exercise. If, however, the exercise be not severe and deep breathing come on, it may drop to normal during the exertion. As a rule, it drops fairly rapidly to normal after exercise, but in some individuals remains high for a considerable period (Hooker).

6. In exercises requiring severe strain with the chest rigid and the glottis closed, the blood-pressure is increased more than the heart-rate, and the venous pressure is especially high.

7. The pulse-rate rises rapidly at first, but usually does not reach its maximum as soon as the blood-pressure does.⁴ After the maximum rate has been reached, there is not much variation until the muscular effort ceases, when there is a fall to normal, or, rarely, to subnormal (Lowsley). The fall of the pulse-rate after exercise is, however, much less rapid than the fall of the blood-pressure. After prolonged rapid muscular exercise, the pulse-rate may persist above normal for a long period of time. There may be a secondary rise "which is probably a reflex effort due to the low blood-pressure of the subnormal stage" (Lowsley).

8. Since, after prolonged exertion, the systolic pressure falls more rapidly than the diastolic, there results a low pulse-pressure (Lowsley). At the time of this low pulse-pressure, albumin is frequently found in the urine. An albuminuria due to low blood-pressure has been described by Erlanger and Hooker.

9. "Rapid exercises, vigorous, fatiguing and exhausting, are followed by a fall of pressure below normal, which lasts longer than after moderate exercise, even if the former is continued for a very short period and the latter for quite a long period of time" (Lowsley).

10. "Long-distance running races and similar forms of exhaustive exercise give rise to a serious strain on the heart, as is indicated by the long period of subnormal blood-pressure" (Lowsley).

11. In hypertrophied hearts in which there is a systolic murmur not due to valvular lesions, the murmur may temporarily disappear after a severe athletic contest. On the other hand, murmurs of this character may appear in the heart, where none were heard before the contest. Barach has called attention to cases of this nature.

12. After prolonged severe contests arrhythmia may appear in the cardiac action. It is possible that this may be due to a mechanical injury to the conducting apparatus; that is, fibrillary tears in the myocardium.

Concerning the morphologic effects of prolonged muscular exercise on the heart, there is less agreement than concerning the immediate physiologic effects.

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* Owing to limitations of space, this article has been abbreviated in THE JOURNAL. The complete article appears in the authors' reprints, a copy of which will be sent by the authors or by THE JOURNAL on receipt of a stamped addressed envelope.

1. Von Frey, 1890; Kaufmann, 1892; Christ, 1894; Lewy and Zuntz and Schubray, 1896; Staehelin, 1900; Bowen, 1903; De la Camp, 1904; Gordon, Norris, 1907; Dietlen and Morwitz, Hornung, Krone, Moritz, Schott, 1908; Barach, 1910; Hooker, Lowsley, 1911; Grober, Albu and Katz and Leyboff, 1913.

2. The extent of increase of systolic pressure depends on the exercise, the individual and his condition. In young men sprinting on a stationary bicycle, Lowsley found the time for reaching the maximum systolic pressure to vary from five to twenty-five minutes and the increase to vary from 10 to 65 mm. Hg. It was greatest when the man was fresh. The average rise in sixteen men was 32.7 mm. Hg.

3. In Lowsley's work, cited above, the rise in the diastolic pressure varied from zero to 40 mm. with an average in seventeen individuals of 22.9 mm. Hg.

4. In Lowsley's experiment the average time for reaching the maximum pulse-rate was 35.4 minutes. The average increase of pulse-rate in nine experiments was 51 per minute.

Acute cardiac dilatation may occur during sudden severe muscular effort or after an endurance contest. In the former case, the general contraction of the voluntary muscles quickly forces a large amount of blood toward the heart through the veins; that is, increases venous pressure. At the same time, the muscular contraction reduces the lumen of the arteries and arterioles in their substance, to some extent forcing the blood back into the arteries, and thus gives rise to a sudden increase in peripheral resistance. This is further relatively and absolutely augmented by the increase in cardiac activity, both giving a high arterial pressure. During the violent effort the glottis is closed and great expiratory pressure is put on the thorax with the result that intrathoracic pressure is raised. This undoubtedly interferes with free cardiac activity, but nevertheless, may be temporarily compensatory, in that it offers support to the myocardium in its resistance to the increased venous pressure. In spite of the increased intrathoracic pressure, venous-pressure increase puts a strain on the heart-muscle. If its tone be good, the strain stimulates the heart to strong contraction. If not, the heart dilates. Acute dilatation is especially frequent after a sudden severe strain. In short speed contests we have similar conditions; but here the muscles, as they rhythmically relax, offer a decreased peripheral resistance and greater opportunity for the flow of blood from the heart.

In endurance contests, on the other hand, the respiratory rate is quickened and greater freedom is given to the cardiac action. The venous pressure is less and does not need to be resisted by a high intrathoracic pressure. Indeed, belts, bands and clothing interfering with free breathing are especially liable to put an over-strain on the heart. On the other hand, the prolonged rapid action of the heart brings about a condition of fatigue which lowers the tone and increases the liability to acute dilatation. This may result some time after the causative fatiguing contest in a person under only slight exertion at the time of collapse.

Acute cardiac dilatation has occurred in three members of University of Wisconsin athletic teams, as compared with one non-athlete in a period of two years. During this period there were about 4,000 male students in attendance during the regular session of the university and not over 200 men active in the major sports. The frequency of acute dilatation among the athletes was therefore sixty times as great as among the non-athletes. A report of the cases follows:

CASE 1. (0802).—This is an interesting example of a murmur persisting over a year. It occurred in a man aged 24. The only previous medical or social history having a bearing on the present condition was an attack of "grip" three weeks before the present trouble began. Examination in October, 1910, was negative as to the cardiovascular system. Subsequently the patient had been a member of the crew for a year and a half and had had one year of football. Jan. 30, 1912, he skated most of the afternoon, rowed on the machine for fifteen minutes, came down to the shower-bath quite exhausted, stood under the hot shower for five minutes, and was just about to turn on the cold water when he felt the attack coming on; he put out his hands to support himself and fell unconscious to the floor; he had no convulsive movements, no biting of the tongue, and no involuntary passage of urine or feces. He was examined the next day and the following data obtained: Pulse 84, fairly strong and somewhat irregular. Heart $\frac{1}{4}$ inch out to the left of the midclavicular line. Accentuated pulmonic second sound, action irregular. Feb. 26, 1912: Apex, sixth interspace plus $\frac{1}{2}$ inch to the left of the midclavicular line. Pulsation in the third and fourth interspaces.

Enlarged $\frac{1}{2}$ inch to the right and the same distance to the left and above to the lower border of the second rib. First sound murmurish, no musical element; second sound snapping; at end of first sound the click of the right auriculoventricular valve being heard. Case diagnosed by Dr. J. S. Evans as dilatation with secondary hypertrophy of the heart, and relative insufficiency.

A number of examinations have been made since that time; the last, April 16, 1913, showed: pulse 90; apex, diffuse, sixth interspace. Heart enlarged $\frac{1}{4}$ inch to the right, plus $\frac{1}{2}$ inch to the left. First sound poor in muscular quality and of a rumbling nature, giving the suggestion of a "run." Action quite irregular. Pulmonic second sound accentuated.

CASE 2 (1361).—The patient was examined March 27, 1912, and found to have hypertrophy or enlargement $\frac{1}{4}$ inch to right of sternum and $\frac{1}{4}$ inch to left of midclavicular line. First sound was not of strong muscular quality. Second sound was good. The patient's fourth year in distance runs in the university found him in this condition. The following was his experience on May 31, 1912, during a mile race: "It was the last lap and I was feeling as fine as I have ever felt. I was running even with the first man and just put on an extra spurt to pass him as I had done in every other race, when suddenly everything grew dark. For the rest of the race, I was semiconscious. In fact, I know nothing of the remainder, but the fellows say that I started to sway and stagger, lost my speed, would then straighten out again and thus finished the race in fifth place; I fainted as soon as I crossed the line, had to be carried from the track; was laid on the grass and slowly recovered. Then cramps in stomach began." June 4, 1913, the patient experienced marked abdominal cramps with marked hepatic congestion; the liver was palpable $\frac{3}{4}$ inch below the costal margin. June 6, 1912, the liver had returned to normal but there was still an audible apical systolic whiff. March 1, 1913, the rate was 72. The apical impulse consisted of two distinct separate thrusts. Heart dulness was enlarged $\frac{3}{4}$ inch to left and $\frac{1}{4}$ inch to right. There were no murmurs.

CASE 3 (1475).—The patient had had four years high school and three years university competition at long-distance running. The heart was examined Oct. 7, 1910. The upper border was at the third rib; the right border at the right border sternum; the left border at the fifth interspace $\frac{1}{2}$ inch outside the midclavicular line. The cardiohepatic angle was fairly acute. The first sound was loud and booming, with no murmurs. The second sound was accentuated and ringing in character. The case was diagnosed as hypertrophy of the left ventricle; the right heart apparently normal.

In the spring of 1911, while training for long distance work, the patient first noticed pain in the hepatic and splenic regions. Examination of the heart before exertion showed little change from conditions described above. After severe exertion the heart boundaries were found to be increased 1 inch to the right and $\frac{1}{2}$ inch to the left; the cardiohepatic angle was obtuse and the liver dulness increased; murmurs appeared at the mitral, pulmonic and tricuspid areas. The heart did not regain its normal condition until twenty-four hours later. The patient was advised to discontinue competitive sports, but after three weeks' idleness he attempted a mile in moderate time and fell over with acute dilatation. Examination showed the heart boundaries increased $1\frac{1}{2}$ inches to the right of the sternum and $\frac{1}{2}$ inch to the left of the midclavicular line at the fifth interspace. The cardiohepatic angle was obtuse. There were weak first and second sounds accompanied by a faint murmur. The liver and spleen were enlarged.

The increased cardiac area and other signs gradually subsided during the next two weeks, but four months later the right heart still exhibited signs of dilatation with compensatory hypertrophy. Following this break in compensation the patient became very susceptible to acute infections.

This case is an example of a heart overworked for several years, finally showing signs of breaking compensation under training and giving away more severely after a limited period of rest followed by sudden strain.

CASE 4 (4004).—This was a case of acute cardiac dilatation in a young man who had not undergone athletic training. At the first examination, Oct. 5, 1911, the heart boundaries were: left, fifth interspace $\frac{1}{4}$ inch within the midclavicular line; upper boundary, third interspace; right border on sternum. The cardiohepatic angle was acute. The pulse-rate was 96. Restricted exercise was recommended. The student, however, felt that he should take active exercise and, while running on the track at the gymnasium, Nov. 14, 1911, was suddenly attacked by acute cardiac dilatation, marked by syncope, dyspnea and nausea. The sputum was blood-tinged. The heart boundaries were as follows: apex, in the fifth interspace, midclavicular line; upper boundary, third interspace; right boundary, 1 inch to the right of the sternum. The cardiohepatic angle was obtuse. The patient did not regain normal cardiac condition until February, 1912.

Chronic sinusitis may be taken as a possible predisposing factor in the case. No other factor in the patient's previous history seems to have a bearing on the acute dilatation, with the exception of the strenuous exercise which he took with the idea of improving his health.

From this review of the immediate effects of severe muscular exercise on the heart, we conclude that:

1. Normally, during severe muscular exertion, there is an increase of pulse-rate, arterial and venous blood-pressure, pulse-pressure and of the systolic output of blood.

2. In the period immediately following, there is a fall of pulse-rate to normal, and of arterial blood-pressure, pulse-pressure and, frequently, of the diastolic size of the heart to below normal.

3. Increased diastolic distention during violent effort may reach a point beyond the capacity of the heart-muscle to bring about a complete systole. This results in the typical symptoms of acute cardiac dilatation. The weakened condition of the cardiac muscle is shown after the cessation of bodily effort by its inability to contract to its normal size or below. This precludes all possibility of obtaining the rest needed after the strain of increased diastolic expansion and systolic contraction prevalent in very active exercise.

4. Clinically, it is well known that infectious diseases predispose to myocardial weakness and to acute dilatation. Experimentally, de la Camp has shown that starvation, likewise, so predisposes. Some authors⁷ doubt if there be non-pathologic hearts with a musculature so weak that it can be strained sufficiently by muscular exertion to dilate acutely. Case 2 (1361) appears to indicate that at least chronic overstrain may weaken the myocardium to this extent.

5. At present we have no definite means of judging by clinical tests whether or not an untried apparently normal heart is capable of standing the strain of athletic contests. Some weak hearts remain dilated after a relatively slight exertion and are, therefore, clearly without adequate tone to withstand the severe strain. On the other hand, hearts known to be diseased may respond in the normal manner by contracting slightly after the cessation of moderate exercise. Hearts that give distinct systolic murmurs may withstand a Marathon race better than hearts apparently much more normal (Barach).

6. Extreme care should be given to the examination of the heart before and after moderate exercise in all who desire to enter severe athletic contests. Failure of normal reaction should bar any one from such contests. Even those withstanding these contests well should have

the heart examined at frequent intervals during their training to avoid overstrain. Many men weaken the heart-muscle, instead of strengthening it, by continued overstraining. Riviere's, 1909, observations on the effect of prolonged overstrain on young boys, which he found to result in the production of persistent cardiac changes, should serve as a special warning in care of the young.

7. Infectious diseases are especially liable to weaken the myocardium. For this reason, severe athletic contests should be avoided by sufferers with, or convalescents from, acute infectious diseases, even of so mild a nature as tonsillitis or grip. "To work a cold off" by severe exercise is dangerous advice.

The question next naturally arises as to the condition of the heart in athletes who pass through one or more seasons of training and athletic contests without obvious symptoms of cardiac trouble.

To determine the extent of cardiac alterations in athletes at the University of Wisconsin, we have made an examination of the hearts of forty-five athletes who have taken part in major sports at the university, and for the sake of control have examined the hearts of twenty non-athletic students. In both cases we have been guided in our selection merely by the desire to pick

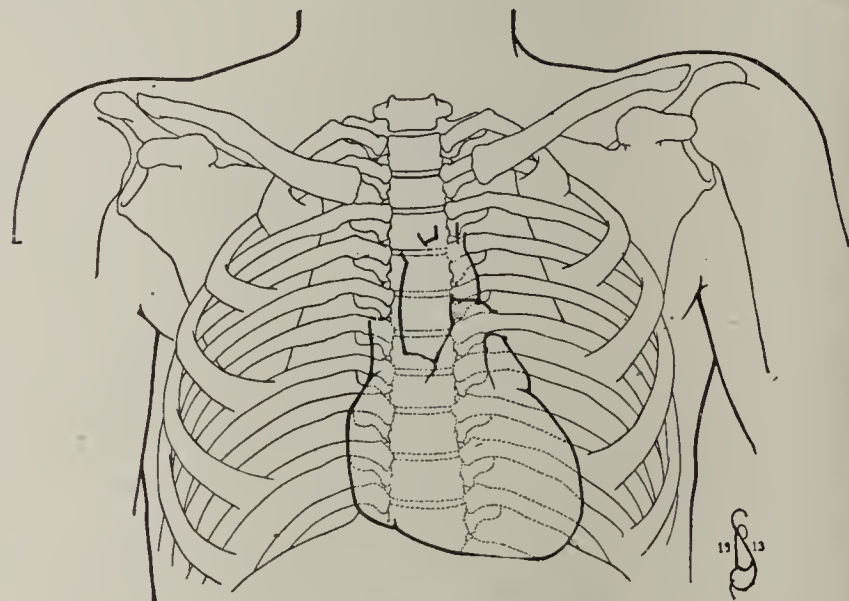


Fig. 1.—Non-athlete 4119.

out men whose social and medical history gives no reason for assuming that extraneous factors have altered the normal structure or functioning of the heart. The results are summarized in the accompanying tables and are illustrated by the drawings. In the tables there is given for each student, first, the filing number under which his records are kept at the office of the medical adviser and date of examination; then in turn his age, height, weight; habits in the use of tea and coffee, alcohol and tobacco; medical history with respect to tonsillitis, chorea and acute rheumatic fever (in no case were there physical signs or a history of venereal disease); a statement as to whether the heart had previously been found normal and, if so, when; athletic history; the rate of beat of the heart before and after fifty running steps; systolic and diastolic blood-pressure, and the pulse-pressure at rest, sitting. Except where indicated the students were not "in training" at the time of the examination.

Of the thirty-six men examined who have been active in college athletics, all showed cardiac hypertrophy. This was especially marked in most of the prominent college athletes. Figures 3 to 7 illustrate the hypertrophy as revealed by roentgenography. A ventrodorsal roentgenogram was made in each case with the tube

7. Hoffman, 1901; von Criegern, 1902; Starek, 1905; Selig, 1905, 1907; de la Camp, 1904.

0.75 meters above the center of the sternum. From the photographic plate a careful drawing was made. Care was taken to make the outline of the cardiac shadow as accurate as possible. After careful study a few details not clearly visible in the roentgenograms have been added to the figures of the heart in order to indicate the approximate position of auricles, ventricles and great vessels; the part of the heart hidden in the shadow of the liver and diaphragm has also been added; but these details, unlike the general outline of the heart shadow,

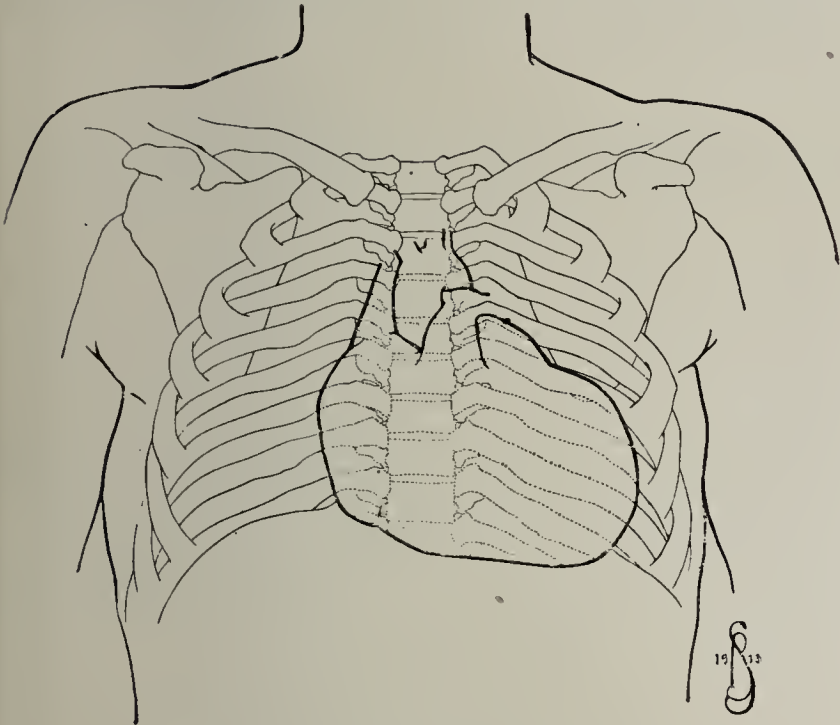


Fig. 3.—Athlete 1574 (Table 3).

outline of the cardiac shadow as compared with the size of the thorax.

Figure 1 shows the heart of a normal non-athletic man of sedentary habits (No. 4109 in Table 1). Figures 3 to 7 show the hearts of Athletes 1574, 0633, 0090 and 2148 in Table 3, and of No. 0802 in Table 6.

Figure 3 (No. 1574) is from a roentgenogram of an athlete active several years, two at the university, in football and basket-ball. The picture was taken in the spring of 1913 after the close of the basket-ball season.

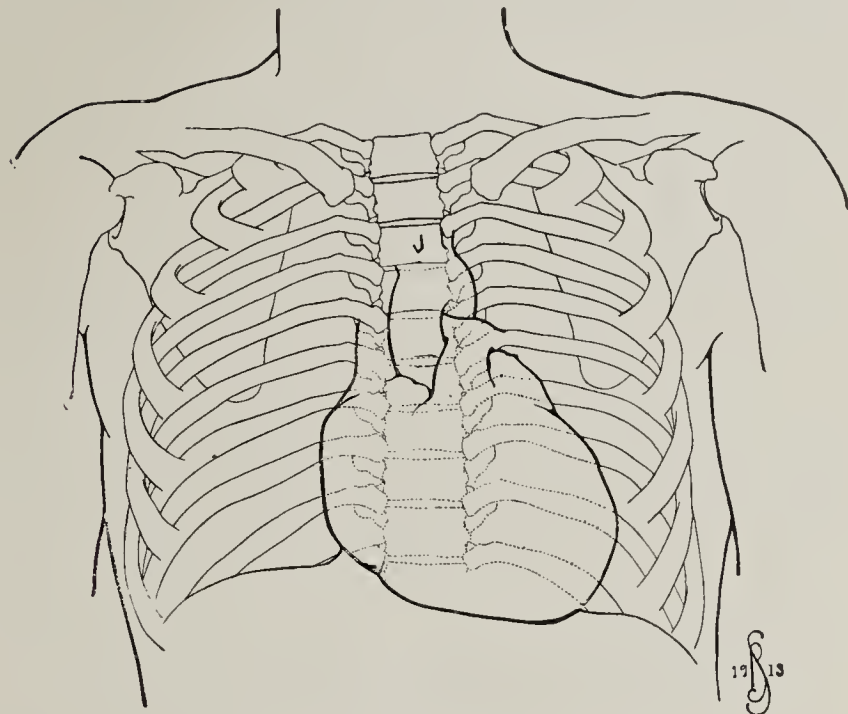


Fig. 5.—Athlete 0802 (Case 1; Table 6).

are merely approximate. The skeletal outlines and the outlines of the body have also in places been filled out where not coming on the photographic plate or not quite clear; but in all such cases the attempt has been made to make such outlines as accurate as possible. Lines which have been added for the sake of completing the picture in no case affect the relative position of the

In October, 1911, no enlargement of the heart and no functional irregularities were noted on physical examination. The pulse at this time was 68 at rest. In October, 1912, some cardiac hypertrophy was noted. At the time the roentgenogram was taken this hypertrophy was more marked and the pulse-rate at rest had fallen to 48. There was slight irregularity in the action of

TABLE 1.—GROUP 1, CONTROL: NO ACTIVE SPORTS OR TRAINING

| Filing No.* | Date of Examination | Age | Height, Ins. | Weight, Lbs. | Use of | | | | History | | | Heart Normal | Pulse-Rate | | | Blood-Pressure | | |
|---------------|---------------------|------|--------------|--------------|--------|--------|---------|---------|-------------|--------|------------|--------------|------------|-------|---------------------|----------------|-----------|--------------|
| | | | | | Tea | Coffee | Alcohol | Tobacco | Tonsillitis | Chorea | Rheumatism | | Before | After | Percentage Increase | Systolic | Diastolic | Pulse-Press. |
| 8774 | 9/—/13 | 18 | 68 | 114.8 | + | 0 | 0 | 0 | 0 | 0 | 0 | 9/—/13 | 94 | 116 | 23.4 | 102 | 78 | 24 |
| 8800 | 9/—/13 | 22 | 66 | 106.5 | ++ | + | + | + | 0 | 0 | 0 | 9/—/13 | 96 | 114 | 18.7 | 112 | 86 | 26 |
| 8816 | 9/—/13 | 19 | 61.9 | 166.3 | ++ | + | 0 | 0 | 0 | 0 | 0 | 9/—/13 | 88 | 116 | 31.8 | 108 | 82 | 26 |
| 8813 | 9/—/13 | 18 | 66 | 126 | ++ | 0 | 0 | 0 | 0 | 0 | 0 | 9/—/13 | 80 | 120 | 50 | 122 | 90 | 32 |
| 8782 | 9/—/13 | 18 | 62.8 | 115.3 | + | + | 0 | 0 | + | 0 | 0 | 9/—/13 | 84 | 112 | 33.3 | 114 | 92 | 22 |
| 4109 | 9/—/13 | 23 | 69.6 | 143 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9/—/13 | 84 | 120 | 42.8 | 100 | 68 | 32 |
| 8834 | 9/—/13 | 25 | 63.6 | 123 | 0 | + | + | 0 | 0 | 0 | 0 | 9/—/13 | 72 | 98 | 36.1 | 130 | 90 | 40 |
| 8934 | 9/—/13 | 20 | 67.4 | 116 | + | + | 0 | 0 | 0 | 0 | 0 | 9/—/13 | 84 | 112 | 33.3 | 110 | 78 | 32 |
| 8948 | 9/—/13 | 19 | 62.2 | 116.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9/—/13 | 80 | 112 | 40 | 104 | 80 | 24 |
| 0724 | 4/—/13 | 18 | 70.8 | 163.5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 9/—/12 | 60 | 88 | 46.6 | 114 | 72 | 42 |
| 2927 | 4/—/12 | .. | ... | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9/—/12 | 70 | 80 | 14.2 | ... | ... | ... |
| 2344 | 4/—/12 | 21 | 69.5 | 136.3 | + | 0 | 0 | + | 0 | 0 | 0 | 9/—/12 | 80 | 100 | 25 | 130 | 90 | 40 |
| 3039 | 4/—/12 | 23 | ... | ... | + | 0 | 0 | 0 | 0 | 0 | 0 | 9/—/12 | 72 | 100 | 38.8 | ... | ... | ... |
| 2450 | 11/—/13 | 21 | 67.5 | 150.2 | 0 | + | + | 0 | + | 0 | 0 | 10/—/11 | 80 | 100 | 25 | 108 | 80 | 28 |
| 10321 | 11/—/13 | 22 | 68 | 143 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10/—/13 | 72 | 100 | 38 | 120 | 88 | 32 |
| 4326 | 11/—/13 | 29 | 66.5 | 120.7 | + | 0 | 0 | 0 | + | 0 | 0 | 10/—/13 | 72 | 96 | 26 | 102 | 76 | 26 |
| 5698 | 11/—/13 | 27 | 69 | 155 | + | + | + | + | 0 | 0 | 0 | 11/—/13 | 84 | 108 | 28 | 112 | 82 | 30 |
| 4088 | 11/—/13 | 19 | 65 | 134 | 0 | + | 0 | 0 | 0 | 0 | 0 | 11/—/13 | 88 | 118 | 34 | 108 | 74 | 34 |
| 4243 | 11/—/13 | 21 | 68.2 | 130.4 | + | + | 0 | 0 | 0 | 0 | 0 | 10/—/11 | 72 | 100 | 41 | 118 | 80 | 38 |
| 8450 | 11/—/13 | 21 | ... | ... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10/—/10 | 70 | 92 | 32 | 108 | 72 | 36 |
| Average ..... | ..... | 22.3 | 67.2 | 137.7 | .. | .. | .. | .. | .. | .. | .. | ..... | 77 | 103 | 33.7 | 111.1 | 79.4 | 31.8 |

* Special notes on Group 1:
0724: Exercise develops accentuation of aortic and pulmonic seconds.
2927: Moderate athlete; no training.
2344: No active sports; moderate light work.

the heart, but the man had had no subjective symptoms of cardiac distress during or after athletic contests. As may be seen from the roentgenogram the enlargement is marked in both the right and left sides, and there has undoubtedly been dilatation as well as hypertrophy.

Figure 5 is from an athlete (No. 0802) who rowed for one and a half years in college. In September, 1910, no marked cardiac hypertrophy was noted. The pulse-rate was 60. In January, 1912, while training for the crew, he suffered from acute dilatation of the heart as previously described in Part I. After this experience no further athletic training was attempted. The student

was left as much at rest as his academic pursuits would permit and under careful medical observation. In the spring of 1913 cardiac disturbance was still quite marked. The pulse-rate at rest was 100, and after fifty stationary running steps it rose to 135. There were subjective feelings of palpitation at times. As may be seen from the roentgenogram, there is still marked evidence of hypertrophy together with dilatation particularly of right heart.

In none of the cases cited has there been a history of infectious disease or other trouble to which a weakening of the heart might be ascribed.

TABLE 2.—GROUP 2, ATHLETES: "NORMAL" HEARTS

| Filing No.* | Date of Examination | Age | Height, Ins. | Weight, Lbs. | Use of | | | | History | | | Heart Normal | Number of Years in | | | | | Pulse-Rate | | | Blood-Pressure | | |
|---------------|---------------------|-----|--------------|--------------|--------|--------|---------|---------|-------------|--------|------------|--------------|--------------------|-------|----------|-------------|----------|------------|-------|---------------------|----------------|-----------|--------------|
| | | | | | Tea | Coffee | Alcohol | Tobacco | Tonsillitis | Chorea | Rheumatism | | Crew | Track | Baseball | Basket-Ball | Football | Before | After | Percentage Increase | Systolic | Diastolic | Pulse-Press. |
| 1066 | 4/—/13 | 18 | 74 | 170 | 0 | 0 | M. | + | 0 | 0 | 0 | 9/26/12 | 1.5 | 0 | 0 | 0 | 0 | 84 | 108 | 28.5 | 127 | 90 | 37 |
| 2917 | 4/—/13 | 24 | 72.5 | 174.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10/—/10 | 1.2 | 0 | 0 | 3 | 3 | 84 | 100 | 19 | 120 | 90 | 30 |
| 1177 | 4/—/13 | 27 | 72.5 | 175 | + | + | 0 | + | 0 | 0 | 0 | 10/—/11 | 1 | 0 | 0 | 0 | 0 | 78 | 104 | 33.3 | 120 | 90 | 30 |
| Average ..... | ..... | 23 | 72.8 | 173.3 | .. | .. | .. | .. | .. | .. | .. | ..... | .. | .. | .. | .. | .. | 82 | 104 | 26.9 | 122.3 | 90 | 32.3 |

* Special notes on Group 2:
2917: Examination at time of test revealed enlargement ½ inch to left.
1177: Enlarged area of cardiac dulness ½ inch to left.

TABLE 3.—GROUP 3, ATHLETES: CARDIAC HYPERTROPHY WITH SLOW ACTION

| Filing No.* | Date of Examination | Age | Height, Ins. | Weight, Lbs. | Use of | | | | History of | | | Heart Normal | Number of Years in | | | | | Pulse-Rate | | | Blood-Pressure | | |
|-----------------------|---------------------|-----|--------------|--------------|--------|--------|---------|---------|-------------|--------|-----------------|--------------|--------------------|-------|----------|-------------|----------|------------|-------|---------------------|----------------|-----------|-------------|
| | | | | | Tea | Coffee | Alcohol | Tobacco | Tonsillitis | Chorea | Rheumatic Fever | | Crew | Track | Baseball | Basket-Ball | Football | Before | After | Percentage Increase | Systolic | Diastolic | Pulse-Press |
| A. WITHOUT MURMURS | | | | | | | | | | | | | | | | | | | | | | | |
| 1574 | Apr., 1913 | 22 | 65 | 168 | + | + | 0 | 0 | 0 | 0 | 0 | Oct., 1911 | 0 | 0 | 7 | 6 | 6 | 48 | 76 | 53.3 | 116 | 85 | 31 |
| 0633 | Apr., 1913 | 22 | 73 | 195 | + | + | M. | 0 | 0 | 0 | 0 | Oct., 1910 | 0 | 0 | 0 | 7 | 7 | 60 | 84 | 40 | 132 | 100 | 32 |
| 2148 | Apr., 1913 | 22 | 71 | 180 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | Oct., 1911 | 3 | 0 | 0 | 0 | 0 | 54 | 76 | 40.7 | 136 | 105 | 31 |
| 0939 | Apr., 1913 | 21 | 66 | 157 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9/18/11 | 0 | 6 | 0 | 0 | 0 | 78 | 84 | 7.7 | 126 | 96 | 30 |
| 0090 | Apr., 1913 | 21 | 69 | 195 | 0 | + | 0 | 0 | 1 | 0 | 0 | Oct., 1911 | 1½ | 2 | 0 | 0 | 6 | 60 | 84 | 40 | 122 | 90 | 32 |
| 3214 | Apr., 1913 | 24 | 72 | 185 | + | + | + | M. | 0 | 0 | 0 | † | 1½ | 0 | 0 | 0 | 1 | 60 | 84 | 40 | 132 | 100 | 32 |
| 0640 | Apr., 1913 | 24 | 71.8 | 183 | + | + | 0 | M. | 0 | 0 | 0 | † | 4 | 0 | 0 | 0 | 4 | 54 | 78 | 44.4 | 116 | 80 | 36 |
| 1663 | Apr., 1913 | 22 | 69.3 | 131 | + | + | 0 | 0 | + | 0 | 0 | Sept. 1911 | 0 | 4 | 0 | 0 | 0 | 60 | 78 | 30 | 110 | 91 | 19 |
| B. MURMURS AFTER TEST | | | | | | | | | | | | | | | | | | | | | | | |
| 3137 | Apr., 1913 | .. | 69.3 | 170 | + | + | 0 | 0 | 1 | 0 | 0 | † | 1½ | 0 | 0 | 0 | 0 | 60 | 84 | 40 | 146 | 104 | 42 |
| 0782 | Apr., 1913 | 20 | 66.5 | 115.8 | 0 | 0 | 0 | + | 0 | 0 | 0 | † | 1½ | 0 | 0 | 0 | 0 | 72 | 84 | 16.6 | 146 | 104 | 42 |
| Average ..... | ..... | 22 | 69.3 | 166.9 | .. | .. | .. | .. | .. | .. | .. | ..... | .. | .. | .. | .. | .. | 60.6 | 81.6 | 35 | 126.2 | 94.6 | 31.6 |

* Special notes on Group 3:
1574: No hypertrophy in October, 1911; pulse-rate 68. In October, 1912, enlarged ½ inch to left. February, 1913, action irregular boundaries; upper border second rib; 1½ inches to left of the midclavicular line 1 inch to right of sternum.
0633: Diffuse apical impulse. Cardiac dulness enlarged 1¼ inch to left and ½ inch to right. Accentuated pulmonic second.
2148: Enlarged ½ inch to left. Muscular sound, sharp. Pulmonic first, rough.
0939: Enlarged 1 inch to left and ½ inch to right. Pulmonic second accentuated. Carried off field twice after relay races.
0090: October, 1910, rate 92; October, 1911, 80 with no hypertrophy. September, 1912, enlargement ¾ inch to left. March, 1913, rate 60, enlarged 1½ inch to left and ½ inch to right.
3214: No enlargement. Some irregularity, which on exertion is increased, a number of beats being dropped on deep inspiration.
0640: Hypertrophy on two previous examinations. At present, enlarged just to right of sternum and ½ inch to left of mid-clavicular line.
NOTE—Development of a mitral murmur later in training period caused dropping from crew.
1663: Some hypertrophy in September, 1912. At present, enlarged ¾ inch to left and ¼ inch to right.
3137: Enlarged ½ inch to left. On exertion, develops a soft systolic murmur audible over entire pericardium but with maximum intensity at apex.
0782: At examination in October, 1910, 1911 and 1912, cardiac enlargement was found. October, 1912, displayed doubtful untransmitted mitral murmur. Latest examination gave systolic thrill. Apex sixth interspace plus ¼ inch to left of midclavicular line; no murmur before exercise, but a distinct "murmurishness" develops in third and fourth interspaces to left of sternum on exertion. First sound booming; second pulmonic markedly accentuated.
†No record.

Functionally, the hearts of athletes may be grouped into several classes: (1) physiologically hypertrophied hearts, Group 2, Table 2; (2) dilated and hypertrophied hearts with slow rate of beat and good compensation, sometimes, however, showing some arrhythmia or inur-mur after exercise, Group 3, Table 3; (3) dilated and hypertrophied hearts with a pulse-rate greatly increased on slight exertion, Group 4, Table 4; (4) dilated and hypertrophied hearts with a murmur before and after exercise, a relatively high pulse-rate, usually much increased by exercise, Group 5, Table 5; (5) hearts con-valescent from acute dilatation, Group 6, Table 6, and hearts showing lesions several years after ceasing ath-letic training, Group 7, Table 7.

In Table 1 are given data concerning the twenty non-athletes examined for the purpose of control. Figure 1 illustrates the heart of a student of this type. The systolic blood-pressure averaged 111.1, the pulse-pressure 31.8 and the pulse-rate showed an average increase after fifty running steps of about 33.7 per cent.

In Table 2 are given data concerning the relatively few athletes trained for major sports whose hearts appeared to be essentially like those used to a consider-able amount of moderate exercise. In these men, how-ever, there was somewhat more eardiac hypertrophy and a suggestion in most cases of some dilatation as well as hypertrophy. The sounds were normal. Both the systolic blood-pressure and the diastolic pressure averaged con-siderably higher than in those in Table 1. The pulse-pressure was about the same. The increase in the pulse-rate after fifty running steps was less marked.

In Table 3 are given data concerning a group of athletes with dilated hearts in which the compensatory

hypertrophy had produced a myoeardium that gives a slow, strong beat which, as a rule, does not quicken greatly after fifty running steps. The blood-pressure is frequently relatively low. Many of the best college ath-letes belong in this group. Compensation is excellent, although oceasionally there is slight arrhythmia, and in two cases there was a slight mitral murmur after the test. Figures 3, 4, 5, and 6 illustrate the type of heart here described.

In Table 4 are given data concerning a group of ath-letes with dilated, hypertrophied, irritable hearts. The most marked characteristics of the hearts of these men is the remarkable jump in pulse-rate shown after fifty running steps, the jump averaging 55.2 per cent. of the rate before the test. Frequently there is also a slight arrhythmia. The blood-pressure is relatively high, the pulse-pressure somewhat lower than the normal. It is probable that men with this type of heart run consider-able danger of acute dilatation. It is evident that com-pensatory hypertrophy is less perfect than in the preced-ing class.

In Table 5 are given data concerning a group of athletes with dilated hypertrophied hearts with a well-marked mitral murmur. They have a relatively high pulse-rate and, in most eases, show a high increase after fifty running steps. Systolic pressure is not so high as in the preceding group. The pulse-pressure, as a rule, is nearly normal. Some of the men here tabulated will probably acquire by compensatory hypertrophy a thicker myocardium, the pulse will become slower and the mitral murmur disappear. Others will approach the irritable type with rapid pulse on exertion, and these also may, by the decreased diastole, lose the mitral murmur.

TABLE 4.—GROUP 4. IRRITABLE HYPERTROPHIED HEARTS IN ATHLETES

| Filing No.* | Date of Exam-ination | Age | Height, Ins. | Weight, Lbs. | Use of | | | | History of | | | | Heart Normal | Number of Years in | | | | | Pulse-Rate | | | Blood-Pressure | | |
|-----------------------------|----------------------|--------|--------------|--------------|--------|--------|---------|---------|-------------|--------|-----------------|---------|--------------|--------------------|----------|-------------|----------|--------|------------|---------------------|----------|----------------|--------------|--|
| | | | | | Tea | Coffee | Alcohol | Tobacco | Tonsillitis | Chorea | Rheumatic Fever | Crew | | Track | Baseball | Basket-Ball | Football | Before | After | Percentage Increase | Systolic | Diastolic | Pulse-Press. | |
| A. SHORT PERIOD OF TRAINING | | | | | | | | | | | | | | | | | | | | | | | | |
| 0928 | 4/—/13 | 22 | 67.3 | 135.5 | M. | M. | 0 | 0 | 0 | 0 | ? | 10/—/11 | 0 | 1 | 0 | 0 | 0 | 60 | 110 | 83.3 | 120 | 80 | 40 | |
| 3135 | 4/—/13 | 19 | 70 | 170 | 0 | + | 0 | 0 | 0 | 0 | 0 | 10/—/12 | 3/4 | 0 | 0 | 0 | 0 | 72 | 96 | 33.3 | 138 | 100 | 38 | |
| 2132 | 4/—/13 | 25 | 70 | 160 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | † | 0 | 0 | 2 | 0 | 0 | 72 | 96 | 33.3 | 136 | 104 | 32 | |
| 3028 | 4/—/13 | 18 | 72 | 186.3 | + | + | 0 | 0 | 0 | 0 | ? | 10/—/12 | 1 | 0 | 0 | 0 | 0 | 64 | 96 | 50 | 114 | 78 | 36 | |
| B. LONG TRAINING | | | | | | | | | | | | | | | | | | | | | | | | |
| 2798 | 4/—/13 | 21 | 72.8 | 191 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9/—/12 | 1 | 0 | 0 | + | 0 | 70 | 120 | 71.4 | ... | ... | ... | |
| 3100 | 4/—/13 | 19 | 73.5 | 185 | + | + | 0 | M. | 0 | 0 | 0 | † | 3 | 0 | 0 | 0 | 3 | 68 | 112 | 64.7 | 128 | 85 | 43 | |
| 0800 | 4/—/13 | 21 | 71 | 173 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 10/—/11 | 1 1/2 | 0 | 0 | 0 | 2 | 72 | 120 | 66.6 | 141 | 110 | 31 | |
| 2663 | 4/—/13 | 28 | 71.5 | 171.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | † | 3 1/2 | 0 | 0 | 0 | 0 | 84 | 120 | 42.8 | 144 | 100 | 44 | |
| 1838 | 4/—/13 | 20 | 71.5 | 168.5 | + | + | 0 | + | 1 | 0 | 0 | † | 0 | 0 | 3 | + | + | 84 | 128 | 40.4 | 158 | 108 | 50 | |
| 1284 | 4/—/13 | 21 | 70.5 | 160 | + | + | 0 | 0 | 1 | 0 | 0 | 9/—/12 | 1 1/2 | 0 | 0 | 0 | 2 | 78 | 120 | 53.5 | 142 | 110 | 32 | |
| 0159 | 4/—/13 | 20 | 71 | 171.8 | + | + | 0 | 0 | 0 | 0 | 0 | † | 1 1/2 | 0 | 0 | 0 | 0 | 84 | 142 | 68.9 | 132 | 102 | 30 | |
| 3057 | 4/—/13 | 21 | 70 | 155.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | † | 1 1/2 | 0 | 0 | 0 | 0 | 80 | 120 | 50 | 120 | 90 | 30 | |
| Average ..... | ..... | 21 1/4 | 70.91 | 168.97 | .. | .. | .. | .. | .. | .. | ..... | .. | .. | .. | .. | .. | .. | 76.8 | 115 | 55.2 | 133 | 97 | 34.1 | |

* Special notes on Group 4:
0928: Slight enlargement to left; before exercise heavy first sound, becoming impure on exercise. Pulmonic second accentuation. After exertion, some irregularity.
3135: Enlarged 1/2 inch to left. Decided irregularity of pulse for two minutes after test.
3028: Enlarged 1/2 inch to left. Aortic second snapping.
2798: Before exercise, cardiac dulness extended 1/2 inch to left of midclavicular line; which enlargement is increased 1/4 inch by exertion. Accentuated pulmonic second.
3100: September, 1912, enlarged 1/4 inch both to right and to left. Later examination shows enlargement 3/4 inch to left and 1/4 inch to right. Pulmonic second accentuated.
2663: October, 1910, enlargement 1/2 inch to left.
1838: October, 1912, aortic systolic murmur transmitted to neck. At present, action irregular; exercise increases area of dul-ness perceptibly to left of midclavicular line and develops an apical systolic murmur heard all over precordium.
1284: Enlarged 1/2 inch to left; action irregular; aortic and pulmonic second sounds accentuated. Exercise develops decided impurity of mitral first.
0159: October, 1911, enlarged 1/4 inch to left; now 3/4 inch to left.
3057: October, 1911, enlarged 1/2 inch to left.
† No record.

In Table 6 are shown the results found in two hearts several months after acute cardiac dilatation. In one heart, eleven months after the dilatation, the compensation is already good. In the other heart, fifteen months after the acute dilatation, the pulse-rate is high, the pulse-pressure is low and there is still a mitral murmur.

In Table 7 are classed those men who, at one time active in competitive sports, have had no training for a period of at least one year. Most of these are old high-school athletes. Of the seven men, all show either valvular murmurs or marked departure from the normal heart-sounds. Five of the men in Group 7A show the same irritability as those in Group 5. These data tend to prove that the abnormalities developed by severe competitive sports persist in many cases.

Our studies show that while acute cardiac dilatation of an immediate serious nature is not so frequent as one might expect among college athletes, marked cardiac hypertrophy is the rule rather than the exception, and that in a considerable percentage of cases functional disturbance of a more or less serious nature accompanies the hypertrophy.

The marked cardiac lesions found in so large a proportion of our college athletes present a serious problem, especially at a time when physical training is extending from the colleges to the secondary schools and the popular idea of a good physical trainer is so often the man who can turn out winning teams. While it is not desirable unduly to restrict healthy sports, on the other hand, the leaders in athletic sports should not be called on to sacrifice too much the future for the present. The tendency in boys from 14 to 18 to develop cardiac lesions which are transitory, if the heart is not at this time subjected to overstrain (see Krehl, p. 715) complicates the problem when extended to high-school athletes.

There seems reason to believe that at present there is an increase in cardiovascular disease in this as in most civilized countries. The relations of violent muscular exertion to such diseases should be thoroughly understood. The college athlete represents a type of special interest in this connection. During violent athletic contests he is stimulated by the excitement of the crowd to exert himself far beyond the point of physical comfort. Between seasons and when out of training he is apt to lead a more or less sedentary life, and this becomes usually the case after his athletic career is over.

TABLE 5.—GROUP 5, ATHLETES: HYPERTROPHIED HEARTS, MURMUR BEFORE AND AFTER TEST

| Filing No.* | Date of Examination | Age | Height, Ins. | Weight, Lbs. | Use of | | | | History of | | | Number of Years in | | | | | Pulse-Rate | | | Blood-Pressure | | | Nature of Murmur | |
|-------------|---------------------|------|--------------|--------------|--------|--------|---------|---------|-------------|--------|-----------------|--------------------|-------|-------|----------|-------------|------------|--------|-------|---------------------|----------|-----------|------------------|---|
| | | | | | Tea | Coffee | Alcohol | Tobacco | Tonsillitis | Chorea | Rheumatic Fever | Heart Normal | Crew | Track | Baseball | Basket Ball | Football | Before | After | Percentage Increase | Systolic | Diastolic | | Pulse-Press. |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| 0139 | 4/—/13 | 23 | 71.5 | 173 | ++ | ++ | ++ | ++ | 0 | 0 | 0 | 9/—/12 | + | 0 | 0 | 0 | 0 | 95 | 120 | 26.3 | 120 | 82 | 38 | Cardiorespiratory. |
| 2791 | 4/—/13 | 23 | 69 | 121 | ++ | ++ | ++ | ++ | 0 | 0 | 0 | 9/—/12 | 1 1/2 | 0 | 0 | 0 | 0 | 62 | 80 | 29 | 130 | 95 | 35 | Soft mitral systolic, transmitted. |
| 1022 | 4/—/13 | 24 | 71.5 | 166.5 | ++ | ++ | ++ | ++ | 0 | 0 | 0 | 10/—/10 | 0 | 3 | 0 | 0 | 0 | 64 | 132 | 106.2 | 128 | 89 | 26 | Systolic apical swish. |
| 0881 | 4/—/13 | 22 | 64 | 130.5 | ++ | ++ | ++ | ++ | 0 | 0 | 0 | 9/—/11 | 1 1/2 | 0 | 0 | 0 | 0 | 72 | 100 | 38.9 | 132 | 90 | 39 | Rough mitral systolic. |
| 3924 | 4/—/13 | 20 | 72.5 | 166.5 | ++ | ++ | ++ | ++ | 0 | 0 | 0 | 10/—/11 | 0 | 0 | 0 | 0 | 0 | 72 | 106 | 47.2 | 119 | 88 | 42 | Systolic apical whiff. |
| 1053 | 4/—/13 | 25 | 64 | 123.8 | ++ | ++ | ++ | ++ | 0 | 0 | 0 | 9/—/12 | 1 1/2 | 0 | 0 | 0 | 1 | 73 | 114 | 46.1 | 128 | 97 | 31 | Cardiorespiratory. |
| 1793 | 4/—/13 | 20 | 68.5 | 182 | ++ | ++ | ++ | ++ | 1 | 0 | 0 | 7/—/12 | 4 | 0 | 0 | 0 | 0 | 115 | 134 | 17.4 | 122 | 90 | 32 | Loud, blowing, mitral systolic, well transmitted. |
| 0004 | 4/—/13 | 25 | 74 | 180 | ++ | ++ | ++ | ++ | 0 | 0 | 0 | 10/—/12 | 0 | 5 | 0 | 0 | 0 | 84 | 120 | 42.1 | 128 | 110 | 18 | Rough, systolic, mitral, transmitted. |
| 0843 | 4/—/13 | 25 | 72.8 | 168 | ++ | ++ | ++ | ++ | 1 | 0 | 0 | 9/—/12 | 1 | 0 | 0 | 0 | 0 | 76 | 118 | 42.1 | 126 | 88 | 38 | Mitral systolic, marked on exertion. |
| 0573 | 4/—/13 | 19 | 73.5 | 168.8 | ++ | ++ | ++ | ++ | 0 | 0 | 0 | 9/—/12 | 1 1/2 | 0 | 0 | 0 | 0 | 84 | 108 | 28.5 | 126 | 90 | 18 | Soft systolic, mitral on exertion. |
| 2889 | 4/—/13 | 22 | 72 | 173 | ++ | ++ | ++ | ++ | 0 | 0 | 0 | 9/—/11 | 2 1/2 | 0 | 0 | 0 | 0 | 84 | 100 | 19.6 | 108 | 90 | 18 | Soft systolic at base, untransmitted. |
| 0093 | 4/—/14 | 21 | 70.8 | 152.8 | ++ | ++ | ++ | ++ | 0 | 0 | 0 | 9/—/11 | 2 1/2 | 0 | 0 | 0 | 0 | 84 | 100 | 19.6 | 108 | 90 | 18 | Soft systolic at base, untransmitted. |
| Average | ..... | 22.4 | 70.3 | 150.7 | .. | .. | .. | .. | .. | .. | .. | ..... | .. | .. | .. | .. | .. | 80.6 | 112.8 | 40.2 | 123.9 | 92.3 | 31.6 | |

*Special notes on Group 5:
0139: Marked accentuation of aortic second, murmurs more marked in dependent position. Now out for crew.
2791: Before exercise, enlarged 1/2 inch to left, action irregular and above-described murmur. After exercise, action is in form of peculiar "runs"; area of dulness enlarges 1/4 inch to either side.
1022: Enlarged 3/4 inch to left and 1/2 inch to right. Before exercise in erect posture, reduplication of first. "Swish" developed at apex on exertion.
0881: Enlarged 3/4 inch to left. Muscular quality poor; action, irregular.
3924: Enlarged 1 inch to left and 1/2 inch to right.
1053: Enlarged slightly to left and 1/2 inch to right; action irregular and first sound slurred. In addition to cardiorespiratory murmur mentioned in table, a soft untransmitted systolic murmur is heard in fourth left interspace. Coughing after exercise.
0004: Possible etiologic factor in production of endocardial murmur lies in the existence of sinus infection. Apex impulse in sixth interspace. Enlarged 3/4 inch to left. Murmur heard is transmitted to axilla and well into back. Anginoid pains and gastro-intestinal symptoms.
0843: Enlarged 1/4 inch to right and 1/2 inch to left. Poor muscular quality. Accentuated aortic second. Anginoid pains on exertion in training.
0573: No enlargement.
2889: September, 1912, showed hypertrophy 1/4 inch to left. Now, before exertion enlarged 1/2 inch to left and 1/4 inch to right. Area of dulness increases 1/4 inch to left after test.
0093: Enlarged 1/2 inch to left and 1/4 inch to right.
† No record.

The effects on the after-life of the members of the college crews at Oxford and at Harvard have given rise to several studies, but the results are not of much value in throwing light on the general problem. They show in general that the crew men have lived a few years longer than would have been expected from mortality tables used by life-insurance companies, but accurate medical details are wanting and we have as yet no good data on the life expectations of the picked classes from which the crew men have come. Perhaps the most significant tables are those of the Surgeon-General of the Navy, who reports six deaths in athletes from diseases attributable to athletic overstrain to one in non-athletes among the select lot of young men trained at Annapolis. It seems reasonable to assume that a young man whose athletic training had led to cardiac hypertrophy with

some functional disturbance likely to increase when the large heart no longer has exceptional work to do, will be physically handicapped in life, to what extent, careful study of numerous men is necessary to show. It will be found not only in the field of cardiovascular diseases, but also in the decreased resistance which such men show to acute infections such as typhoid fever and pneumonia. Dr. Harlow Brooks in 1913, as medical officer of a regiment of the National Guard in New York, in which there are many college athletes from five to fifteen years out of college, has found the health of these men on the whole decidedly inferior to that of the other members of the regiment.

CONCLUSIONS

1. Athletic training leads at first to physiologic hypertrophy of the heart; but when prolonged and marked by

TABLE 6.—GROUP 6, ATHLETES: ACUTE DILATATION

| Filing No.* | Date of Examination | Age | Height, Ins. | Weight, Lbs. | Use of | | | | History of | | | Heart Normal | Number of Years in | | | | | Pulse-Rate | | | Blood-Pressure | | |
|---------------|---------------------|------|--------------|--------------|--------|--------|---------|---------|-------------|--------|-----------------|--------------|--------------------|-------|----------|-------------|----------|------------|-------|---------------------|----------------|-----------|--------------|
| | | | | | Tea | Coffee | Alcohol | Tobacco | Tonsillitis | Chorea | Rheumatic Fever | | Crew | Track | Baseball | Basket-Ball | Football | Before | After | Percentage Increase | Systolic | Diastolic | Pulse-Press. |
| 2807 | 5/—/13 | 23 | 70 | 142 | + | + | 0 | 0 | 0 | 0 | 0 | † | 0 | 4 | 0 | 0 | 0 | 72 | 84 | 16.6 | 122 | 95 | 27 |
| 0802 | 4/—/13 | 24 | 73 | 172 | 0 | 0 | 0 | + | 0 | 0 | 0 | 9/—/10 | 1½ | 0 | 0 | 0 | 0 | 100 | 135 | 35 | 121 | 98 | 23 |
| Average ..... | ..... | 23.5 | 71.5 | 157 | .. | .. | .. | .. | .. | .. | .. | ..... | .. | .. | .. | .. | .. | 86 | 109.5 | 25.8 | 121.5 | 96.5 | 25 |

* Special notes on Group 6:
2807: 3/27/12, some cardiac enlargement. 5/31/12, acute dilatation of heart. At present, two separate thrusts to apical impulse enlarged ¾ inch to left and ¼ inch to right. Anginoid pains at times. Some digestive derangement.
0802: 1/30/12. Acute cardiac dilatation. Present examination points to existence of extra systoles. Enlarged ½ inch to left and ¼ inch to right. Mitral first consists of a number of interrupted sounds. Palpitation.
† No record.

TABLE 7.—GROUP 7, OLD ATHLETES: NO ATHLETIC TRAINING FOR AT LEAST A YEAR (CHIEFLY HIGH-SCHOOL ATHLETES)

| Filing No.* | Date of Examination | Age | Height, Ins. | Weight, Lbs. | Use of | | | | History of | | | Heart Normal | Number of Years in | | | | | Pulse-Rate | | | Blood-Pressure | | | |
|------------------------------------|---------------------|-----|--------------|--------------|--------|--------|---------|---------|-------------|--------|-----------------|--------------|--------------------|-------|----------|-------------|----------|------------|-------|---------------------|----------------|-----------|--------------|----|
| | | | | | Tea | Coffee | Alcohol | Tobacco | Tonsillitis | Chorea | Rheumatic Fever | | Crew | Track | Baseball | Basket-Ball | Football | Before | After | Percentage Increase | Systolic | Diastolic | Pulse-Press. | |
| A. MURMURS AND IRRITABLE HEART | | | | | | | | | | | | | | | | | | | | | | | | |
| 2891 | Apr. 1913 | 22 | 71.5 | 155 | + | + | 0 | + | 0 | 0 | 0 | 1903 (?) | 0 | 0 | 0 | 0 | 1 | 78 | 110 | 41 | 116 | 84 | 32 | |
| 3142 | Apr. 1913 | 21 | 72 | 165 | + | + | 0 | 0 | 0 | 0 | 0 | | 0 | 2 | 0 | 0 | 0 | 80 | 138 | 72.5 | 130 | 91 | 39 | |
| 3151 | Apr. 1913 | 30 | 69 | 185 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 4 | 80 | 138 | 72.5 | 160 | 90 | 70 |
| 2180 | Apr. 1913 | 24 | 64.5 | 144 | + | + | + | + | 3 | 0 | 0 | | + | 0 | 0 | 4 | 0 | 4 | 66 | 98 | 48.4 | 118 | 98 | 20 |
| 3032 | Apr. 1913 | 19 | 70.8 | 167.8 | 0 | 0 | 0 | + | 3 | 0 | 0 | + | 0 | 0 | 4 | 4 | 3 | 60 | 88 | 46.6 | 120 | 82 | 38 | |
| B. MURMURS AND NON-IRRITABLE HEART | | | | | | | | | | | | | | | | | | | | | | | | |
| 2785 | Apr. 1913 | 25 | 70.8 | 153 | + | + | 0 | + | 1 | 0 | 0 | + | 0 | 0 | M. | M. | 0 | 80 | 92 | 4.4 | 104 | 78 | 26 | |
| 2792 | Apr. 1913 | 19 | 69.5 | 139 | + | + | 0 | + | 0 | 0 | 0 | + | 0 | 2 | 0 | 0 | 0 | 80 | 100 | 25 | 128 | 95 | 33 | |
| Average ..... | ..... | 23 | 69.7 | 158.7 | .. | .. | .. | .. | .. | .. | .. | | .. | .. | .. | .. | .. | 76 | 109 | 44.3 | 125 | 88.3 | 37 | |

* Special notes on Group 7:
2891: Played football in 1909. Cardiac enlargement ¼ inch to left. Systolic thrill. After exercise, first sound too short.
3142: Enlarged ½ inch to left. On exertion, mitral systole becomes decidedly impure. All athletics were in high school. Some palpitation on exertion. October, 1911, some enlargement determined.
3151: Declared well in 1903. Four years of college football, last in 1907. Scarlet fever as child. Enlarged 1 inch to left and slightly to right. Poor muscular quality. Diastolic murmurs in third and fourth left interspaces, disappear on exertion. Some irregularity. Palpitation. Vertigo. Probably aortic insufficiency.
2180: Heart enlarged 1 inch to left. Muscular quality poor. Snapping aortic second. All athletics in high school.
3032: Enlarged ¾ inch to left. Systole murmurish in fourth left interspace. All athletics in high school. October, 1912, cardiac hypertrophy noted.
2785: Reduplication of mitral first in erect posture; in recumbent, some slurring. Gave up athletics five years ago—never very active previously.
2792: April 10, 1913, second sound reduplicated. At present, enlarged ¾ inch to left and ½ inch to right. First sound, loud, muscular; second, accentuated. All athletics at high school.
† No record.

severer athletic contests it usually leads to hypertrophy plus dilatation of a variable degree, frequently marked by valvular insufficiency.

2. Functionally, the hypertrophied heart, even when dilated and giving distinct evidence of valvular insufficiency, may prove more fitted to carry the man through a severe athletic contest than a normal heart would be. On the other hand, acute cardiac dilatation occurs more frequently in athletes and men used to severe muscular strain than in normal men, and the ultimate effects are more prolonged and severe.

3. There is reason to believe that for normal human activities an "athletic" heart is distinctly disadvantageous.

We desire to express our appreciation for valuable suggestions and hearty cooperation in this work on the part of Dr. C. R. Bardeen, Dr. Joseph S. Evans, Dr. Robert Van Vabzah and Mr. Hodges.

ISCHEMIC PAINS *

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The term "ischemic" is applied only to those localized recurring pallors which affect circumscribed areas for an indefinite and usually a very transient period, but which may recur at any time, under conditions similar to the first exciting cause. I do not include in the definition the general pallor or bloodlessness of the entire body-surface which follows shock or loss of blood. It is not necessary to define pain here, further than to mention the fact that the pains of ischemia are subject to the same variation of degree as are pains in other cases. On first thought the consideration of ischemic phenomena might seem to belong to the domain of the internist. In the more recent surgical works, but more especially in Cabot's "Differential Diagnosis," quoting J. Pal's book on *Gefässkrisen*, the subject has been given special attention. Thus, Cabot says:

More useful on the whole, is the book on *Gefässkrisen*, in which Pal elaborates upon the basis of careful observation, both at the bedside and at the dead-house, a theory of the origin, not of all pains, but of certain paroxysmal types of suffering associated especially with the vessels of the brain, the heart and the kidney, but to a lesser extent with those of the intestine and of the extremities. He supposes that arterial spasm (favored and prepared for by arteriosclerosis, by uremia, by lead-poisoning and by the nerve lesions of tabes) is the cause of a large group of pains, paralyses and other functional disturbances which had never before been brought together under any single explanation. Taking lead-poisoning as an impressive example of the theory, he points out that we have here a notable rise of blood-pressure, associated sometimes with cerebral crises (headaches, convulsions, coma), often with abdominal crises (lead colic) and occasionally with anginoid seizures. In arteriosclerosis we have likewise cerebral, abdominal and cardiac crises and, in addition to these, well-marked peripheral crises (intermittent claudication). In uremic and eclamptic poisoning we have likewise cerebral and abdominal crises. In tabes dorsalis the abdominal crises are the most familiar.

In all these affections post-mortem examination may demonstrate that there is no gross lesion, such as cerebral hemorrhage or thrombosis, coronary occlusion or blocking of a peripheral artery. Indeed, the arteries and the surrounding tissues may appear almost or quite normal post mortem. It

is natural, therefore, to assume some functional change such as spasm, to account for the pain, paralysis and other functional changes recognized at the bedside. In favor of the hypothesis of vascular spasm, or *Gefässkrisen*, are two considerations:

A rise of blood-pressure has many times been demonstrated by Pal before, as well as during, the crises. This hypertension cannot be accounted for as a result of pain, since in many of Pal's cases it preceded the pain. He has found it in the gastric crises of tabes, as well as in the uremic, saturnine and arteriosclerotic cases.

Ischemia should not be confounded with anemia; the one is local, the other general. Anemia is accompanied by known blood-changes, while ischemia occurs in subjects in whom there are no recognizable changes in the plasma or the blood-cells. To the surgeon, the subject is of interest and of importance, because of the proper interpretation of the symptoms, signs and consequences of the condition. Its interpretation determines to a certain extent the course the surgeon advises in the management of his case. It is because of the sometimes misleading character of pain, as a symptom, that attention is called to the subject at this time.

Two cases will serve to illustrate:

CASE 1.—T. P. K., aged 80, married, complains of pain in the left lower abdomen near the location of an inguinal hernia. The pain is sharp, comes suddenly, is at times much more severe than at others, and is not intermittent or periodic. With one exception, it has always occurred at night while the patient was lying in bed. It remains in the same location, always recurs in the same spot and does not radiate. The patient is occasionally nauseated but does not vomit, except after taking medicine, and then he vomits only the medicine. These attacks have occurred within three hours after eating a hearty dinner, but none of the dinner is vomited. With the first attack there was difficulty in getting a movement of the bowels. There was no movement for sixty hours at least. There was a great deal of gas present. During the last two or three attacks, shortly after the pain comes on there has been a tendency for the bowels to move, and in some cases there is a slight movement. There is no increase in the frequency of urination. Pain seems to pass from a point near the location of the rupture to the small of the back. Dizziness is not marked. There are increased thirst and nervousness.

CASE 2.—(Dr. Flansburg's case, illustrating intermittent claudication).—F. C., a traveling salesman, aged 53, has always been a heavy meat-eater. He uses alcohol moderately and smokes incessantly. He denies venereal infection. For the past two years he has suffered from "cramping pains" in the right foot and calf of the leg. After walking a distance of five or six city blocks he becomes aware of a dull aching pain in his leg, and if he continues to walk the pain becomes more and more severe until he is compelled to stop and sit down. After a minute's rest the pain disappears entirely and he is ready to walk five or six blocks more.

Most of us have been consulted as to the nature of transient pains occurring in almost every region of the body. Many patients complain of numbness and pain in the fingers, toes, legs, shoulders and chest, pains which are transient, but cause anxiety and discomfort.

Lead-eclampsia and nephritis have been mentioned as causing transient ischemia. Is it not reasonable to assume that many other toxic agents may act in the same manner? Those of us who have done many abdominal sections have noted a blanched and collapsed area of intestine sometimes many inches in length. I recently saw a young surgeon search the entire caecum for the obstruction. It is more than probable that had

* Read before the Rock Island Surgical Association, Nov. 13, 1913, at Chicago.

that patient suddenly awakened, he would have had a severe colic as a result of the ischemic condition present. It is probable that the ischemia is due to the direct action of a toxemia on the part involved, or on an altered efferent impulse which controls it. Recurring attacks predispose to recurring attacks, through oversensitization to the irritant which initiates the seizure, and the parts affected undergo nutritive degenerative changes which sometimes lead to gangrene, as in Raynaud's disease. In other cases there is apparently complete recovery.

Sir R. Douglas Powell,¹ in an exhaustive article on angina pectoris, refers to circumscribed anginal attacks in various regions of the body, due to temporary spasticity of the vessels.

H. G. Turney,² in discussing the ischemic type of trophoneurosis, speaks as follows:

The vasomotor instability which forms such a prominent feature of organic arterial disease may very closely simulate a pure neurosis, though on the other hand it should be remembered that prolonged disturbance of innervation will itself bring about changes in the walls of the vessels. When the patients are advanced in years, or even arrived at middle age, the presumption must always be on the side of arterial disease.

Sir Thomas Barlow,³ in his summary of Raynaud's disease, says in part:

In other groups of cases there is the possibility that the principal arteries of a limb may be normal so far as clinical investigation reveals, but that the smaller vessels may become affected with obliterative disease. There still remains a large number of cases (a) in which there are no areas of persistent anesthesia; (b) in which there is no localized atrophy of groups of muscles; (c) in which the symptoms are paroxysmal with a return to the normal state in the interparoxysmal periods; (d) in which there is no marked symmetry; (e) in which the arterial pulse, though narrowed during the attacks, becomes normal between the attacks; (f) in which the subjects are young and with no evidence of degenerative disease to which the title of Raynaud's disease is justly applied.

Hirschfelder⁴ says:

This condition is always associated with sclerosis of the femoral, popliteal or one of the other arteries of the leg, and claudication is simply part of the general arteriosclerosis.

Henry L. Akin⁵ cites a number of cases which bear on this subject.

Kreuzfuchs⁶ describes the symptoms of abdominal arteriosclerosis as paroxysmal pains in the stomach region or elsewhere in the abdomen, especially around the umbilicus, and tympany. The syndrome may be that of arteriosclerotic epigastralgia or true angina abdominis. In differentiation it is important that the attacks occur independently of the intake of food, but are elicited by the factors which experience has shown induce symptoms in heart and vascular affections. Another point is that the abdominal angina is most liable to develop when the patient reclines. It is more common in men than in women, and most of the patients are over 40 or 50 years of age. The diagnosis

is confirmed by discovery of some other arteriosclerosis. A case reported by Brunton and Williams⁷ concerns a patient, aged 63, who suffered from severe pain which came on when he began to walk. In this respect the pain resembled that of angina pectoris, but it differed in its position, as it was most severe in the umbilical region.

Frank F. D. Riekford⁸ of Philadelphia reports two cases.

J. Ramsay Hunt⁹ of New York has discussed the subject and reported a case.

It will be seen that the majority of authors associate transient ischemias with general arteriosclerosis, although some recognize what I believe to be the fact, that there are true localized ischemias dependent on transient localized conditions, and that during the attack there is marked pain in the parts involved.

Volkman's ischemic paralysis belongs to the classification of cases included in this paper. The first stages of this surgically inflicted disease are those of a true ischemia later carried forward to post-mortem rigidity. We should not confuse the symptom group described first by Weir Mitchell, under the title "erythromelalgia," in which the changes are exactly opposite, with those noted in ischemia.

Considering the foregoing and summing up the case, as we must, on a theoretical basis, what rational conclusions may we reach? The subject divides itself into two phases: Is the cause of the positive signs and symptoms dependent on some irritant which acts on some part of the sympathetic nervous system, causing a circumscribed spasticity of the vessels under its control, or is it due to some change in the part involved? To me it appears most probable that both conditions may be and later on are present in all cases. In the most typical of all ischemic pains, angina pectoris, we have added a third condition which may also be present in all cases to a varying degree, namely, a general rise in blood-pressure; whatever the cause, the objective and the subjective phenomena are the same, a lowering of the blood-supply to the part, a lowering of the temperature of the part, because of reduction of the blood-supply, and pain, which in this condition is the call for oxygen, either from the musculature or from the nerves themselves, or from both. Who can say that the pain in an inflamed nerve may not be due to want of oxidation under conditions of infection? It is more than probable that some of these circumscribed ischemias have their origin in the part affected, as in the leg cramps of overexertion from walking, and the pain in the chest from mountain climbing, in which the muscle hunger is made more noticeable by a lessened supply of oxygen. The cramps of the swimmer are probably a circumscribed ischemia, made more certain by the reduced surface temperature. But are these manifest symptoms due wholly to reflex impulse through the centers, to some special internal secretion of the cells involved or to an altered hormone? Here we enter a field which, although much explored, has brought us but little information.

The studies on the effects of the various internal secretions made by such investigators as Pemberton

1. Powell, R. D.: In Allbutt and Rolleston's System of Medicine, vi, 157.

2. Turney, H. G.: In Allbutt and Rolleston's System of Medicine, vii, 84.

3. Barlow: In Allbutt and Rolleston's System of Medicine, vii, 145.

4. Hirschfelder: Disease of the Heart and Aorta, Ed. 2, p. 359.

5. Akin, Henry L.: Gastric Symptoms Consequent on Arteriosclerosis, THE JOURNAL A. M. A., June 5, 1909, p. 1825.

6. Kreuzfuchs, S.: Angina Abdominis, Deutsch. med. Wchnschr., 1910, xxxv, No. 7, abstr., THE JOURNAL A. M. A., March 26, 1910, p. 1094.

7. Brunton, Sir L. and Williams, W. E.: Case of Angina Abdominis, Lancet, London, April 6, 1912; abstr., THE JOURNAL A. M. A., May 4, 1912, p. 1400.

8. Riekford, F. F. D.: Intermittent Spinal Claudication, Am. Jour. Med. Sc., November, 1912.

9. Hunt, J. Ramsay: Lumbar Type of Intermittent Claudication, Am. Jour. Med. Sc., February, 1912; The Ischemic Lumbago, THE JOURNAL A. M. A., Feb. 28, 1914, p. 671.

and Sweet, Dean Lewis, Joseph L. Miller and a number of other investigators, lead to a probable conclusion that an alteration or a modification of these secretions may have a very positive effect in relation to these localized manifestations.

Up to the present no positive explanation has been given and no satisfactory theory advanced as to the cause of gastric ulcer, epilepsy and numerous positive and unpleasant things which confront us in our work. I am not going to assert, because I do not know, that gastric and duodenal ulcer may have their primary focus in a circumscribed ischemia which, recurring, as is the law with these phenomena, permits the digestive fluids to act on a partially devitalized area and further, by the lessened phagocytic powers due to the bloodless condition, permits increased bacterial activity. May not the convulsion of epilepsy be due to a transient, localized, circumscribed ischemia? It has been established beyond question that the pituitary gland in its posterior portion furnishes an active secretion which seems to have a selective action on muscle. This little body which we call gland has really no glandular structure. Its active colloid seems to come from its cellular elements alone. The active parts of the adrenals are not resident in the gland parenchyma, but in its infolded neurons. The correlation between the thyroid, the pancreas, the pituitary and the glands of the upper intestine have been worked out to a considerable extent, but so far as I know, no internal secretion has been isolated from the muscle-cell or from the cells of the axons of the mixed nerves. Yet it is but fair to infer that all the structural anatomic units of the body contribute to the body balance. As it is true in the development period, why not throughout the continuance of life, until the balance is disturbed by disease, or by injury in some other form?

My own belief is that these local manifestations are the effect of a disturbed metabolism, effected through the hormones of the body, and that the change finds its expression in the temporarily altered function of the part. There is such change in the part that a lesser degree of the exciting cause, whatever it may be, tends to a reproduction of the phenomena under constantly reduced resistance until relief is found in treatment, death from intercurrent disease or from such an altered condition of the part that local death ensues.

That the probable source is often local is shown by the prompt relief which is given by strictly local treatment; but that it may be initiated by some central influence is shown by the quick action of drugs which relieve the general tension, and also by the almost certain initiation of the trouble by substances which are toxic.

What influence may be played by the internal secretions on these phenomena has not been fully determined; but in analysis of the cases the influence of the adrenals, the pituitary and the other glands should not be forgotten, or the possibility that other glandular alterations or changes in the cell metabolism may initiate an attack.

Use should be made of those forces at our command which relieve vessel tension: the hot bath best of all, or hot applications over the painful area. In the cases reported, sodium nitrite and amyl nitrite seem to be of service and give prompt relief, if they do not have to be repeated too often. Opium is the ideal remedy; it relieves pain, quiets the nervous system, stimulates the heart and relieves the arterial spasm.

When the symptoms point to rare lesions which may require a serious operation, the possibilities of an ischemic pain should be borne in mind and eliminated by means of all the diagnostic material at command. We too often omit the leukocyte-count, the thermometer, the urinary findings (including the microscope) and the blood-pressure. We should not be in too much of a hurry. A diagnosis should be made if possible before operative measures are resorted to.

ETIOLOGY OF ARTHRITIS DEFORMANS

PRELIMINARY NOTE *

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The common presence of foci of infection, the history of previous infections, the occasional isolation of bacteria from the joints in chronic arthritis and the fixation of complement by certain bacteria in arthritis deformans (Hastings) suggest strongly the infectious character of this disease. The similarity, on the other hand, of the articular changes with those found in the nervous arthropathies, the associated dystrophies of the muscles, skin and nails, the symmetrical onset, the frequent involvement of nerve-trunks and the exacerbations following nervous shocks are commonly cited as indicating a neural origin. The chief objections to the infectious theory of arthritis deformans are that so many cases do not give a typical picture of infection and that no one thus far has isolated any organism from the tissues or joints in a considerable number of consecutive cases. Bacteriologic examination of the blood and of the articular exudate, when obtainable, usually has given negative results. It occurred to me that the lymph-glands draining the involved joints would be a good place to look for organisms, and this has been done in a considerable number of cases.

The glands are excised with strict aseptic precautions under local anesthesia, and cultures made at once, a portion of the gland being reserved for microscopic study. The part used for cultures is dipped into boiling water or passed through a Bunsen flame so as to sterilize the surface, rapidly cooled in sterile salt solution, emulsified in a specially devised sterile air-chamber¹ and inoculations made chiefly into tall columns of ascites-dextrose-agar. In this way organisms have been isolated from glands from all but three of thirty-eight cases of arthritis deformans, the duration of the disease ranging from two to seventeen years. Streptococci have been obtained in fourteen cases; a peculiar, streptococcus-like organism at first completely or partially anaerobic in nine cases; *Bacillus welchii* in nine cases; staphylococci in three; *B. mucosus* in one case, and the gonococcus in one case. In a number of glands several organisms have been found at the same time. In no instance have the streptococci been hemolytic for human blood. They resemble on isolation the usual *Streptococcus viridans* more than hemolytic streptococci, although only three strains produced green on blood-agar plates. There is often a marked difference between the type of organisms found in foci of infection such as the tonsil, and of those found in the glands (or joints). All the streptococcal forms isolated have shown

* From the Memorial Institute for Infectious Diseases.

1. The chamber in which this is done and the method of making the cultures is described in an article to appear in the *Centralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten*.

a marked preference for anaerobic conditions of growth in the primary culture.

Positive results have been repeatedly obtained from glands only 5 mm. in diameter. The number of colonies have ranged from one to two thousand. The virulence of all the strains tested has been slight; when first isolated the streptococci show a marked affinity for joints and muscles and in some cases the lesions would parallel closely the condition found in the patient from whom the strain was isolated.

In some cases the same organism has been isolated at the same time from more or less widely separated regions, as epitrochlear and femoral glands, from gland and muscle or from gland, joint-fluid or joint capsule (six cases). Often the size of the gland draining the joints is apparently proportional to the degree of articular involvement. There is often great sensitiveness of the patient to injections of killed organisms (autogenous vaccine) isolated from the glands, and marked improvement may follow such injection. These facts, in conjunction with the affinity of the organisms for joints and muscles of dogs and rabbits after intravenous injections, would seem to leave little doubt that the bacteria found in the glands draining the joints in arthritis deformans are the actual cause of the disease. The full significance, however, of the presence of *B. welchii* in both glands and joints is not yet clear.

Microscopic sections of atrophic and often tender muscles and the thickened articular capsule in a number of these cases have shown a marked thickening and not infrequently a complete plugging of the blood-vessels, apparently not the result of organized thrombi but rather of a primary endothelial proliferation. Bacteria have been found in these areas of endothelial proliferation. In rabbits the exudate in the joints after intravenous injection and in the abdominal cavity after intraperitoneal injection usually shows a preponderance of endothelial cells. For these reasons the changes observed in the blood-vessels about the infected joints may be regarded as primary rather than secondary, and it would seem as if in arthritis deformans the micro-organisms are taken up from the circulation by the endothelial cells which proliferate freely so that eventually the blood-supply is reduced or cut off, in consequence of which there result areas of lowered oxygen tension, diminished nutrition and atrophy. Such conditions would favor the growth of organisms which on isolation are sensitive to oxygen. Clumps of bacteria, some of which have been found to be alive, have been observed within thick layers of old fibrous tissue in the capsule of joints in which there was no sign of recent inflammatory reaction. It may be recalled that Axhausen was able to produce the gross and microscopic changes peculiar to arthritis deformans by ligating the blood-vessels supplying the structure of certain joints in dogs.

The details of these experiments will appear in the *Journal of Infectious Diseases*.

I wish to express my appreciation to Dr. Frank Billings for the opportunity to study many patients under his care, and to the resident and attending staffs of the Presbyterian and Cook County hospitals and to the other physicians for their cooperation.

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FREE TRANSPLANTATION OF BONE INTO THE PHALANGES*

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In general, the small bones of the hand are subjected to the same diseases as are the larger bones of the body. Thus, we see acute and chronic osteomyelitis of the suppurative as well as of the tuberculous type; syphilis, especially in children, and tumors both benign and malignant. Any of these conditions may cause partial or complete destruction of the bone, and the resulting deformity and disturbance in function of the fingers may be of considerable importance. If, however, the patients are operated on in time and the defects remedied by some plastic method, the deformity can be lessened and a considerable amount of function maintained.

Various methods have been adopted to accomplish this purpose. The first methods consisted of using such materials as glass, ivory and metals to replace the removed piece of bone. In some the results have been good; but here as in other cases in which a foreign body is introduced into the tissues, there are many failures. Many varieties of bone transplants such as decalcified bone, dead bone from the same or different species, and living bone from the same or different species or individual have all been employed with varying degrees of success. The use of pieces of living bone from the same individual have proved to be the most satisfactory, especially if they are covered with periosteum.

Carl Timann¹ reports several cases of tuberculous osteomyelitis of the phalanges in which operation was performed by Mueller, who employed the following method: He first removed the diseased portion of the phalanx with its periosteum and then transplanted into the defect a piece of ulna which had its periosteum attached. He emphasized that in children it is important to have the transplanted bone longer than the excised portion. He was able to observe his cases from two months to two years after operation, and in six out of eight cases obtained good results. In one of his cases a successful transplant was made into the middle phalanx of the finger with good functional result, which is more difficult to obtain than in the basal phalanx.

The next important report is that of Schmieden,² working in Bier's clinic. He used practically the same method as Mueller with the exception that he took a piece of periosteal-covered bone from the tibia for his grafting material. He advocates the use of an extension apparatus for about fourteen days after the transplantation has been accomplished. He also advises that the periosteum extend beyond the edges of the transplant so that it may be more easily sewed in place. Iodoform powder is sprinkled into the wound. Schmieden calls attention to the inadvisability of doing plastic bone work in cases of general constitutional tuberculosis on account of the poor resistance of the patients. In one of his cases he first used a piece of tibia and then a piece of ox-bone without success. In a case of substitution in the basal phalanx of the big toe a tibia graft was successful. The insertion of a piece of ivory into the basal

* From Division of Surgery, Leland Stanford Junior University Department of Medicine.

1. Timann, Carl: Die Behandlung der Spina ventosa mittelst freier Autoplastik, Beitr. z. klin. Chir., 1902, xxxvi, 189.

2. Schmieden: Ueber plastischen Knochenersatz bei der Heilung der Spina ventosa und über der Enderfolge, Deutsch. Ztschr. f. Chir., 1904, lxxv, 302.

A Point of View.—The doctor sees all the weakness of mankind, the lawyer all the wickedness, the theologian all the stupidity.—Schopenhauer.

phalanx of the third finger failed, on account of recurring tuberculosis, the foreign body being thrown off. In another case he used macerated animal bone with good result. Although the results in his cases are not very satisfactory, they at least show the possibilities along this line. Although but few cases have been reported since that time, it is probable that there are many cases which have not been recorded.

Another method has been suggested by Bardenheuer in which a split phalanx or metacarpal is utilized according to a special technic.

PREVIOUS REPORTS OF CASES

CASE 1.—Thiel³ reports a case from Bardenheuer's clinic as follows: A girl aged 12 showed a spina ventosa of the middle phalanx of the right index-finger which did not improve under conservative treatment but progressed to fistula formation. June 9, 1896, under ether anesthesia, after the application of an Esmarch bandage, an incision was made from the middle of the end phalanx to 1 cm. above the metacarpophalangeal joint. The fistula tract was excised and the entire diseased phalanx was removed; next the tendons were loosened up and the tissues surrounding the head of the first phalanx were cleared away. A wire was inserted through the phalanx near its end, after which a longitudinal piece was cut away from the side, leaving a small bridge of bone in the region of the wire. With the wire as an axis, this piece of bone was then turned over to occupy the gap left by the removal of the middle phalanx. The transplant was anchored to the terminal phalanx by means of a piece of wire. At the end of four weeks ankylosis took place at the first interphalangeal joint, but there was motion at the end joint and a good cosmetic result was obtained.

CASE 2.—Another case is reported by Stern⁴ of a boy aged 4 with spina ventosa of the first phalanx of the right thumb. The child previously had a tuberculosis of other bones, and the phalanx of the thumb had been curetted. At the time of operation the thumb was swollen, red, and a fistula extended down to the bone. Nov. 16, 1897, an operation was performed in which the procedure was practically the same as employed in the preceding case, except that the incision was extended down to the first metacarpal and a part of that bone was transplanted. December 3, eighteen days after the operation, passive and active motion were begun and massage was given. An early good result was reported but the later course of the case was not given.

Recently another method has been presented which makes use of the substitution of the whole phalanx of the toe for a diseased phalanx of the finger.

CASE 3.—The first of these cases was reported by Wolff⁵ in 1909. His patient was suffering from a spina ventosa of the basal phalanx of the fourth finger, which caused a considerable interference of motion. Under ether narcosis he removed the entire phalanx with some of the diseased tissue. He put in place of the removed phalanx the first phalanx of the second toe of the right foot, sewing it in with catgut. Into the defect of the foot he inserted a piece of cartilage from the sixth rib. At the end of one week he began both passive and active motion. He reported a useful joint after a lapse of one year and eight months.

CASE 4.—W. Goebel⁶ reports a case of enchondroma of the first and second phalanges of the left fourth finger in a boy aged 16, in which he carried out the following procedure: He removed the entire first phalanx and substituted a phalanx

with its periosteum from the second toe. The defect in the toe was filled with a piece of cartilage from the sixth rib. The day after the operation he began systematic motion. Five weeks later he removed with curet the rest of the enchondroma, which had involved the other two phalanges. The end-result was fairly good except that the patient could not completely close the fist. Goebel calls attention to the fact that function seems to exert some influence on the success of the transplantation, and he emphasizes the importance of beginning movements as early as possible.

Shortly following Goebel's article, R. Sievers⁷ reported a case of cystic sarcoma of the middle phalanx of the left ring-finger in which he used a method similar to that described by Goebel. Under local anesthesia the basal phalanx of the fourth left toe was substituted for the diseased phalanx of the finger, and the defect in the toe was filled with a piece from the tibia. He began early motion and obtained good functional and fairly good cosmetic result, although there was partial inability to extend and flex the fingers.

The question naturally arises as to the permanency of entire phalanx transplants which are not directly in contact with periosteal free bone. Murphy⁸ reports the entire disappearance within fourteen months of a phalanx which he had transplanted to restore the bridge of the nose. This he ascribes to the absence of direct contact of bone with bone. In Goebel's case after the lapse of one year, and in Wolff's case after one year and eight months no evidence of degeneration in the transplanted phalanx was noticed. It is possible that, as Goebel has stated, the influence of function is the determining factor in the latter transplantations, a factor which was entirely lacking in Murphy's case.

The removal of the phalanx from the toe does not disturb the function of the foot; but it is advisable to make use of the second or fourth toe.

Through the courtesy of Professor Stillman, I have had the privilege of operating in two cases of diseased phalanges that appeared for treatment in the surgical clinic of the Stanford University medical school.

REPORT OF AUTHOR'S CASES

CASE 1.—D. G., woman aged 23, came to the clinic Sept. 11, 1912, complaining of a swollen and painful left ring-finger. There was no family or personal history of tuberculosis and no history or evidence of syphilis either congenital or acquired. On examination there was a swelling that involved the entire first phalanx and part of the second. Motion of the interphalangeal joints was painful and restricted. Pressure over the basal phalanx caused pain. The Wassermann test and the von Pirquet reaction were negative. Roentgenoscopy revealed an involvement of the first phalanx which was probably tuberculosis. The patient was given the routine treatment for such conditions. She was advised to remain as much as possible in the fresh air and to take good nourishing food. A removable splint was applied to the hand so as to keep the part at rest and at the same time to allow for exposure to the sunlight. The Bier bandage was applied daily and the patient was given potassium iodid at the same time. A regular course of tuberculin injections was also given. The application of a 10 per cent. pyrogallol salve was tried, but it produced such severe blistering that it had to be discontinued. After six months of treatment no improvement in the patient's condition was observed; in fact, as shown by the roentgenogram, the disease had extended through the periosteum (Fig. 1).

Operation.—March 9, 1913, under ether anesthesia, an incision was made on the side of the basal phalanx just below the dorsal surface down to the membranous tendon of the extensor

3. Thiel: Osteoplastischer Ersatz einer Phalanx nach Exartikulation derselben wegen Spina ventosa. *Centralbl. f. Chir.*, 1896, xxiii, 833.

4. Stern, C.: Ersatz einer exartikulierten Phalanx durch Osteoplastik. *Centralbl. f. Chir.*, 1897, xxiv, 178.

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communis digitorum. The latter was retracted dorsally and the periosteum was separated from the bone. This diseased bone, a part of the healthy bone and the involved parts of the sheaths of the flexor tendons were removed. Next, a piece of bone from the tibia with its periosteum was inserted into the gap in the phalanx. (In removing the tibia graft it is

tional result was such that after three months both flexion and extension were almost normal. Aside from a slight bend the finger appeared practically normal (Fig. 10). No definite diagnosis of tuberculous could be made in this case as the microscopic examination of the removed tissue showed nothing but granulation tissue.

A short study of the roentgenograms may prove of interest. Here we have two cases, one in a child of 3 in the active growing period, and the other in a young woman of 23 who has just passed the time of active growth. As one would expect and as is demonstrated by the roentgenograms, the rapidity of bone regeneration is greater in the younger of the two persons (Figs. 3 and 8). One must take into consideration that the process was more advanced in the older patient and that it was necessary to remove more of the periosteum; but even if there had been an equal involvement of bone and periosteum in the two cases, the regeneration would still be more rapid in the younger. Roentgenograms were taken at intervals of about two weeks from the operation in order to determine the part that the original phalanx, the remaining periosteum and the transplanted piece of tibia with its periosteum played in the regenerative process. The most striking fact is the inactive part that the transplant seems to take in the regeneration. This is best made out in Case 1, as at no time is there any evidence of sprouting of bone from its surface or increase in the thickness of the graft. It is probable, however, that the graft has remained



Fig. 1.—Condition of finger in Case 1 before operation, showing outline of the swelling and extension of the disease through the periosteum.



Fig. 2.—Case 1, two weeks after operation.

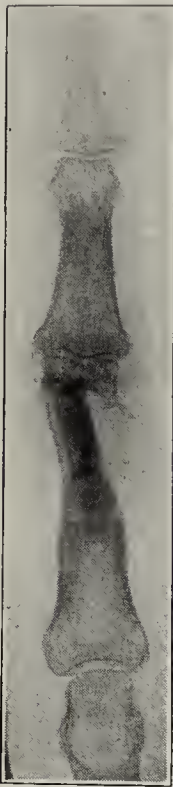


Fig. 3.—Case 1, three months after operation. Increase of periosteal growth. Notice the lack of growth at the distal segment.

advisable to use a new set of instruments so as to eliminate the chances of transferring the original infection to the healthy bone.) The removed piece of the tibia was slightly longer than the removed part of the phalanx, but this is not advisable except in growing persons. No attempt was made to remove any blood or to check any slight bleeding, as the blood stimulates the regenerative properties of bone. The periosteum was approximated with interrupted catgut sutures, as were the other layers and the skin. Extension was applied to the finger for three weeks, and at the end of five weeks both active and passive motion were commenced. The cosmetic result was very good (Fig. 4), but owing to the limited amount of flexion the function is poor, which is possibly due to the late institution of motion, the extensive involvement of the tendon sheaths and the fact that the transplant was too long.

CASE 2.—A. L., boy aged 3, was brought to the clinic by the mother, who stated that he fell a few days previously and hurt his finger. There was no family or personal history of tuberculosis. Examination showed a spindle-shaped swelling of the third finger of the left hand, and pressure over the swollen part caused pain. Motion both passive and active was restricted and painful. Roentgenoscopy revealed a rarefaction at the distal end of the first phalanx of the third finger. The Wassermann reaction was negative. The finger was put into a splint to keep it at rest, the Bier bandage was applied daily, and potassium iodid was given internally. After one and one-half months' treatment the Roentgen ray showed a progression of the lesion, and an operation was advised (Fig. 6).

Operation.—Aug. 4, 1913, under ether anesthesia a similar method to that described in Case 1 was carried out. The finger was kept in extension for three weeks, and one week later both passive and active motion were started. The func-



Fig. 4.—Result in Case 1 four months after operation. Compare with Figure 1, which shows the outline of the finger before operation.

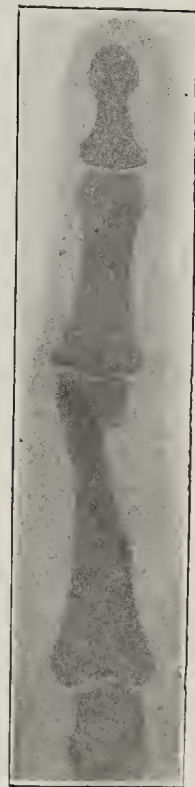


Fig. 5.—Case 1, eight months after operation. Welding of transplant with the phalanx.

alive since the density does not seem to alter at any stage. In Case 2 there is considerable evidence that the remaining periosteum takes an active part in the regeneration, as the new bone is most marked under the peri-

osteum (Fig. 8). In Case 1 (Fig. 3) one sees that at the place where the proximal segment of the original phalanx joins the transplant there is growth of bone along the edges, while the central area remains free. This must be interpreted as growth from the periosteum or from that part of the cortex immediately beneath the periosteum. There is very little bone regeneration from the small distal segment of the original phalanx. It is

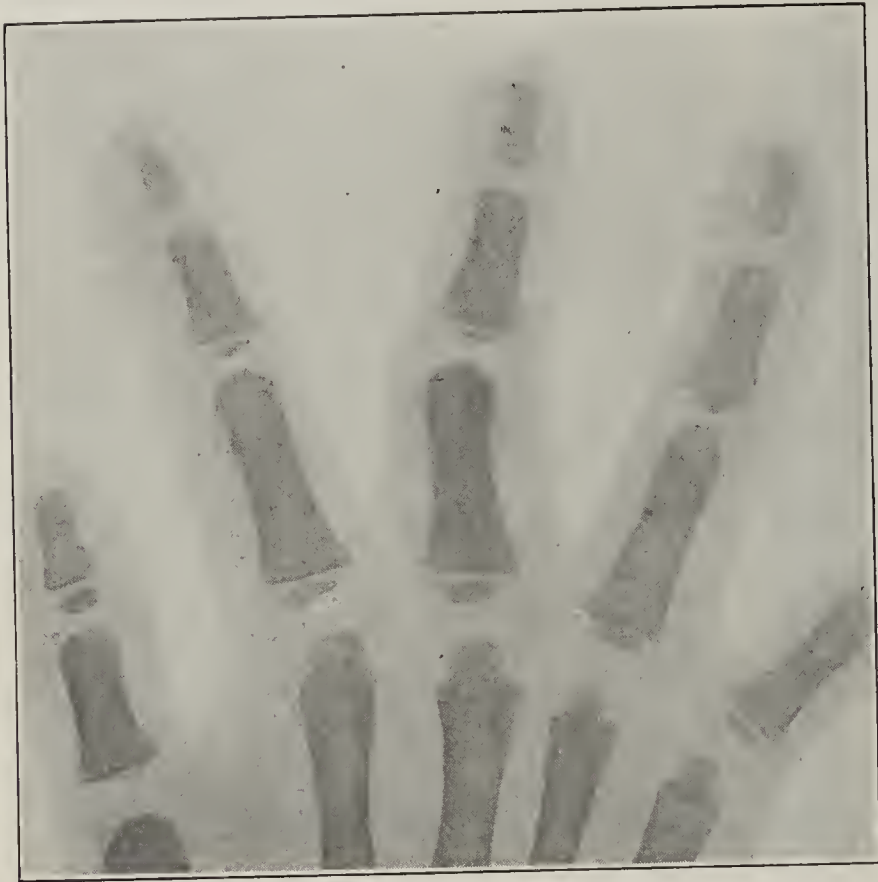


Fig. 6.—Case 2 before operation, showing involvement of distal end of the first phalanx of the third finger.

possible that this is due to the fact that there was considerable disturbance to the nutrition of this part as well as the periosteum; but it shows that there must be other factors present than cortical bone in order to have regeneration (Figs. 3 and 8). The later plates (Figs. 5 and 9) show the gradual welding of the transplant with the original bone and restoration of the symmetry of the phalanx.

The study of regenerative processes in bone by means of the Roentgen ray might lead one to erroneous conclusions. It must be remembered that the Roentgen ray does not show periosteum that is free of calcareous deposit or very young bone, and in making deductions from the roentgenograms we must bear these facts in mind. We must rely on the microscopic preparations for the more accurate knowledge of the early changes that take place in cases of transplantation.

The question arises as to which is the preferable method of those enumerated. The number of reported cases is too few to decide that matter at present, but it

seems that under certain conditions each has its application. As to the ease of the operation, the exponents of each make the same claim for their respective method. To me it seems that the removal of the whole phalanx and the substitution of another is a much more formidable procedure than a partial resection. It does not appear advisable to disturb the normal joint if it can be avoided, although the results obtained in the reported cases seem to indicate that it makes but little difference. In the case of a very young person the transplantation of a whole phalanx would raise the question whether or not this phalanx would continue to grow longer after it had been transplanted. The normal length of the phalanx of the toe is less than that of the finger; consequently if it did grow to its normal length, would there still be the stimulus for additional growth so as to equal the normal length of the finger phalanx? This also brings up the question of the transplantability of the epiphysis, a subject that has not up to the present been fully and satisfactorily investigated. It is to be hoped that further reports may add something to this very interesting side of the question. It certainly would be safer in a very young person to allow the epiphysis to remain intact and to make use of a small transplant instead of a whole phalanx; but if the epiphysis is destroyed, it might be better to try a whole phalangeal transplantation. The latter method would be indicated in case of tumors, especially if these tend toward malignancy.

From the reports of other cases a more definite conclusion can be formed as to which method is preferable, and answers to some of the problems of bone transplantation supplied.

I wish to express my thanks to Professor Stillman for the privilege of operating in these cases and reporting them.

210 Post Street.

Duty of a City as to Infectious Diseases.—The city isolates cases of contagious disease for the protection of the general public, not primarily for the sake of the patient. Adequate provision for isolation is therefore properly a charge on all the city. Unless the city stands ready to offer hospitalization, it forces the patient to pay for

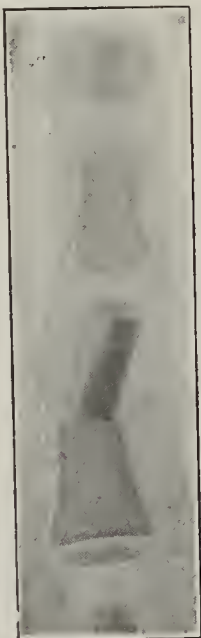


Fig. 7.—Case 2, one week after operation.



Fig. 8.—Case 2, one month after operation, showing periosteal bone growth.



Fig. 9.—Case 2, three months after operation.

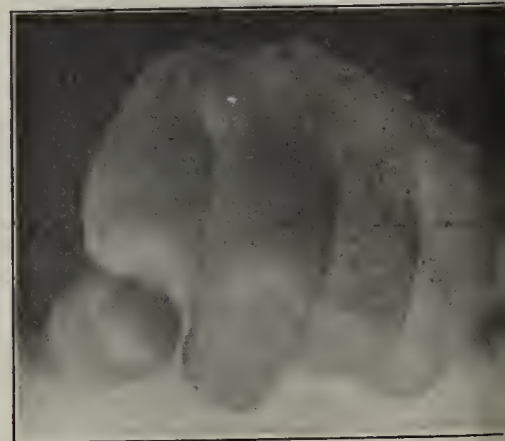


Fig. 10.—Flexion in Case 2 four months after operation.

the protection of the public. In effect, it adds a fine to misfortune, and adds it especially in those families in which the misfortune alone rises to the dignity of a calamity. The duty of the city is plain. It must provide adequate hospital accommodations for at least the more severe contagious diseases.—*Bulletin Chicago School of Sanitary Instruction.*

THE TONGUE AND UPPER ALIMENTARY
TRACT IN PELLAGRA *THOMPSON FRAZER, M.S., M.D.
ASHEVILLE, N. C.

The diagnosis of pellagra is not infrequently fraught with difficulty for two reasons: In the first place, the disease is remarkable for its behavior with reference to seasonal variations, and the remission or decrease of symptoms during the colder months of the year is very apt to lead one astray. In the second place, pellagra is very irregular in its manifestations; it is a long-drawn-out disease, as a rule, requiring months or even years for the development of such symptoms as we have been wont to consider characteristic. When the pellagrous triad of dermatitis, nervousness and diarrhea is present, the diagnosis is of course readily made; but if the skin changes are slight, with an indefinite history of an eruption, if the nervous symptoms are not prominent, and if there has been but moderate diarrhea or perhaps none, the diagnosis may be attended with considerable difficulty. For the symptoms on the part of the various systems—the skin, the nervous system, and the gastro-intestinal tract—do not usually develop at the same time, and the very name of the disease, emphasizing, as it does, one feature alone, is apt to make one base his diagnosis on the least important of all symptoms—the dermatitis. I say “least important,” because a transient sunburn-like erythema may be easily forgotten by the patient, while the subsequent skin changes may be so slight that they may quite readily escape detection by the physician. Again, much valuable time is lost if one’s diagnosis depends on the dermatitis alone, for this symptom is not usually the first to appear.

It is unfortunate that one symptom should have been singled out to designate the disease, and it is important that we learn to recognize other symptoms, which may enable us to diagnose pellagra between “attacks,” or the history of which may lead us to suspect a previous “attack.” In the front rank of such symptoms stands diarrhea. Occurring, commonly, as a part of the spring or summer “attack” and in some instances persisting throughout the year, it should be regarded, in pellagrous areas, with suspicion. Sometimes, however, the most careful questioning will not disclose any previous attacks of looseness of the bowels. I have seen cases in which there was indisputable evidence of pellagra—cases in which there were nervous symptoms of the most pronounced kind, in which there were contractures of the thigh muscles, and in which the skin of the hands and forearms showed trophic changes, such as shininess and pigmentation—I have seen such cases in which diarrhea had either not been present or had been of so mild a nature as entirely to have escaped the memory of the patient.

In the absence of diarrhea, pellagra may still betray itself by other symptoms referable to the gastro-enteric tract, especially in its upper portions; and these symptoms are of significance in that they not uncommonly persist during the colder months, and also because they are among the first to appear, foreshadowing, frequently, both the diarrhea and the dermatitis. The chief subjective symptoms are loss of appetite, “dyspepsia,” pyrosis, and sore mouth.

Loss of appetite is very common. It may be present in the spring, or summer, or fall alone, initiating an attack of pellagra, or it may be almost continuous—though less prominent—throughout the year. There may be diminished appetite for months or even for a year or two before the advent of more characteristic symptoms. In some instances the appetite is capricious, it comes and goes without reference to the seasons. Some pellagrins say that they can eat but that they do not enjoy it—“my food doesn’t taste right” is an expression I have heard many times. Others retain their appetites but are afraid to eat much on account of the discomfort on swallowing, or on account of gastralgia or dyspepsia, although the latter symptoms do not usually bear any relation to the taking of food. One patient with sore mouth and pain on swallowing nevertheless retained her appetite; another, an old man who had suffered for several years with pyrosis and abdominal distention, said that his appetite had never been better. I have had pellagrins say that they could



Fig. 1.—Tongue fissured in the center and bare of epithelium at the margins.

not get enough to eat. As a rule, however, the appetite is diminished during the attack, and frequently is not quite up to normal during the seasonal intermissions.

The symptoms included under the term “dyspepsia” may conveniently be considered here, although they should not, perhaps, be attributed entirely to the upper part of the digestive system. They are nausea, gastric pain, pyrosis, distention and belching. Nausea in some degree is present in most of my cases, usually constituting one of the prodromal symptoms of each recurrent attack. Regurgitation of food is not uncommon and may continue throughout the year. Actual vomiting, in my cases, has taken place only at the outset, with the exception of one case in which it was most persistent.

Some measure of pain or discomfort occurs in practically all cases of pellagra. It may be a severe but transient gastralgia, or it may be more of an aching

* Read at a meeting of the Tri-State Society held at Wilmington, N. C., Feb. 18-19, 1914.

or dragging sensation described as a "misery" or "hurting." In either case it does not seem to depend on the taking of food.

The pyrosis is perhaps the most constant cause of complaint. In some instances it is limited to a single attack, in others it persists with variable intensity for years, constituting one of the most annoying symptoms of the disease. One patient described the sensation as "a ball of fire rolled up in my stomach"; another said: "My stomach acts like it's skinned." Most pellagrins do not find this symptom aggravated by eating; a few, however, think that certain articles, such as vinegar, pork, and greasy substances, do increase the burning.

Distention of the abdomen and belching are frequent complaints; there is often a sensation as of a lump in the stomach. At times there may be difficulty in swallowing, with choking and "smothering" sensations. These are the chief subjective symptoms which the pellagrin sums up as "dyspepsia" or "indigestion." Characteristic as they are, they do not compare in importance with the symptoms referable to the mouth, which give not only subjective, but objective evidence as well, of the presence of pellagra.

The history of a stomatitis occurring in the spring or summer, lasting a week or two, recurring perhaps the following year, is commonly encountered. There

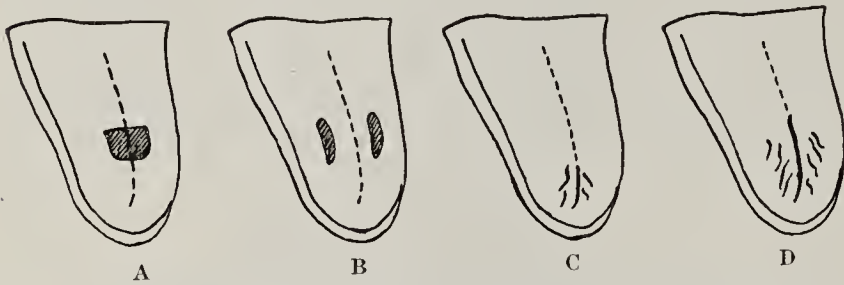


Fig. 2.—Diagrams indicating A, tongue bare of epithelium save for small area in center; B, tongue bare save for two small symmetrical strips; C, slight fissuring on the tip; D, more marked fissuring.

are few who do not remember the sore mouth; or it may be the sore mouth that brings the pellagrin to the physician. If seen at this time the lips are dry and may be cracked; the complaint is made that they burn and that the whole mouth feels as if it were scalded. Eating and drinking are painful. Even before the appearance of the skin erythema there are signs in the mouth which indicate an attack. The whole mucous membrane appears unduly red. There may be aphthae on the gums and on the inside of the cheek. They are more persistent than ordinary aphthae and do not respond as well to treatment with silver nitrate. The gums are tender; in one case there was a history of bleeding gums. While the saliva is usually increased, I have noted excessive secretion in one case only, in which the association of ptyalism and stomatitis with aphthae presented a picture which closely resembled mercurial salivation. The sore mouth does not usually last over two or possibly three weeks and between the attacks there is nothing characteristic about the gums. The tongue, however, affords us much information not only during the outbreak, but also during the less active periods of the disease.

There are several things to be noted about the tongue. If examined just before the outbreak it may present the appearance of a normally coated tongue. Very often, however, a more careful scrutiny will reveal the presence of papillae on the tip and anterior portion of the tongue, peeping through the coat, as it were; this

is the "stippled" tongue, as it has been called. This injection of the papillae is sometimes seen in the intermissions as well. An enlarged tongue is not uncommon. But the characteristic feature of the pellagrous tongue is the shedding of the epithelium so that the organ looks smoother, cleaner and very red.

This shedding of the lingual epithelium takes place in varying degrees. In the beginning it is seen at the tip and sides of the tongue. More marked denudation leaves only a small central coated strip or two narrow symmetrical areas on each side of the long axis of the tongue. When the tongue is completely stripped we have the appearance variously described as the bald, beet, beefy, raw, and cardinal tongue. The shedding of the epithelium is most marked during the outbreak; between attacks it tends to be replaced. I say "tends" because so often the regeneration of the lingual epithelium is incomplete and the tongue presents a neat, well-groomed appearance rather than the coated, somewhat dirty-looking surface which is the normal. The tendency to regeneration is seen most often on the central part of the dorsum, the tip and margins of the tongue often remaining denuded or with but a scanty epithelial covering.

I have said that the tongue of pellagra is very red. Occasionally one sees a tongue—smooth and slimy-looking and undoubtedly pellagrous—which is quite pale. I have seen tongues which had a cyanotic hue.

I have found tremor of the tongue as it is extended to be a quite common symptom, nor is it limited to the attack. In some cases the movements are so irregular that "tremor" does not describe them, different portions of the tongue contracting without any definite program, in the nature of a convulsion. A sharply pointed tongue I have seen in a few instances, but more often, perhaps, one sees a swollen, thick and fissured tongue, while ulcers at the margins occur in a considerable number during the outbreak.

The fissured tongue is a great aid in the diagnosis of pellagra. Fissures may be noticed during the attack, situated along the medial fold and limited to the anterior portion of the tongue, or radiating from this fold in all directions. In my experience those in whom the disease has existed for some time—several years—present the greatest amount of fissuring. These fissures may be longitudinal, extending a considerable part of the length of the tongue, or they may be transverse, crossing the central fold and at right angles to the long axis of the tongue. They may be superficial, few in number and limited to the central portion of the tongue, or they may be so numerous and extensive that they corrugate the surface of the tongue so that it resembles the skin of the scrotum when cold.

Now I do not think that every tongue with fissures is a pellagrous tongue. Since I have been paying special attention to the appearance of tongues I have noted many with fissures of various degrees of size and depth which I could not with the greatest stretch of the imagination attribute to pellagra. But I do maintain that one should always be on the lookout for the fissured tongue and that the association of fissure with enlargement, tremulousness, and partial or complete epithelial denudation of the tongue is sufficient to justify one in suspecting pellagra as the most probable cause of the condition.

I have endeavored, in this brief paper, to present what have seemed to me the most important symptoms on the

part of the upper alimentary tract. Their significance lies in the fact that many of them endure throughout the year; and if due attention be paid to them one may, not infrequently, hazard a diagnosis of pellagra in the absence of what are usually considered more characteristic symptoms.

THE BACILLUS AEROGENES CAPSULATUS IN BLOOD-CULTURES WITH RECOVERIES *

ALBERT HOWARD BAUGHER, M.D.
CHICAGO

The purpose of this paper is to report four cases in which the *Bacillus aerogenes capsulatus* was obtained in blood-culture during life, and to call attention to this means as a valuable method of diagnosis. Since the discovery of this organism there seems to have been no doubt that it invaded the general blood-stream at or shortly before death, as is evidenced by its generalized presence at necropsy in patients dying from this infection. Welch and Nuttall¹ made this observation and called attention to it in their early report. Notwithstanding this report and the suggestion that it carried, only a few of the many observers of this organism have reported positive blood-cultures due to it, and so far as I have been able to find, there has been no recovery reported, when a positive culture was obtained.

In my series of four cases, three patients recovered and one died; but in no instance did operation or death occur prior to the reporting of the positive blood-culture.

In 1896 Flexner,² in his study on terminal infections, said that there was evidence of the distribution of the bacilli within the body during life, but that he was reluctant to admit of a general invasion of the blood and tissue before death, as the maintenance of life for any length of time after the organism had established itself in the blood and produced gas there was probably impossible; but Gwyn,³ in 1899, having repeatedly recovered the organisms from a patient during a space of thirteen days, thought that it was impossible for gas to be formed in the circulating blood, and Cole,⁴ in 1902, confirmed this observation. These data seemed to prove quite conclusively that gas was not formed in large quantities, at least during life, and this conclusion has not yet been disproved so far as I am aware.

Following is a brief review of the instances recorded in which positive blood-cultures have been obtained:

Gwyn,³ in 1899, recovered this organism on three different occasions from the blood of a patient with a clinical diagnosis of chorea insaniens. The first culture was obtained thirteen days before death, and in the third the streptococcus was associated. Acute endocarditis was now added to the diagnosis.

Cole,⁴ in 1902, obtained the organism from the blood three hours before the death of a man who had had both legs crushed two days previously. He used 8 c.c. of blood, 1 c.c. of which was injected into the ear-vein of a rabbit, and the remainder divided equally between twelve tubes of litmus milk. Both the rabbit and the culture-mediums gave a positive result.

Schiedler,⁵ in 1909, attempted a culture in a post-partum case, but with negative results both aerobically and anaerobically.

Rhea and Young,⁶ in 1909, reported two cases of infection due to *B. aerogenes capsulatus* following abortions, one of which gave a positive blood-culture eighteen hours before death.

Libman⁷ attempted to cultivate this organism from the blood of a patient with gall-bladder infection, both by cultures and by inoculating a rabbit, but with negative results.

Hewitt,⁸ in 1911, reported ten cases of gas bacillus infection in which he obtained four positive blood-cultures; but he does not state the time at which these cultures were taken in regard to the time of death of the patients, all four of whom died, one twelve hours after admission, the second fifty-eight, the third seventy-two, and the fourth ninety-six hours. Since it is generally conceded that the incubation period of this organism is forty-eight hours, none of his cultures could have been taken more than two days before death, and it is more probable that they were taken on the day of death.

The essential facts of the cases which I wish to report are as follows:

CASE 1.—Man, aged 51, contractor, was seen in consultation by Dr. L. L. McArthur, on whose service he entered the hospital, May 16, 1912. He took sick rather suddenly three weeks previously with severe cramp-like pains in the region of the gall-bladder. The pain radiated to the right shoulder and downward. This attack lasted two hours. There was no nausea or vomiting at this time or in the subsequent history. The patient does not know whether he had rise of temperature or not, but says that he was distinctly tender over the gall-bladder and in the epigastrium. This tenderness never disappeared entirely, but there were no more severe or sudden attacks or pain. He gave no history of constipation, jaundice, venereal disease or other illness.

When the patient entered the hospital the temperature was 103.4, pulse 96, and respiration 28. Tenderness was noted over a palpable mass in the region of the gall-bladder and epigastrium, with some rigidity. The abdomen was slightly distended. The leukocyte count was 8,050.

The patient was kept under observation for a week. At times during this period he was irrational and delirious, and his temperature oscillated between 99 and 102.4. He did not experience much pain but was restless. His mental condition in regard to his own feelings was that of a state of "well-being." A slight jaundice developed during this week of observation, and for this reason the blood-culture was suggested. The stools were normal except that blood was found on one examination. The leukocyte-count rose to 12,500, with 85 per cent. polymorphonuclears. The blood-culture was made five days before the operation and yielded the *B. aerogenes capsulatus* and the *B. mucosus capsulatus*. The operation revealed a ruptured gall-bladder with about two-thirds of the fundus gangrenous, a large abscess beneath the liver containing thick, yellowish, bile-stained pus, and two pea-sized gall-stones. The pus had a very foul odor and smears revealed the same organisms as found in the blood, and in addition a small Gram-negative bacillus, a fusiform bacillus and cocci. The patient recovered.

CASE 2.—Man, aged 40, American, was seen in consultation with Dr. Edwin Tuteur, Feb. 2, 1913, at Henrotin Hospital, at which time a positive blood-culture was obtained. The

5. Schiedler, F.: Monatschr. f. Geburtsh. u. Gynäk., 1909, xxx, 714.

6. Young, E. B., and Rhea, Z. J.: Boston Med. and Surg. Jour., 1909, clx, 401.

7. Libman, F.: Bull. Johns Hopkins Hosp., 1906, xvii, 215.

8. Hewitt, W. R.: Bacillus Aerogenes Capsulatus Infections, with Report of Ten Cases, THE JOURNAL A. M. A., April 1, 1911, p. 959.

* From the Pathological Laboratory of St. Luke's Hospital.

* Read before the Chicago Pathological Society, Feb. 9, 1914.

1. Welch and Nuttall: Bull. Johns Hopkins Hosp., 1892, iii, 81.

2. Flexner, Simon: Jour. Exper. Med., 1896, i, 559.

3. Gwyn, N. B.: Bull. Johns Hopkins Hosp., 1899, x, 134.

4. Cole: Bull. Johns Hopkins Hosp., 1902, xiii, 234.

patient had been sick for five weeks with high fever, and six days previously had been operated on for cholecystitis, and drainage established. The drainage-tube was removed on the second day following the operation and the wound was allowed to close, although the patient's condition was growing more serious all the time. The report of the positive culture was given at the end of twenty hours. On February 4, I was given permission to probe the wound, at which time a serous discharge, pus-cells, bile and the *B. aerogenes capsulatus*, along with a few other organisms, were found. The patient continued to grow worse, although drainage was reestablished in the wound. From February 18 to February 21 the patient experienced severe griping pains in the bowels, and passed large yellow stools with some blood and mucus.

February 18, Dr. A. E. Halstead saw the patient in consultation with Dr. Tuteur and Dr. McQuinn and advised a second laparotomy. February 21, the patient was transferred to St. Luke's Hospital where he was operated on by Dr. Halstead. February 22. Many adhesions were found in the region of the gall-bladder, and the anterior wall of the stomach and pylorus was greatly thickened. The scar and fistula were removed and drainage established. The discharge was very free following the operation, and on February 28 was slightly acid, but did not give the silver nitrate test for hydrochloric acid. A later test, February 26, however, showed the discharge to be 10 degrees acid. February 27, it was 18 degrees

allowed a large amount of pus to escape. The leukocyte count previous to operation ranged around 16,000, with 90 per cent. polymorphonuclears. The patient recovered.

The patient in giving his history stated that he had had three operations previous to the curetting mentioned above, the first being two and a half years before to drain an appendiceal abscess, another to remove the appendix, and the third to remove the remaining stump of the appendix.

CASE 4.—Man, Italian, aged 20; on the night of May 26, was shot with a rifle through the lower end of the thigh, causing a compound fracture of the femur. The wound was dressed by a physician who put a through-and-through drain in the channel made by the bullet. Forty-eight hours after the accident the patient was admitted to the service of Dr. L. L. McArthur at St. Luke's Hospital. Immediate amputation was advised notwithstanding the great sepsis of the patient. This was refused. The condition of the patient aside from being very septic when admitted was also very dirty and unkempt. Fecal matter was found on the dressings and on his clothing. The wound was exuding a bloody serum, and crepitation could be elicited around it. The leg was beginning to become gangrenous. The dressing and drainage material had not been changed since being applied. Ten hours after admission blood was taken for a culture, of which 5 c.c. gave a luxuriant growth of the *B. aerogenes capsulatus* by the following morning.



Fig. 1.—*Bacillus aerogenes capsulatus* from bouillon blood-culture; $\times 1,200$.

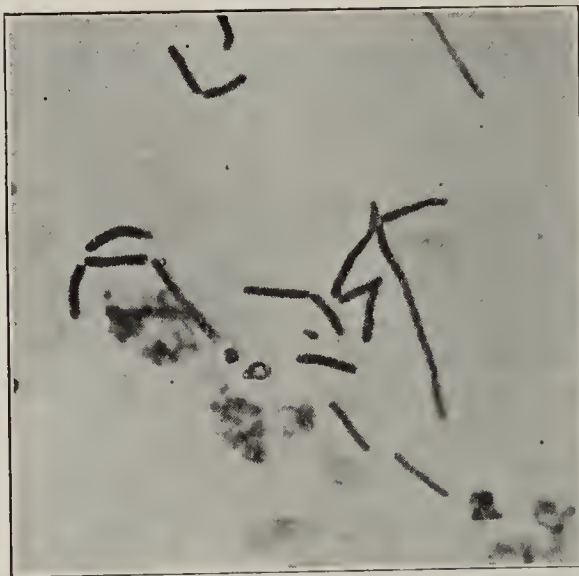


Fig. 2.—*Bacillus aerogenes capsulatus* from pus of fistula, Case 2; $\times 1,200$.

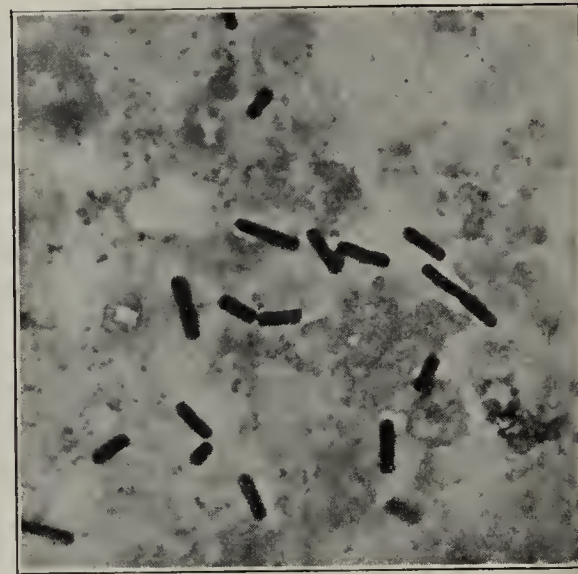


Fig. 3.—*Bacillus aerogenes capsulatus* from heart's blood of rabbit; $\times 1,200$.

acid and a white precipitate formed on adding silver nitrate. The diagnosis of a gastric fistula was now made, and the *B. aerogenes capsulatus* was still present in smears made from the discharge. The patient presented a hazardous condition for some time, but recovered. The fistula, though nearly closed, was present when the patient was discharged, March 26, 1913.

CASE 3.—Man, aged 30, was admitted to the service of Dr. Frankenstein, May 15, 1913, complaining of sharp, cutting and continuous pain in the right chest. The pain was such that he could not lie down with comfort. The present trouble started four weeks before, on which date in another hospital he had a fistula leading to the gall-bladder region curetted. On the same day he started for Chicago, but became violently sick on the train and had to stop in a small town for one week before he was able to leave, and on reaching here was treated for two weeks for pneumonia before entering the hospital.

A fluoroscopic examination by Dr. Case at St. Luke's Hospital, May 16, in standing position, showed the right chest to be filled with fluid to within $1\frac{1}{2}$ inches of the apex of the cavity. Aspiration, however, on the same day did not permit any fluid to escape, but on the end of the trocar was a drop of bloody pus, which in smears revealed a small Gram-negative, a fusiform bacillus, and the *B. aerogenes capsulatus*. May 17, a positive blood-culture was obtained which was reported the following day. Exactly two days after the blood was taken for the culture, a rib was resected, which

In this case the blood was taken twenty-six hours before the patient died and was reported on twelve hours prior to death, on which day the leg was definitely gangrenous, gas could be expelled from the wound in large quantities, and distinct crepitation could be felt over the entire leg, thigh, and from the abdomen to the navel. The patient was not jaundiced before death, but immediately afterward a slight hemolytic tint was observed on the skin. The sclerae were clear. Death occurred three and a half days after the injury.

Each blood-culture was made from about 10 c.c. of blood, which was divided about equally between two flasks, each containing approximately 50 c.c. of broth. Both plain and glucose broth were used. In two cases I failed to receive a growth except in the flasks containing glucose. In Case 4, in order to make more certain as to whether or not the blood contained the organisms at the time of examination, 5 c.c. of blood were defibrinated, and 3 c.c. of the defibrinated serum and corpuscles injected into the ear-vein of a rabbit. The rabbit showed the characteristic findings due to this organism at the same time that the blood-culture was reported.

The cultures were pure, except in the instance in which the *B. mucosus capsulatus* was associated. No attempt was made to secure anaerobic conditions other

than that which the depth of the medium afforded. Smears from the bottom of the flasks showed the organisms in small numbers and usually in pairs. A chain was rarely found as is characteristic in pus. Hemolysis occurred in all the flasks that contained the organisms, and in the flasks containing glucose, bubbles of gas were adherent to the sides of the flask, and occasionally they could be seen to rise to the surface of the broth. Capsules were demonstrated with difficulty in the organisms from the flask.

To prove the identity of the bacillus, rabbits were injected in the ear-vein with 3 c.c. of the blood-culture medium from each of the four cultures and killed within a few minutes. They exhibited the typical findings due to the *B. aerogenes capsulatus* after being incubated for eighteen hours. Smears from the various organs and heart's blood demonstrated that the bacillus was encapsulated, as did also the smears from the original pus.

The purpose of this paper is not to prove whether or not this organism is capable of multiplying in the circulating blood, or to call attention to its wide distribution in wounds and other pathologic conditions, but to show that it is possible to demonstrate this organism by means of blood-cultures in severe cases of infection due to it, and yet obtain recovery when proper surgical treatment is instituted.

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ISOLATED DISEASE OF THE SCAPHOID

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A condition described as isolated disease of the scaphoid, or Koehler's disease is occasionally reported. In a recent paper¹ it is stated that only eight cases have

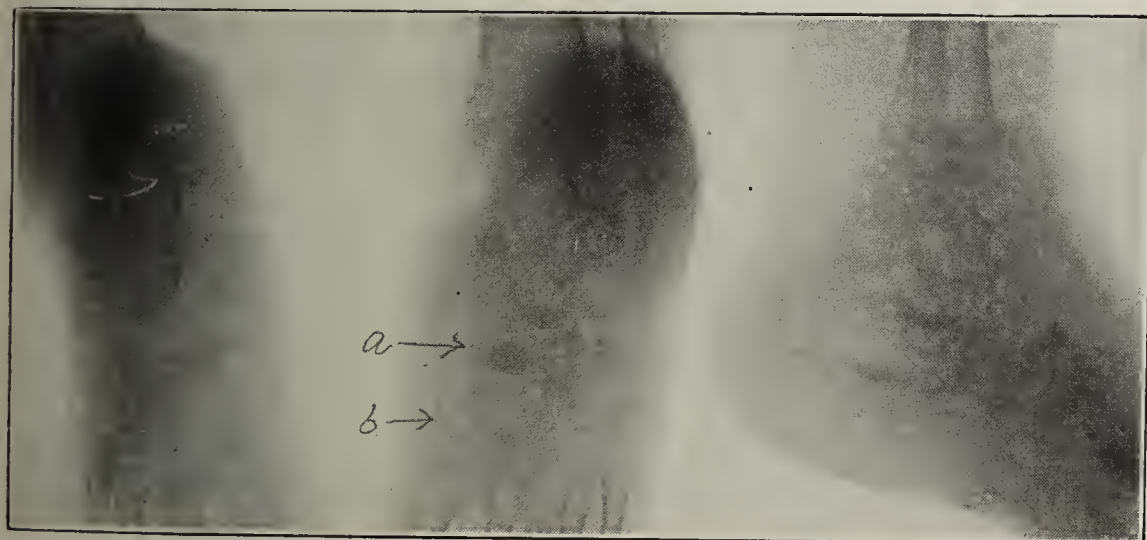


Fig. 1.—Case 1: Note increased density and diminished size of shadow of scaphoid on right (a) compared with left and relative atrophy of the bones adjacent to scaphoid on right (b). Also, dense scaphoid shadow in lateral view.

been described since 1908. Therefore, the following cases, which appear to be true to this type, might well be placed on record.

1. Pfahler, George E.: Isolated Disease of the Scaphoid Bone of the Foot in Children (Koehler's Disease), Surg., Gynec. and Obst., 1913, xvii, 625.

CASE 1.—H. H., girl, aged 2½ years, seen Aug. 7, 1911, began walking at 16 months, she was sick for a month in August, 1910, with fever and swollen glands; a month before examination she slipped while the foot was caught between the bed and the wall; she limped that day and would not walk the next or at any time since.

Examination proved negative except for the right foot, which was swollen; there was no tenderness on the tibia or fibula phalanges or metatarsus; there was moderate tenderness over the tarsus, especially on the inner side; the foot was held by muscle spasm in moderate equinovagis. In both lateral

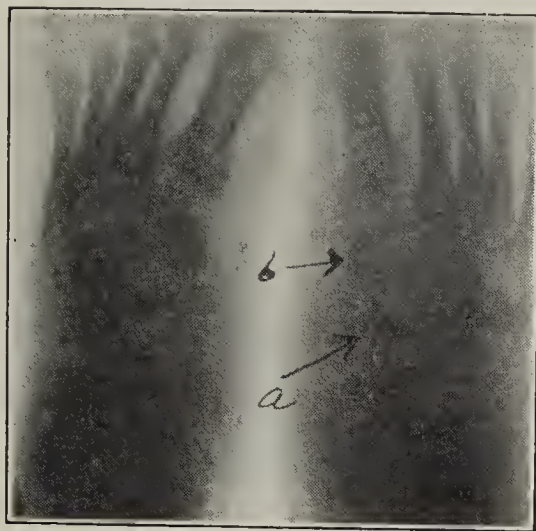


Fig. 2.—Case 2: Note increased density and diminished size of shadow of scaphoid on right (a) compared with left and relative atrophy of the bones adjacent to scaphoid on right (b).



Fig. 3.—Case 2 (four months later than Fig. 2): Note that scaphoid on right is less extensively ossified than on left, and that ossified portion is in two fragments. On the left the tarsal bones have their normal size and density.

and anteroposterior views, roentgenograms (Fig. 1) revealed a dense pearly shadow of the scaphoid with moderate atrophy of the surrounding bones of the tarsus. Roentgenoscopy was otherwise negative.

Plaster of Paris was applied to the foot and lower leg and occasionally renewed. During the first month the symptoms all increased; during the second month the child walked with comfort in the plaster and a roentgenogram taken two months after the first showed less atrophy of the surrounding bones. The appearance of the scaphoid was unchanged except that at the center there was a distinct "punched-out" look. Plasters were continued for two months more and a Whitman plate was worn for a few weeks after the plaster was removed. All symptoms at this time had disappeared, and there has been no relapse in the past two years of walking without support.

CASE 2.—D. T., girl, aged 4, seen Oct. 27, 1913, for several weeks has had moderate tenderness in one foot, which is now slightly swollen and warm. The roentgenogram (Fig. 2) shows moderate retardation of growth and increase in density of the scaphoid in this foot. Examination and history are otherwise negative. This child was treated by Dr. Mitchell, the family physician, in much the same manner as was Patient 1. The foot was supported for a little over two months. All symptoms have disappeared.

Pfahler¹ reviews the theories which have been advanced as to the etiology and pathology of this condition and says:

All authors agree that it is not tubercular. The fact that a distinct sclerosis indicated by the increased density of the ossifying center is present, points to an inflammatory process. It would seem, therefore, that the disease is an osteitis probably of traumatic or rheumatic origin which interferes with the development of the bone.

Both the cases here referred to were highly suggestive of tuberculosis in their external appearance, but both patients have made recoveries almost too prompt and complete to be consistent with that diagnosis. One of the cases had a distinct history of injury; in the other, there was none. One case became worse clinically during the first month of fixation; the other improved rapidly from the start. In one the temperature was consistent with a tuberculous infection during the height of the symptoms; no record of the temperature in the other case is available. My own theory (not yet wholly abandoned) was that we were dealing with a mild tuberculous focus which had reached the stage of healing and sclerosis before the accident broke down the wall of cicatrization and called attention to the foot.

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SPOROTRICHOSIS OF THE EYE*

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AND

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In 1898 Schenck¹ published a report of his studies of an organism that he had discovered in the pus from refractory subcutaneous abscesses of the arm. The patient had scratched the index-finger on a nail, causing a small abscess which was opened. In three weeks an ulcer developed on the back of the hand between the second and third metacarpophalangeal joints. The inflammation traveled up the arm and several abscesses formed.

From two different foci of the disease Schenck obtained and cultivated an organism the characteristics of which were similar to those of many of the yeasts and fungi. Dr. Erwin F. Smith of the U. S. Department of Agriculture tentatively assigned it to the genus *Sporotrichum*.

The pathogenicity of the organism was demonstrated by subcutaneous injections in dogs. Nodules developed containing yellowish-red gelatinous material, and cultures from this and the walls of the abscess gave the characteristic growth of the organism. Inoculation of a white mouse caused death, and the organism was recovered from the local lesion and also from the lungs and liver.

In 1900 Hektoen and Perkins² studied and reported a similar case of refractory subcutaneous abscesses from which an organism was isolated, identical in essential details with the one described by Schenck, which they called *Sporothrix schenkii*. In their case, in a boy of 5, the lesion developed on the index-finger after a blow with a hammer. The denuded area did not heal, the finger became swollen, and in a short time a well-defined, undermined ulcer the size of a dime developed, the floor of which was covered with grayish pus. The lymph-vessels

of the arm enlarged and numerous abscesses formed which healed with difficulty after opening.

Glycerin-agar tubes inoculated with material from the abscesses all developed pure cultures of the organism, which showed after a few days in an incubator at 37° C. (98.6° F.) grayish-white, elevated irregular colonies about the size of a pin-head. Hektoen obtained growth on agar, blood-serum, gelatin, potato, bouillon and vegetable infusions.

The first extra-American case was reported by deBeurmann and Raymond in 1903; since then many cases have been reported, the lesions affecting the subcutaneous tissues, lungs, muscles, tendons and also the mucous membranes, including the conjunctiva, pharynx and larynx. DeBeurmann and Gougerot, with their associates, have called attention to various morphologic and cultural differences in the sporothrix, many of which have since proved to be inconstant.

The following case observed by us, of infection of the eye with sporothrix, is, we think, the second indubitable one of its kind in this country, the other having been reported by Gifford in 1910.

REPORT OF AUTHORS' CASE

History.—C. P. M., a student, had been working in the laboratory with cultures of various strains of sporothrix, and on several occasions small capillary pipets containing emulsion of the organism were broken at a distance of 8 or 10 inches from the face.



Fig. 1.—Ulceration on lower lid.



Fig. 2.—Enlarged follicle and small ulceration on upper lid.

On the evening of July 10, 1913, he noticed a soreness of both eyes, together with photophobia and a sensation as if a foreign body was under the lids. The following morning the lids were slightly swollen, the pain was increased and the surrounding lymph-glands were quite tender on pressure.

July 11, the general condition was good; there was no fever. Leukocyte-count was 9,000. The pain, swelling of the eyelids and photophobia had increased. The conjunctiva of the eyelids of both eyes was reddened and so swollen that the fornix rolled out in a mass when the lower lids were everted. In addition there were present on the palpebral conjunctiva and also on that of the fornices several grayish-yellow, slightly elevated spots varying in size from 0.5 to 3 mm. in diameter from some of which the covering epithelium had been east off so that they seemed like small ulcers. Numerous follicles presented in other portions of the conjunctiva. Secretion was rather scanty, and an examination of a smear made from gentle scraping over the spots and the conjunctiva, stained with alkaline methyl blue, showed no organisms, but numerous pus-cells. The next day scrapings were taken from the shallow ulcers and aerobic and anaerobic cultures were made. Potassium iodid, 10 grains

* From the Memorial Institute for Infectious Diseases.

1. Schenck: Refractory Subcutaneous Abscesses Caused by a Fungus Possibly Related to the Sporotrichia. Bull. Johns Hopkins Hosp., 1898-1899, p. 286.

2. Hektoen, Ludvig, and Perkins, C. F.: Refractory Subcutaneous Abscesses Caused by Sporothrix Schenkii—A New Pathogenic Fungus, Jour. Exper. Med., Oct. 1, 1900, p. 77.

three times daily, was given. The eyes were washed out several times daily with a solution of oxycyanid of mercury, 1:4,000.

July 16, the condition had not improved; there was swelling of the preauricular glands, which were painful on pressure. Because of discomfort from irrigation, the strength of the solution of oxycyanid was reduced to 1:6,000. No growth was obtained in the tubes, which were placed at room temperature (from 18 to 20 C., or 64.4 to 68 F.).

July 17, the condition of the lids was no better; more yellowish spots were seen forming in the conjunctiva. The patient seemed quite sick and had a temperature of 100.5 F. The preauricular, anterior cervical, submaxillary and postauricular glands were somewhat swollen and painful on pressure. The small ulcerated spots on the conjunctiva were treated with tincture of iodine.

July 18, the general condition was worse; the patient had headache and malaise; the temperature was 101; the leukocyte-count was 18,000.

Sporothrix was growing in the tubes, and spores were found in the scrapings from the conjunctiva.

July 19, the general condition was worse and the patient went to bed. Temperature was 102; leukocytes 14,600.

During the night a sudden pain occurred in the left knee on the internal side of the upper end of the tibia; in the morning the limb was very sore, and painful on pressure or motion, but without swelling or redness. On application of the ice-bag after twelve hours this pain disappeared. The swelling of the conjunctiva was somewhat less, and no new spots had appeared. The iodid was increased to 20 grains three times daily.

July 20, the temperature was 99 in the morning, and rose gradually to 101.4 in the afternoon. The ulcers in the conjunctiva were healing.

July 21, in the morning there was pain in the left elbow and wrist and the lower end of the right femur, which was very sharp especially on motion and pressure. The temperature was 100.6 in the afternoon.

July 22, the pains were still persistent. The temperature was 101 in the afternoon. The conjunctiva was much improved; the ulcers had healed.

July 23, in the morning all the pain had disappeared except in the left wrist. During the night there had been severe pains in the right knee around the head of the tibia, and also in the right ankle. The temperature was 100.3 in the afternoon, the leukocyte-count 11,200.

July 24, all pain had disappeared. The temperature was 99.4. The conjunctiva was still red and the fornices considerably swollen. From this time the temperature remained normal and also the leukocyte-count. The swelling of the glands disappeared, but the subconjunctival tissue of the fornices remained swollen for some days. Gradually the follicles and conjunctival swelling disappeared and in about two months the lids presented a normal appearance.

Microscopic Examination and Cultures.—July 12, microscopic examination of pus from an ulcerated nodule in the conjunctiva showed no organism. Aerobic and anaerobic cultures were made on blood-agar, Loeffler's serum and aerobic cultures on 2 per cent. dextrose agar, and incubated at 37 C.

July 16, there was no perceptible growth; the tubes were placed at room temperature (from 18 to 20 C.).

July 17, there were numerous small, white, rather indistinct colonies on the dextrose-agar, composed of long branching filaments; there were no spores.

July 18, the colonies were typical of sporothrix, each being distinct, with a center rising in ridge formation like the peak of a mountain. Microscopically there was an abundance of long filaments and round or oval spores; the latter were not only in the filaments but also free. The organisms stained with the ordinary dyes and retained Gram stain.

At this time Gram-positive, oval bodies were seen in smears of pus from the eye; these resembled sporothrix but were found only singly or in pairs, no definite clumps being observed.

A few days later colonies also appeared on the other aerobic cultures, but the anaerobic cultures remained sterile.

Agglutinative and Opsonic Tests.—At no time during the infection or convalescence was eosinophilia detected.

Blood-serum was collected on different days, heated for thirty minutes at 56 C. (132.8 F.), and then placed on ice. Serum from a normal person and from the patient before infection, treated in the same manner, served as a means of control.

From a culture of sporothrix isolated from the eye, a suspension of spores was made, and the agglutinative reaction of the serum determined microscopically. The suspension of spores was made in sterile salt solution, and spontaneous clumping did not occur in hanging drops incubated for one hour at 37 C. Increasing dilutions of each specimen of serum was made and mixed with equal parts of spore suspension. Hanging drops of each of these dilutions were then incubated for one hour at 37 C., and examined microscopically to determine the highest dilution in which agglutination occurred. These tests gave the results recorded in Table 1.

TABLE 1.—AGGLUTINATION OF SPOROTRICHAL SPORES BY PATIENT'S SERUM (NORMAL=0)

| Date | Agglutination at Dilution of: |
|------|----------------------------------|
| 6/20 | 0 |
| 7/ 3 | 0 |
| 7/18 | 1:16 |
| 7/22 | 1:16 |
| 7/23 | 1:16 |
| 7/24 | 1:16 |
| 7/25 | 1:24 |
| 7/29 | 1:32 |
| 8/ 2 | 1:32 |
| 8/ 6 | 1:64 |
| 8/10 | 1:64 |
| 8/14 | 1:64 |
| 8/18 | 1:64 |
| 8/26 | 1:32 |

The same samples of serum were used to determine the point of opsonic extinction. Increasing dilutions of serum were made by means of salt solution. Human leukocytes were obtained by collecting blood-agar from a normal person in sterile sodium citrate solution, washed and suspended in sterile salt solution. A suspension of spores from the organism isolated from the eye was made in sterile salt solution. To each dilution of the various serums was added an equal quantity of the suspension of spores and the suspension of leukocytes, the mixture incubated at 37 C. for thirty minutes, and smears made and stained with carbol-thionin. The number of leukocytes engaged in phagocytosis was now determined in each case, 100 white cells being counted. A serum-free mixture of leukocytes, suspension and salt solution treated in the same manner served as a means of control, the dilution of serum in which no more cells engaged in phagocytosis than in the serum-free mixture being called the point of opsonic extinction (Table 2).

TABLE 2.—OPSONIFICATION OF SPORES OF SPOROTHRIX BY PATIENT'S SERUM (NORMAL) = 1:12

| Date | Opsonic Extinction at Dilution of: |
|------|---------------------------------------|
| 6/20 | 1:12 |
| 7/ 3 | 1:12 |
| 7/18 | 1:48 |
| 7/22 | 1:24 |
| 7/23 | 1:96 |
| 7/24 | 1:192 |
| 7/25 | 1:192 |
| 7/29 | 1:96 |
| 8/ 2 | 1:96 |
| 8/ 6 | 1:96 |
| 8/10 | 1:192 |
| 8/14 | 1:192 |
| 8/18 | 1:192 |
| 8/26 | 1:96 |

As the patient had worked with five strains of sporothrix, experiments were made to determine if possible which strain caused the eye infection. Four of these strains were obtained from Dr. D. J. Davis.

1. A culture which had been obtained from Dr. Gougerot and supposedly typical of the sporothrix called "sporothrix de Beurmanni."

2. A culture isolated by Dr. Hektan in 1898 from a case of typical sporotrichosis.

3. A culture isolated by Dr. D. J. Davis from a case of sporotrichosis.

4. A culture isolated by Dr. K. F. Meyers from lesions on horses suffering with lymphangitis.

5. A strain isolated by Dr. Benjamin F. Davis from subcutaneous sporotrichosis on the hand and arm of a woman.

Comparison of the organism isolated from the eye in this case, with the other strains by ordinary cultural methods, in smears, and in hanging drop preparations, showed no differences, and immunologic tests gave the same reactions with the various strains, as is shown in the summary (Table 3).

TABLE 3.—AGGLUTINATION TESTS WITH THE PATIENT'S HEATED SERUM AND THE DIFFERENT STRAINS OF SPOROTHRIX

| Date | Strain of Sporothrix | | | | | Our Case F |
|------|----------------------|------|------|------|------|------------|
| | A | B | C | D | E | |
| 7/3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7/18 | 1:16 | 1:16 | 1:12 | 1:16 | 1:16 | 1:16 |
| 8/6 | 1:64 | 1:64 | 1:64 | 1:48 | 1:64 | 1:64 |
| 8/10 | 1:32 | 1:64 | 1:64 | 1:64 | 1:32 | 1:64 |
| 8/26 | 1:32 | 1:32 | 1:24 | 1:32 | 1:32 | 1:32 |

These results are analogous to those obtained by Dr. D. J. Davis³ with the serum of immunized animals, and indicate that there is no essential difference in the agglutination of various strains of sporothrix. Experiments were then made with the same serum to determine also the point of opsonic extinction of the various strains.

TABLE 4.—OPSONIFICATION OF VARIOUS STRAINS OF SPOROTHRIX WITH PATIENT'S SERUM

| Date | Point of Opsonic Extinction with Strains | | | | | Our Case F |
|------|--|-------|-------|-------|-------|------------|
| | A | B | C | D | E | |
| 7/3 | 1:12 | 1:12 | 1:12 | 1:12 | 1:12 | 1:12 |
| 7/18 | 1:48 | 1:24 | 1:48 | 1:48 | 1:24 | 1:48 |
| 8/6 | 1:96 | 1:96 | 1:96 | 1:96 | 1:48 | 1:96 |
| 8/10 | 1:96 | 1:192 | 1:192 | 1:192 | 1:192 | 1:192 |

Tests were also made with both heated and unheated serums of normal persons, of a woman with sporotrichosis of the right hand and arm and of rabbits immunized with suspension of sporothrix spores. In all of these it was impossible to differentiate in any degree the various strains of the organism by means of opsonic extinction.

PREVIOUSLY REPORTED CASES

The number of reported cases of infection of the eye or its adnexa with sporothrix is not large, and a brief review of the reports of them is instructive in this connection. The first case of sporotrichosis of the eye was reported by Danlos and Blanc⁴ in 1907.

CASE 1.—A man, aged 63, had a granulating ulcer on the lower lid near the outer angle. It began as a small white spot which suppurated and formed an ulcer that gradually increased in size. The lower lid was congested and swollen, especially at the outer angle, where the conjunctiva was reddened and edematous. The lesion, 1.5 cm. in diameter, was covered with red and firm granulations, and at several points a little pus exuded. The preauricular glands were normal, but a slightly enlarged gland was noticed under the maxilla. For several years previous to this ulcer a swelling had existed on the right wrist. Cultures from the lid gave typical growths of sporothrix. Local treatment with iodine was of no avail; after four months the ulcer was excised.

CASE 2.—The first undoubted *primary* case of sporotrichosis of the eye was reported in 1908 by Morax and Carlotti.⁵ It occurred in a man aged 70 who had a lesion on the left upper eyelid for several weeks. The entire left upper lid and the skin for several millimeters over the eyebrow was red and swollen; a curved line of small yellowish projections

which had appeared like small intracutaneous or subcutaneous abscesses extended down from the inner end of the eyebrow to the outer commissure of the eye. In addition a number of shallow ulcerations, covered by an abundant yellowish exudate, were present along the free border of the lid. These lesions were not painful and the lid was only slightly tender on pressure. No other part of the eye seemed to be affected. The large lymphatic trunk extending from the external commissure to the preauricular gland was swollen and hard, and the overlying skin inflamed. At one point a soft yellowish enlargement indicated a small abscess. In a general manner the trunk took an S-shaped curve through the enlarged preauricular, angulomaxillary and submaxillary glands. The preauricular gland was tender and movable and about the size of an almond; the other glands were not so large. This swelling began one week after the onset of the lesion. Microscopic examination of the pus from the abscesses on the lid was negative, but cultures gave growths of sporothrix three days after inoculation. The patient was placed on 2 gm. of potassium iodid a day; in twenty days the ulcers were healed and in a little more than two months all evidence of the trouble had disappeared.

CASE 3.—In the case reported in 1909 by Thibierge and Gastinet,⁶ a man aged 30 developed a small granuloma on the left external palpebral commissure; later a generalization of these lesions appeared over the entire body. By extension from the original lesion a crescentic ulceration involved most of the lower lid as well as the bridge of the nose. The surface was covered more or less with crusts which on removal disclosed a deeply ulcerated area. The free border of the lid was infiltrated, and swollen, with some degree of ectropion, but not ulcerated. On the upper lid were two small reddish-brown nodules. The palpebral conjunctiva was reddish throughout. Cultures from the exudate and scrapings of the ulcers gave growths of sporothrix. Complete recovery followed treatment with potassium iodid.

CASE 4.—Burnier⁷ described in 1909 a case in a boy, aged 16, with several subcutaneous nodules on the hand, some of which ulcerated, leaving sinuses discharging pus. At the time of ulceration, reddening and a slight swelling of the eyelids were noticed. There were three hard and tender nodules, split-pea in size near the external canthus of the right lower lid; also four or five smaller nodules in the inferior culdesac of the eye. The conjunctiva was not ulcerated, nor were the glands involved. Local cauterization with silver nitrate and galvanic needle followed by healing in about two months; the nodules on the hand resisted treatment. Inoculation of tubes with pus obtained from incision of the nodules demonstrated sporothrix. After one month's treatment with potassium iodid the nodules disappeared.

CASE 5.—A generalized sporotrichosis in a man aged 65, was reported in 1909 by deBeurmann and Gougerot.⁸ One morning the patient noticed that one of his eyes was congested, but without pain or tenderness on pressure. This condition persisted for two months, when the periorbital region became tender; photophobia developed and the cornea became dim and later ulcerated. The ulcerating keratitis was followed by hypopyon, anterior staphyloma, perforation of the cornea, escape of the vitreous and loss of the eye, all in a few days. No cultures seem to have been made from the eyes, but sporothrix was recovered from other sources. This seems to have been a metastatic panophthalmitis from general sporothrix infection.

CASE 6.—Morax⁹ in 1909 reported sporotrichosis of the eye in a woman aged 38. Small yellowish-white nodules appeared in rapid succession in the right semilunar fold, ulcerating later and producing pedunculated lesions. A similar lesion appeared

3. Davis, D. J.: Interagglutination Experiments with Various Strains of Sporothrix, Jour. Infect. Dis., 1913, xii, 140.

4. Danlos and Blanc: Un cas de sporotrichose palpebral, Bull. et mém. Soc. méd. d. hôp. de Paris, 1907, xxiv, 1450.

5. Morax and Carlotti: La sporotrichose palpébrale, Ann. d'ocul., 1908, cxxxix, 418.

6. Thibierge and Gastinet: Trois cas de sporotrichose dermo-hypodermique dont un avec lésions du pharynx, du larynx et du tibia, Bull. et mém. Soc. méd. d. hôp. de Paris, 1909, xxvi, 537.

7. Burnier: Un cas de sporotrichose gommeuse hypodermique ulcéreuse disséminée, Ann. d'ocul., 1909, exli, 344.

8. De Beurmann and Gougerot: Sporotrichose cachectisante mortelle, Bull. et mém. Soc. méd. d. hôp. de Paris, 1909, xxvi, 1046.

9. Morax: La sporotrichose de l'appareil visuel, Ann. d'ocul., 1909, exli, 321.

in the lower retrotarsal fold and another in the upper. There was considerable induration in both lids with an increase in the secretion. The caruncular region was injected, while the bulbar conjunctiva and the cornea appeared normal. The cervical and preauricular glands became enlarged on the second day of the disease, and in a few days were quite tender on pressure. Under surgical treatment and local application of silver the symptoms became worse. As cultures gave growths of sporothrix, treatment with potassium iodid was instituted, and healing took place. The serum of the patient caused agglutination of sporothrix on the thirty-second day of the disease, clumping occurring almost at once in dilutions of 1:10, and in from thirty to sixty minutes in dilutions of 1:209. The blood-count was 65 per cent. polynuclears, 18.5 per cent. mononuclears, 13.5 per cent. lymphocytes and 3 per cent. eosinophils.

CASE 7.—A. Fava¹⁰ recorded in 1909 an infection of his own eye which is remarkable in that the mode of infection is known. While injecting an emulsion of sporothrix into a rabbit, droplets accidentally infected the eye. Half an hour later he washed his eyes with a 1:4,000 solution of oxy-cyanid of mercury. No symptoms appeared until eleven days later, when he noticed a sensation as of a foreign body in the outer corner of the lower lid. On examination a small yellow spot was seen on the lower tarsal conjunctiva, and the eye was congested and slightly tender on pressure. The following day the tenderness increased and there was a slight edema of the lids; the preauricular and angulomaxillary glands were enlarged and tender. Several other nodules also appeared on the lower tarsus, one 3 mm. in diameter and several smaller ones on the upper. Three days later a small nodule appeared on the outer surface of the upper lid. All the nodules ulcerated and developed granulations like those following a broken chalazion. The lids were swollen and the whole conjunctiva congested, and the secretion increased. Cultures from the ulcerated nodules gave sporothrix, and microscopic examination of the secretion demonstrated an abundance of eosinophils and some sporotrichal forms. On the fifteenth day of the disease there were 6,000 leukocytes with 8 per cent. of eosinophils. Recovery occurred in about two and one-half months of treatment with potassium iodid, from 2 to 8 gm. a day.

CASE 8.—Another case of generalized sporotrichosis of the skin and subcutaneous tissues in which there were symptoms of eye involvement is reported by Jeanselme and Chevalier.¹¹ Seven weeks after the appearance of the nodules on the body the conjunctiva of the right eye became congested. The right pupil was obstructed by an exudate and could not be dilated with atropin. A few days later the iris became discolored and vision greatly decreased. Simultaneously there appeared an ulcerated nodule in the mouth. No cultures were made from the eyes, but sporothrix was obtained from lesions elsewhere.

CASE 9.—Morax and Cruchaudau¹² describe a case in a woman aged 22, who first noticed a slight redness of the left eye accompanied by some sense of discomfort and increased lacrimation. The lower lid was swollen and on the tarsal conjunctiva was a yellow ulcerating nodule, from which sporothrix was isolated in culture. A few days previous to the inoculations the serum agglutinated sporothrix at a dilution of 1:50. Tender and enlarged preauricular glands accompanied the eye lesion. After one month's treatment with potassium iodid all the symptoms disappeared.

CASE 10.—A case in which the eyelids were affected by direct extension is reported by Velter.¹³ A man aged 52 had a small abscess on the right lower lid which had existed for three weeks, causing considerable pain. The lid was swollen, its skin smooth and red; incision released a large amount of

pus. The surrounding tissues were indurated. The eyeball appeared normal, but the bone at the outer and inferior wall of the orbit was eroded. Cultures from the lid showed sporothrix. A similar nodule appeared on the upper lid, but at no time was there any involvement of the conjunctiva or marked glandular enlargement. Potassium iodid gave good results.

CASE 11.—Jeanselme and Poulard¹⁴ describe the case of a man aged 46, who had an amputation of the leg for a tumor of the bone, followed several years later by a generalized eruption of small red and hard nodules on the face and body. One of these nodules occurred on the outer surface of the left lower eyelid just below the margin. The anterior part of the eyeball was injected, and the pupil narrowed, irregular and obstructed by an exudate, but there was no infiltration of the cornea. Posterior synechia and discoloration of the iris were present, and there was pain, photophobia and decreased vision. The generalized eruption proved to be sporotrichosis; the eye lesion was regarded as sporotrichal because it also was healed, under the use of potassium iodid.

CASE 12.—The only case reported in the United States is by Gifford.¹⁵ A woman, aged 18, complained that the left eye was congested and slightly uncomfortable, the condition having lasted for about two months without any marked change. When seen the right eye appeared normal. The left eye was inflamed and watery, the tarsal conjunctiva and retrotarsal folds being slightly congested. On the ocular conjunctiva a somewhat crescentic thickening extended from a little above the equator at the inner side of the cornea to a point $\frac{1}{8}$ inch above the horizontal meridian at its outer side. This thickening was $\frac{1}{4}$ inch broad and smooth at its widest part but nodulated with lumps from $\frac{1}{16}$ to $\frac{3}{32}$ inch in diameter, at the extremities. One of these nodules was yellow and contained a semifluid substance, from which sporothrix was isolated by culture. Treatment by potassium iodid seemed to be effective, but the patient disappeared from observation before complete recovery.

CASE 13.—Morax¹⁶ reported the first case of infection of the lacrimal sac by sporothrix. A man, aged 40, complained of watering and a feeling of weakness in his left eye, followed in a short time by swelling and inflammation of the lacrimal region and the appearance of pus at the level of the internal commissure. Three weeks after the onset, suppurative dacryocystitis with prelacrimar abscesses developed. The lacrimal sac was swollen and on gentle pressure pus exuded from both superior and inferior puncta. The skin over the region was somewhat infiltrated. After incision and withdrawal of yellow purulent material, a sound could be passed into the nose.

CASE 14.—In the case of Chaillous,¹⁷ the patient complained of matting of the eyelids after sleeping, this condition lasting for eighteen days before examination. The right upper lid was swollen, reddened and edematous. On the tarsal conjunctiva were numerous yellow nodules, from pin-head to split-pea in size, irregular in form and slightly ulcerated. The bulbar conjunctiva was less congested. A preauricular and a superficial cervical gland became quite tender and enlarged. Cultures from the ulcerated nodules showed sporothrix.

CASE 15.—LaPersonne¹⁸ describes a case in a woman aged 64 who, during the course of numerous subcutaneous and periosteal lesions, developed a violent iridocyclitis of the left eye with deposits on the posterior surface of the cornea and a nodule on the iris. The anterior chamber of the eye became involved, accompanied by pain in the ciliary region. The eye softened and vision was almost lost. Punctures of the anterior chamber liberated a yellowish albuminous fluid from which no diagnosis could be made. Two months later another similar lesion appeared and perforated the coat of the eye-

14. Jeanselme and Poulard: Sporotrichose de l'iris, *Ann. d'ocul.*, 1910, cxliv, 65.

15. Gifford: Sporotrichosis of the Eyeball and Eyelids, *Ophth. Rec.*, 1910, xix, 573.

16. Morax: Sporotrichose primitive du sac lacrymal, *Ann. d'ocul.*, 1911, cxlv, 49.

17. Chaillous: Sporotrichose conjunctivale primitive, *Ann. d'ocul.*, 1911, cxlv, 47.

18. LaPersonne: Sporotrichose oculaire, *Presse méd.*, 1912, xx, 93.

10. Fava: Un cas de sporotrichose conjunctivale et palpébrale primitive, *Ann. d'ocul.*, 1909, cxli, 338.

11. Jeanselme and Chevalier: Sporotrichose à foyers multiples, *Bull. et mém. Soc. méd. d. hôp. de Paris*, 1910, xxix, 784.

12. Morax and Cruchaudau: Sporotrichose conjunctivale primitive, *Ann. d'ocul.*, 1910, cxliv, 69.

13. Velter: Un cas de sporotrichose orbito-palpébrale primitive, *Ann. d'ocul.*, 1910, cxliv, 65.

ball. A fungus was demonstrated among the débris of the iris and exudate, and a few days afterward sporothrix was obtained in culture. The patient bore potassium iodid poorly, and finally the eye was enucleated because of the pain.

CASE 16.—The last case described is by Morax¹⁹ in a man aged 37, who had nodular lesions on the skin of the thighs and a nodule on the outer surface of the lower lid, below the internal palpebral ligament. This nodule was violet-red, firm and easily movable without pain. It was about 0.7 cm. in diameter and projected 2 mm. above the surface, with the center slightly depressed like a lacrimal fistula. The conjunctiva appeared normal and there was no cutaneous reaction or congestion of the surrounding tissues. Exploration by means of a probe showed that there was no connection of the lesion with the eye. Cultures from this nodule gave sporothrix. Cure followed treatment with potassium iodid.

In experiments by Fava²⁰ and others, following the injection of a culture of sporothrix into various parts of the eye of a rabbit, lesions were produced resembling those of sporothrix infection of the human eye. The incubation period generally lasted from twelve to eighteen days. The organism was recovered from the eye lesion.

CLINICAL CONSIDERATION

From a study of the cases that have been recorded and of the one we have observed, we should say that infection of the conjunctiva by sporothrix causes a marked congestion of the membrane, particularly the palpebral portion, the fornix and the semilunar folds. The bulbar portion is not so frequently infected.

Numerous follicular prominences appear in the palpebral conjunctiva and in the fornix.

Small yellowish nodules, varying in size and shape, develop rapidly in the conjunctiva, and these may ulcerate. When opened, the contents of the nodules do not escape rapidly as from small abscesses, but seem to be of a gunmy consistence. These little nodules developed so rapidly in the case we observed that on the second day new ones presented that had not been seen the day before.

Secretion is rather scanty and hardly sufficient to stick the lids together at night, but lacrimation is rather abundant. The eyelids are somewhat edematous and thickened, and palpation shows a well-marked induration of the subcutaneous tissue. Enlargement and tenderness of neighboring lymph-glands is also present.

Subjectively, there is a sensation of a foreign substance under the lids, and so much discomfort that use of the eyes is almost impossible. The discomfort comes on rapidly after the infection. The two cases of laboratory infection (that of Fava and the present one) and the absence of a history of trauma in the other cases, seem to show that the sporothrix is able to penetrate the normal conjunctiva. It also appears from the reports of cases that infection of the eye may be secondary to a generalized sporotrichosis. Probably in most of these cases the infection is ectogenous, but the suspicion that it may be endogenous is aroused by the case of LaPersonne, in which, after a violent iridocyclitis and perforation of the eyeball, sporothrix was obtained from the contents of the bulb.

That general symptoms may arise from a primary lesion of the eye is indicated in our case by the fever, leukocytosis and pains in the bones of the extremities.

DIAGNOSIS

Some of the clinical features of this infection are common to other conditions. Lymphadenopathy would be present with chancre of the conjunctiva, but in the initial lesion of syphilis it is very unusual to have such multiple erosions or ulcerations, and scrapings from such an ulcer would probably show the characteristic spirochete.

Tuberculosis of the conjunctiva would probably not be so rapid in its course, and it would be a week or more before the caseous tuberculous nodule would break down and form the ulcer, whereas in sporotrichosis the little ulcers develop in a few days.

Parinaud's conjunctivitis presents more points of similarity, and it is possible, as mentioned by Morax, that cases of sporotrichosis may have been mistaken for Parinaud's conjunctivitis.

In the latter, the vegetations on the conjunctiva are different from the follicles and the yellowish nodules of sporotrichosis. The adenopathy in Parinaud's conjunctivitis points to a severe infection, but all attempts to isolate an organism from the lesions have failed. Recently, however, Verhoeff has observed in such conditions an organism like leptothrix. On the other hand, the diagnosis of sporotrichosis is easy if scrapings from the nodules or ulcers are inoculated on appropriate mediums and left at from 18 to 20 C. for the organisms appear in from three to ten days. The presence of Gram-positive, spore-like bodies in a direct smear from the conjunctiva should suggest sporothrix.

We wish to acknowledge the kindness of Dr. L. Hektoen, director of the Memorial Institute for Infectious Diseases, for valuable suggestions offered in the study of this case.

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CLINICAL REPORT OF FIVE HUNDRED AND SEVENTY-ONE CASES OF PULMONARY TUBERCULOSIS TREATED WITH TUBERCULIN *

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Early in the spring of 1910, and following my presentation of a short paper on tuberculin at one of the meetings of the medical staff of the Otisville Sanatorium, of which I was a member, Dr. E. S. McSweeney, the physician then in charge, asked me to reorganize the tuberculin class among the patients.

After rather an extensive perusal of much of the literature on the subject, I was struck by the divergent views held by the different investigators on tuberculin therapy in general and the matter of dosage and reaction in particular. I then decided to lay aside all my preconceived notions on tuberculin and begin injections with a dose well below any possible reaction, such as 0.000,000,01 gm., and to double each previous dose at weekly intervals, using Koch's B. E. In the last year of this work, patients in the class were started on Koch's Old Tuberculin exclusively, and when they were standing well from 0.003 to 0.006 gm. at a dose, they were then changed to Koch's B. E., 0.000,1 gm., which was later progressively increased according to the table. The

19. Morax: Sporotrichose primitive des paupières simulant une fistule lacrymale, Ann. d'ocul., 1913, cxlix, 183.

20. Fava: Sporotrichose expérimentale de l'appareil oculaire du lapin, Ann. d'ocul., 1910, cxliv, 77.

* From the Department of Health Sanatorium for tuberculosis at Otisville, New York.

gain was twofold: there were less reactions to the smaller doses on account of the O. T. being weaker, and there were also fewer reactions to the larger doses of B. E. because of the previous immunizing effect of the O. T. Incidentally, the patients were thus immunized to both the endogenous and the exogenous toxins of the bacillus. After over two thousand injections were given of less than 0.000,001 gm. each, with not a single reaction in any one of them, I decided that this amount was needlessly small to begin with, after which injections were begun with 0.000,001 gm. B. E. As a matter of fact, the earliest reaction dose was clinically found to be about four times as large, namely, 0.000,004 gm. B. E.

One reason for trying to make the tuberculin treatment as brief and decisive as the patient's tolerance would permit was due to the short stay in the institution of the average patient (about five months), which practically excluded the method of administering very small doses of tuberculin over long periods of time. The idea was to have each dose come as near as possible to producing a clinical reaction without actually doing so, as whatever advantage there may be in beginning treatment with very small doses very slowly increased in those who have the time and means to carry it out, it is entirely unsuited to the vast number of curable tuberculous patients who have their living to make, and cannot spend more than about six months in a sanatorium, to say nothing of the fact that after all, tuberculin such as B. E. is no more than a vaccine, in the successful use of which one must apply the same rules as govern vaccine therapy in other diseases in which we know that the prolonged administration of minute doses will lead to no therapeutic results, though it may produce an immunity to itself.

The cases were unselected male patients,¹ varying in age from 16 to 50, the great majority of whom were moderately advanced, or the so-called Stage II (Turban). The other treatment of the patients in the class, such as rest, exercise, etc., differed in no respect from those who did not receive tuberculin. The dilutions of the tuberculin used were made with sterile normal saline, no preservative being added. The diluted tuberculin was put up in sterile rubber-stoppered vials of 5 c.c. capacity, and were kept in the ice-chest. What was left in the vial at the end of the day it was used, was discarded. The tuberculin was diluted fresh from the stock bottle every three weeks. The O. T. was that prepared in the research laboratories of the department. The B. E. was Mulford's and Alexander's, 0.005 gm. to the cubic centimeter. The number of patients in the class at any one time varied from seventy-five to 110, and the period covered by the subject-matter of this paper was from June, 1910, to January, 1913, or two and a half years in all.

The actual injections were made under strictly aseptic conditions, and were given hypodermically in the outer aspect of the upper arm, except for the large doses such as 0.001 gm. B. E. and over, which were always given in the back between the vertebral border of the scapula and the spine, the two sides being used alternately. No undesirable local by-effects were noted except occasional slight tenderness, though sterile "abscesses" may develop at the site of injection of large doses of B. E., resulting from the intense local *Stichreaktion*.

1. The clinical impressions and conclusions were really drawn from about two hundred more cases (all female), making a total of seven hundred and fifty cases in all, but unfortunately the collected records of the former have been mislaid.

In passing, mention should be made of the great difference existing in the minds of tuberculous patients between the tuberculin treatment of tuberculosis and the other accepted therapeutic measures as used in our sanatoriums. Custom has given the patient latitude in choosing or rejecting (particularly the latter) tuberculin injections often against the physician's advice in the matter, in contradistinction to stopping the chest, rest in bed, taking cough-mixtures, etc. In these hardly any patient dreams of questioning his physician's judgment and skill; but let tuberculin be suggested, and the patient immediately puts himself on the defensive. Not only were we hampered in recruiting new members in the class, but it was hard to keep many otherwise desirable patients after they joined. If the patient happened to be injected with tuberculin earlier in the day before being weighed, and found that he had lost some pounds during the week, the tuberculin was to blame, etc., on the strength of which he would not only refuse further treatment himself, but would try to get other members in the class to refuse also. The result was that while half of the patients in the class dropped out because they were leaving the institution, the other 50 per cent. refused further treatment with tuberculin for reasons no better than the foregoing. Practically none were found to be unsuitable for treatment once they were in the class, because no matter how hypersensitive to tuberculin a patient was found to be, the dose could always be attenuated to his tolerance.

The terms "reaction" and "allied conditions," as used in this work, were standardized for purposes of comparison as follows:

$$\text{Clinical Tuberculin Reaction} = \begin{cases} \text{Afebrile} & \{ a \\ \text{Febrile} & \{ b \end{cases}$$

Persistent Accentuated Symptoms.

All tuberculous persons in the active, and many even in the quiescent stage of the disease, will react subjectively, and often clinically, to very small doses of tuberculin, such as 0.000,000,1 and 0.000,000,01 gm. B. E., or even less. The term "reaction" as used in that sense is practically always afebrile and is defined as: (a) a distinct change in subjective sensation, difficult to define, but quite a real condition to the one injected, which, while hardly pronounced enough to make the person feel sick, yet is far from agreeable; (b) a condition occurring in less than twenty-four hours after the injection of tuberculin characterized by the presence of some or all of the following: slight feeling of malaise, mild disinclination to food, and greater ease because more fluid expectoration. These conditions occurring and to be expected in practically all cases were, therefore, not looked on as a reaction in the clinical sense, and not of enough importance in themselves to affect the progressive increase in dosage.

The kind of reaction which did affect the progressive dose increase follows tuberculin injection usually within less than twenty-four hours, and is characterized by the presence of some or all of the following: distinct increase in cough and expectoration, also headache, anorexia, pain in back and joints, with lassitude, sufficiently pronounced to make it inadvisable either for the patient so affected or for the physician treating him to continue him at his exercise. This condition is usually, but may not be, accompanied by a rise in temperature from 99.5 to 103 and more.

The term "persistent accentuated symptoms" was used to define the condition of a tuberculous patient (who may or may not use tuberculin), when for an

indefinite period of time his cough, expectoration, temperature-curve and nutrition show a distinct tendency for the worse. This was considered of sufficient importance either to stop tuberculin injections altogether until the symptoms subsided, or else materially to diminish the weekly tuberculin dose. In other words, it was acted on the same as a tuberculin reaction.

TABLE 1.—LENGTH OF TIME INDIVIDUAL PATIENTS WERE UNDER TREATMENT WITH TUBERCULIN

| No. | Patients' Per Cent. | No. of Weeks per Patient | Total No. of Weeks |
|-----|---------------------|--------------------------|--------------------|
| 92 | 16.1 | 1 | 92 |
| 89 | 15.5 | 2 | 118 |
| 34 | 5.9 | 3 | 102 |
| 37 | 6.3 | 4 | 148 |
| 19 | 3.3 | 5 | 95 |
| 22 | 3.8 | 6 | 132 |
| 26 | 4.5 | 7 | 182 |
| 32 | 5.6 | 8 | 256 |
| 22 | 3.8 | 9 | 198 |
| 18 | 3.1 | 10 | 180 |
| 4 | 0.7 | 11 | 44 |
| 8 | 1.4 | 12 | 96 |
| 21 | 3.6 | 13 | 273 |
| 4 | 0.7 | 14 | 56 |
| 11 | 1.9 | 15 | 165 |
| 10 | 1.7 | 16 | 160 |
| 4 | 0.7 | 17 | 68 |
| 11 | 1.9 | 18 | 198 |
| 9 | 1.5 | 19 | 171 |
| 6 | 1.0 | 20 | 120 |
| 6 | 1.0 | 21 | 126 |
| 8 | 1.4 | 22 | 176 |
| 4 | 0.7 | 23 | 92 |
| 3 | 0.5 | 24 | 72 |
| 3 | 0.5 | 25 | 75 |
| 5 | 0.8 | 26 | 130 |
| 3 | 0.5 | 27 | 81 |
| 7 | 1.2 | 28 | 196 |
| 2 | 0.3 | 29 | 58 |
| 3 | 0.5 | 30 | 90 |
| 3 | 0.5 | 31 | 93 |
| 3 | 0.5 | 32 | 96 |
| 5 | 0.8 | 33 | 165 |
| 4 | 0.7 | 35 | 140 |
| 1 | 0.1 | 36 | 36 |
| 2 | 0.3 | 39 | 78 |
| 1 | 0.1 | 40 | 40 |
| 1 | 0.1 | 41 | 41 |
| 3 | 0.5 | 42 | 126 |
| 6 | 1.0 | 43 | 258 |
| 1 | 0.1 | 44 | 44 |
| 1 | 0.1 | 46 | 46 |
| 1 | 0.1 | 49 | 49 |
| 16 | 2.8 | * | 1,248 |
| 571 | 100— | 11.3 | 6,470 |

* Eighteen months each or 78 weeks.

On the occurrence of a clinical reaction, tuberculin was discontinued until all symptoms of the same had subsided, when injections were recommenced with fourth lower dose removed. Only the two conditions "clinical reaction" and "persistent accentuated symptoms" were considered in influencing tuberculin dosage.

A clinical tuberculin reaction occurring in the course of treatment in no demonstrable way permanently influences for the worse either the disease or the subsequent course of tuberculin treatment, as the same patients later stand with impunity many times the dose at which they formerly reacted.

If a large dose is reached too quickly, a hypersensitiveness to tuberculin supervenes, necessitating going back to a very small dose indeed. The determination of dosage is purely arbitrary, as sensitiveness differs not only in different patients, but at different times in the same patient. On the other hand, should a reaction occur after a large dose with a slowly progressive dose increase, it merely shows the limit of that patient's maximum tolerance to tuberculin for the present, after which it is best to leave off injections for a time, according to results obtained.

While a patient who has once been thoroughly treated with tuberculin probably never reacts to his disease the way he did before treatment, yet the immunity so acquired to the tuberculin does not last much over two

months, if that long, although the good effect persists for a variable time after the acquired immunity to tuberculin has been lost.

Much has been said of the mental effect of tuberculin, as if that were something separate and distinct from its physical effects. If the psychic effect is for good, it is because the tuberculin is having a favorable influence on the lesion and the patient feels more nearly normal owing to diminished toxemia. If the patient feels depressed after tuberculin, it is due to doses which are either too large, or given at too frequent intervals, or both. In other words, the patient is near a clinical reaction, and his depression is nothing less than its earliest manifestation.

Tuberculin may be *tried* in all cases of pulmonary tuberculosis of whatever stage, provided the patient is given a small enough dose, with the effects carefully watched. At Dr. Turban's sanatorium, in Davos Platz, Switzerland, which I visited early in the spring of 1912, they use as small a dose as 0.000,000,000,1 gm. Bovine T. R., and they assert that if persisted in, it will often bring a patient's temperature down to normal, when other measures fail. Tuberculin, however, is to be *used* in all cases which run the chronic course, so common in this disease, particularly in the vast number of patients whose improvement seems to have stopped short of a clinical cure under sanatorium treatment alone, and also in those patients who, for one reason or another, cannot leave their families and affairs and go to a sanatorium in the country.

While not sufficient time has elapsed after the treatment of the patients on whom this report is based, to permit any conclusions from the effect of the treatment, on their own prognosis, there is good authority for the statement that the clinically cured, following the use of

TABLE 2.—NUMBER AND DOSES OF B. E. TUBERCULIN INJECTIONS WITH PERCENTAGE OF REACTIONS AND PERSISTENT ACCENTUATED SYMPTOMS

| Dose Gm. | No of Injections | Reaction | | Persistent Accentuated Symptoms | |
|----------------------------|------------------|----------|-----------|---------------------------------|-----------|
| | | No. | Per Cent. | No. | Per Cent. |
| 0.000.000.001 to 0.000.001 | 2,040 | 0 | ... | 0 | ... |
| 0.000.001 | 295 | 0 | ... | 0 | ... |
| 0.000.002 | 272 | 1 | 0.3 | 0 | ... |
| 0.000.004 | 261 | 0 | ... | 5 | 1.9 |
| 0.000.008 | 232 | 3 | 1.2 | 7 | 3.0 |
| 0.000.016 | 211 | 5 | 2.3 | 3 | 3.3 |
| 0.000.032 | 182 | 5 | 2.7 | 3 | 1.6 |
| 0.000.064 | 163 | 6 | 3.6 | 4 | 2.4 |
| 0.000.1 | 171 | 4 | 2.3 | 2 | 1.1 |
| 0.000.2 | 155 | 7 | 4.5 | 3 | 1.9 |
| 0.000.4 | 151 | 8 | 5.2 | 0 | ... |
| 0.000.8 | 74 | 6 | 8.1 | 4 | 5.4 |
| 0.001 | 115 | 19 | 16.5 | 0 | ... |
| 0.001.25 | 37 | 5 | 13.5 | 1 | 2.7 |
| 0.001.5 | 26 | 3 | 11.5 | 0 | ... |
| 0.001.75 | 18 | 2 | 11.1 | 0 | ... |
| 0.002 | 54 | 5 | 9.2 | 2 | 3.7 |
| 0.003 | 23 | 2 | 8.6 | 0 | ... |
| 0.004 | 10 | 3 | 30.0 | 0 | ... |
| 0.005 | 8 | 0 | ... | 0 | ... |
| 0.006 | 7 | 2 | 28.5 | 0 | ... |
| 0.007 | 4 | 0 | ... | 0 | ... |
| 0.008 | 3 | 0 | ... | 0 | ... |
| 0.009 | 2 | 1 | 50.0 | 0 | ... |
| 0.010 | 1 | 1 | 100.0 | 0 | ... |
| | 4,515 | 88 | 1.9 | 38 | 0.8 |

tuberculin, are not so apt to relapse, or to develop tuberculous complications, as those who had sanatorium care alone.

RESULTS

In figuring the result of tuberculin therapy in pulmonary tuberculosis, the most important and at the same time the most difficult factor to standardize is the patient and his disease. For one thing, there is no known way of determining with any degree of exactness

the length of time a given tuberculous patient has had the disease, or in other words, his resistance. This fact makes it very difficult to determine accurately how much of the improvement during tuberculin administration was due to that, and how much to the native resistance of the patient to his disease, supplemented by the usual sanatorium treatment. Therefore, until more exact means of determining the extent of the patient's resistance to his infection is discovered, we have to rely solely on clinical observation. One thing which we do know beyond question is the specific effect for good of subcutaneous injections of tuberculin on localized visible forms of tuberculosis in the eye, skin, glands, etc. This has been noted repeatedly by numerous independent observers all over the world. While none but the over-enthusiastic claim as much for it in the treatment of pulmonary tuberculosis, still it is no more than to be expected that it would have some definite good effect in that disease, and I have found this to be as follows:

The first few injections will slightly increase expectoration, making it more fluid, and brought up with less coughing; later on, expectoration and with it cough is

TABLE 3.—NUMBER AND DOSES OF O. T. TUBERCULIN INJECTIONS WITH PERCENTAGE OF REACTIONS AND PERSISTENT ACCENTUATED SYMPTOMS

| Dose Gm. | No. of Injections | Reaction | | Persistent Accentuated Symptoms | |
|-------------|----------------------|----------|-----------|---------------------------------------|-----------|
| | | No. | Per Cent. | No. | Per Cent. |
| 0.000,001 | 262 | 0 | ... | 0 | ... |
| 0.000,002 | 181 | 0 | ... | 0 | ... |
| 0.000,004 | 157 | 3 | 1.9 | 1 | 0.6 |
| 0.000,008 | 153 | 2 | 1.3 | 2 | 1.3 |
| 0.000,016 | 165 | 1 | 0.6 | 2 | 1.2 |
| 0.000,032 | 130 | 0 | ... | 1 | 0.7 |
| 0.000,064 | 103 | 2 | 1.9 | 3 | 2.9 |
| 0.000,1 | 146 | 1 | 0.6 | 0 | ... |
| 0.000,2 | 126 | 3 | 2.3 | 2 | 1.5 |
| 0.000,4 | 83 | 3 | 3.6 | 1 | 1.2 |
| 0.000,8 | 66 | 4 | 6.0 | 1 | ... |
| 0.001* | 0 | ... | ... | ... | ... |
| 0.001,25* | 0 | ... | ... | ... | ... |
| 0.001,5 | 42 | 2 | 4.7 | 1 | 2.3 |
| 0.001,75 | 11 | ... | ... | ... | ... |
| 0.002† | 0 | ... | ... | ... | ... |
| 0.003 | 43 | 2 | 4.6 | 0 | ... |
| 0.004§ | 0 | ... | ... | ... | ... |
| 0.005§ | 0 | ... | ... | ... | ... |
| 0.006 | 15 | 2 | 12.3 | 0 | ... |
| Total | 1,683 | 25 | 1.4 | 14 | 0.8 |

* Not given, as last dose 000.8 was almost doubled to 0.001,5.
† None given, as 0.001,5 was doubled at next dose to 0.003.
§ None given, as 0.006 was given after 0.003.

distinctly diminished. The tendency to toxic manifestations of the disease such as rapid pulse, dyspnea and slight elevation of temperature on exertion, is inhibited to a great degree in those who receive tuberculin as opposed to those who do not. Routine examination of the sputum will disclose a much greater tendency (50 per cent.) to absence of bacilli in those who are treated. Physical examination of the chest will show the lesion to be much less active; the râles, particularly, will be drier and scant. There is a somewhat better showing in weight increase in the tuberculin-treated.

To sum up, the most constant effects of tuberculin in those who do well under it are the diminished sputum and cough, particularly when the latter is dependent on the amount of sputum, and the distinct tendency for the sputum to become non-bacillary, thus demonstrating clinically the specific effect of the tuberculin on the site of the disease. The other signs of improvement are the natural results of the diminished activity in the lesion.

SUMMARY

The net results of tuberculin treatment in the patients forming the basis for this paper may be summarized as follows:

1. Those who were distinctly improved and apparently cured (clinically), 25 per cent.
2. The indifferent (60 per cent.), who may be subdivided into (a) 40 per cent. who responded indifferently while the tuberculin was continued, but on the cessation of which did distinctly better than before tuberculin treatment, an indeterminate number of

TABLE 4.—NUMBER OF PATIENTS AND THEIR HIGHEST DOSE, ALSO PERCENTAGE OF HIGHEST DOSE REACHED TO TOTAL NUMBER GIVEN OF THAT DOSE (B. E. TUBERCULIN)

| Highest Dose Gm. | Patients | | Total No. Given of that Dose | Times this Was the Highest Dose Reached | |
|------------------------|----------|-----------|------------------------------------|---|-----------|
| | No. | Per Cent. | | No. | Per Cent. |
| 0.000,001— | 82 | 14.3 | 2,040 | 82 | 4.0 |
| 0.000,001 | 20 | 3.5 | 295 | 20 | 6.7 |
| 0.000,002 | 20 | 3.5 | 272 | 20 | 7.3 |
| 0.000,004 | 21 | 3.6 | 261 | 21 | 8.0 |
| 0.000,008 | 26 | 4.5 | 232 | 26 | 11.2 |
| 0.000,016 | 17 | 2.9 | 211 | 17 | 8.0 |
| 0.000,032 | 16 | 2.8 | 182 | 16 | 8.7 |
| 0.000,064 | 13 | 2.2 | 163 | 13 | 7.9 |
| 0.000,1 | 20 | 3.5 | 171 | 20 | 11.6 |
| 0.000,2 | 10 | 1.7 | 155 | 10 | 6.4 |
| 0.000,4 | 17 | 2.9 | 151 | 17 | 11.2 |
| 0.000,8 | 12 | 2.1 | 74 | 12 | 16.2 |
| 0.001 | 21 | 3.6 | 115 | 21 | 18.2 |
| 0.001,25 | 7 | 1.2 | 37 | 7 | 18.9 |
| 0.001,5 | 3 | 0.5 | 26 | 3 | 11.5 |
| 0.001,75 | 2 | 0.3 | 18 | 2 | 11.1 |
| 0.002 | 26 | 4.5 | 54 | 26 | 48.1 |
| 0.003 | 9 | 1.5 | 23 | 9 | 39.1 |
| 0.004 | 2 | 0.3 | 10 | 2 | 20.0 |
| 0.005 | 3 | 0.5 | 8 | 3 | 37.5 |
| 0.006 | 1 | 0.1 | 7 | 1 | 14.2 |
| 0.007 | 0 | ... | 4 | 0 | ... |
| 0.008 | 0 | ... | 3 | 0 | ... |
| 0.009 | 1 | 0.1 | 2 | 1 | 50.0 |
| 0.010 | 1 | 0.1 | 1 | 1 | 100.0 |

whom often come in later under 1, and (b) 20 per cent. who remain indifferent.

3. Those who are apparently made worse (15 per cent.); that is, under the use of the same dosage as the others in the class, but who not only come in under 2, but some even under 1, if the tuberculin is given in doses attenuated enough to meet their hypersensitivity.

TABLE 5.—NUMBER OF PATIENTS AND THEIR HIGHEST DOSE, ALSO PERCENTAGE OF HIGHEST DOSE REACHED TO TOTAL NUMBER GIVEN OF THAT DOSE (O. T. TUBERCULIN)

| Highest Dose Gm. | Patients | | Total No. Given of that Dose | Times this Was the Highest Dose Reached | |
|------------------------|----------|-----------|------------------------------------|---|-----------|
| | No. | Per Cent. | | No. | Per Cent. |
| 0.000,001— | 4 | 0.7 | 4 | 4 | 100.0 |
| 0.000,001 | 45 | 7.8 | 262 | 45 | 17.1 |
| 0.000,002 | 19 | 3.3 | 181 | 19 | 10.4 |
| 0.000,004 | 15 | 2.6 | 157 | 15 | 9.5 |
| 0.000,008 | 17 | 2.9 | 153 | 17 | 11.1 |
| 0.000,016 | 18 | 3.1 | 165 | 18 | 10.9 |
| 0.000,032 | 18 | 3.1 | 130 | 18 | 13.8 |
| 0.000,064 | 21 | 3.6 | 103 | 21 | 20.3 |
| 0.000,1 | 9 | 1.5 | 146 | 9 | 6.1 |
| 0.000,2 | 20 | 3.5 | 126 | 20 | 15.8 |
| 0.000,4 | 16 | 2.8 | 83 | 16 | 19.2 |
| 0.000,8 | 9 | 1.5 | 66 | 9 | 13.6 |
| 0.001 | 0 | ... | 0 | ... | ... |
| 0.001,25 | 1 | 0.1 | 1 | 1 | 100.0 |
| 0.001,5 | 6 | 0.1 | 42 | 6 | 14.2 |
| 0.001,75 | 0 | ... | 11 | ... | ... |
| 0.002 | 0 | ... | 0 | ... | ... |
| 0.003 | 9 | 1.5 | 43 | 9 | 20.9 |
| 0.004 | 0 | ... | 0 | ... | ... |
| 0.005 | 0 | ... | 0 | ... | ... |
| 0.006 | 10 | 1.7 | 15 | 10 | 66.6 |
| 0.007 | 3 | 0.5 | 11 | 3 | 27.2 |
| 0.008 | 0 | ... | 0 | ... | ... |
| 0.009 | 0 | ... | 0 | ... | ... |
| 0.010 | 1 | 0.1 | 1 | 1 | 100.0 |

4. Effect of tuberculin on localized visible tuberculosis such as fistulae in ano, glands, etc., which is specific, particularly in the case of tuberculous glands in the neck, in which condition tuberculin is by far the treatment of choice.

While the number of the distinctly improved and apparently cured under sanatorium care and tuberculin does not appear to be any greater than under sanatorium

care alone, the value of the former is in bringing up to the same percentage a type of case that under sanatorium care only would by no means fare so well, if clinical experience is worth anything.

CONCLUSIONS

As there is no way of telling beforehand what case of pulmonary tuberculosis will benefit the most from tuberculin, every patient with that disease should be treated with tuberculin, and only those ruled out who seem unsuitable by reason of their hypersensitiveness, as proved after injection; and even these may receive all the benefits that tuberculin has to offer, if it is given in small enough doses very slowly increased.

I wish to acknowledge my indebtedness for valuable aid in the work on which this paper is based to Dr. Herman M. Biggs, who as general medical officer of the Department of Health spared no effort to further the scientific interests of the institution; to Drs. Edward S. McSweeney, Walter L. Rathbun and William H. White, my associates at the sanatorium, and to Drs. Charles F. Bolduan, assistant to the general medical officer, and Robert J. Wilson, superintendent to the hospitals of the department, for much valuable criticism of this paper.

16 East Eighty-Seventh Street.

AN INTERESTING CASE OF CHRONIC LEAD-POISONING WITH RELAPSE FOLLOWING FRESH EXPOSURE*

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PHILADELPHIA

The following case, showing the effects of lead intoxication, principally on the nervous system, is presented here because of the fact that it illustrates some interesting points in the clinical course and urinary findings of the condition:

History.—Mr. N. E. H., aged 45, weight 151 pounds, height 5 feet 9 inches, was referred to me, Nov. 21, 1913, by Dr. W. H. Hartzell. The family history was negative except that the patient's father, who was a worker in lead, died of paresis due to plumbism. He had had no lead colic, but wrist-drop, ptosis of one eyelid and optic atrophy followed by symptoms of general paralysis of the insane. No members of the family, other than father and son (the patient) were exposed to lead, and hence no additional cases of intoxication occurred in the household. We may, however, assume that susceptibility, which varies markedly in different families, was fairly well marked in that of the patient since he employed the usual precautionary measures with minute care. The patient had had the usual infections of childhood, and had been subject to frequent "attacks of biliousness" since early adolescence. He was married and had been a traveling salesman for the past fifteen years, during which time he had not been in contact with lead except for one and a half days (as described below). From 14 to 30 years of age, however, he had been a house- and sign-painter. During the first seven years of this period, not all his time was devoted to his trade, but from 21 to 30 years of age it was. The patient had used three cups of coffee a day and alcohol in moderation, but no tobacco. He walks from 3 to 5 miles daily in the open air, but otherwise takes no exercise. He denies venereal infection.

Present Illness.—At about the time he began to work in lead, he began to be subject to attacks of "biliousness," which recurred frequently at first but later at longer intervals until

four years ago, when they disappeared for one year. The symptoms in detail manifested during an attack of "biliousness" are, in the order of development, diplopia, transitory blindness, headache, dizziness, aphasia and repeated vomiting, followed by abdominal soreness lasting one week. The arms become numb and the heart-beat drops frequently to 46 a minute.

Three years ago Mr. H. sandpapered the casings of his home, which was attended with the production of much dust. Following this marked exposure, which lasted only one and a half days, he painted the house alone. Almost immediately the attacks returned in a modified form: vomiting and abdominal soreness were absent, while the diplopia, transitory blindness, vertigo and aphasia were present. At the same time (three years ago) he developed lead arthralgia affecting the entire right arm and the sacral region. All of the foregoing symptoms after persisting a year and a half were relieved by treatment directed to the lead intoxication, principally the use of potassium iodid, lasting four months. The symptoms, however, recurred later, and four months ago he resumed the treatment with immediate improvement, but he soon gave it up. During the past week daily slight attacks occurred. The average duration of one of the paroxysms described above is at present about one hour, but formerly it was not so brief—from two to three hours.

Laboratory Examinations.—An examination of the urine resulted as follows: specific gravity 1.020, faintly acid; albumin, glucose, indican and casts were all absent; a few leukocytes and epithelial cells were present. Dec. 5, 1913, Dr. Matthew Beardwood reported that he had found an appreciable quantity of lead in a specimen of the urine which had been submitted to him for chemical analysis.

Blood: Erythrocytes, 4,990,000; hemoglobin, 96 per cent.; leukocytes, 7,400. There was no basic granulation of the erythrocytes.

Physical Examination: This revealed an adult white male, moderately well nourished, musculature fairly good; no evidence of any palsies; reflexes: knee-jerks diminished, Babinski and ankle-clonus absent.

Local Examination: There was no lead-line on the gums, but a faint bluish-black line around a single decayed tooth. Dr. William L. Estes had observed a distinct lead-line in 1912. The heart and lungs were normal. Blood-pressure: systolic, 122 mm. Hg; diastolic, 90 mm. Hg. Abdomen: The liver was slightly enlarged downward; otherwise the examination was negative in its results.

Eyes: These showed interesting changes, as shown by Dr. L. Webster Fox's report, which follows: Marked astigmatism in both eyes and a low-grade muscle insufficiency. Visual fields normal (no reversal of color field). Ophthalmoscopic examination showed marked stasis of the veins, sheaths of both optic nerves thickened, showing evidence of chronic meningeal thickening.

It may be doubted by some whether this case is really one of lead intoxication. The absence of basophilia, however, does not rule out plumbism, for it is generally held at present that it is of little or no diagnostic value. Moreover, Oliver¹ failed to find granules in the blood in 40 per cent. of the cases. Again, the absence of the history of either lead colic or palsies during the time that his occupation entailed exposure to lead, weighs against the diagnosis of saturnism, but does not exclude the condition, since these typical manifestations have been absent in well-authenticated cases to be found in the literature. No evidences of contracted kidney existed in the case here reported. The majority of cases of chronic lead-poisoning that show a progressive tendency, it is true, develop chronic interstitial nephritis, which commonly proves to be a fatal

* Read before the Section on Medicine, College of Physicians, Feb. 24, 1914.

1. Oliver: Quoted by Alice Hamilton: Industrial Lead-Poisoning in the Light of Recent Studies, THE JOURNAL A. M. A., Sept. 7, 1912, p. 777.

complication, or in other words, the cause of death. In this connection it is to be recollected that my case had improved greatly prior to a fresh exposure to the influence of lead three years ago, and since then, while the peculiar attacks described above recurred in a modified form, they were at no time indicative of a grave tendency. Again, well-marked typical cases of lead intoxication do occur without ensuing chronic interstitial nephritis.

While the diagnosis is not based on the history of previous exposure to lead alone on account of occupation, the anamnesis and the attacks which presented such features as diplopia, transitory blindness, dizziness, aphasia, headache, and, for a number of years, vomiting, as well as the finding of the presence of lead in the urine, considered collectively, seemed to warrant an absolute diagnosis. This diagnosis was further confirmed by the previous observation of Dr. Estes of a lead-line on the gums, and the result of the eliminative treatment usually adopted in cases of chronic plumbism. My own case, and the same is true of any obscure condition, makes clear the importance of a careful inquiry into the occupation, past and present, of the patient. Again, an examination of the urine for lead is rarely carried out in the absence of a knowledge of occupational exposure, but it should be undertaken in every obscure condition in which the symptoms are even feebly suggestive of the existence of saturnism.

It is undoubted that lead once absorbed into the system may remain latent for an indefinite period of time "and then again make itself felt" (Hamilton). My own case confirms the observation that brief reexposure to lead, even many years after recovery or cessation of contact with the metal, may result promptly in a recurrence of the symptoms of plumbism. The symptom-complex in the case here reported was quite unique, and it may be questioned whether certain features accompanying the so-called attacks, more particularly the vomiting, aphasia and bradycardia, were not to be attributed to some cause other than chronic lead-poisoning. On the other hand, the diplopia, transitory blindness, headache and dizziness are not unusual in this condition. I have found no reference in literature to aphasia, which was present in my case, as a symptom of saturnism, except in cases attended with well-marked arteriosclerosis.

The brevity of the attacks in my case—from one to three hours—can be satisfactorily explained only on the view of spasm, since there was no evidence of sclerosis of the blood-vessels, unless localized to the cerebral region. For example, the vertigo, associated as it was with slow pulse during the attacks, might be with fair justification attributed to arteriosclerosis affecting the vessels of the brain. The arrest of the attacks, temporarily at least, as the result of appropriate treatment, including glasses, lends support to the spastic nature of the aphasia, and this exciting cause of aphasia is recognized in connection with arteriosclerosis of the cerebral vessels by certain writers.

1605 Walnut Street.

Dr. Bell's Contribution to Radium Technology.—In the *Scientific American* of Sept. 12, 1903, there appeared a letter from Dr. Alexander Graham Bell, in which he suggested the embedding of radium in bodily tissue as a curative agent for deep-seated cancers. This is probably the first suggestion of a method of treatment which is now in vogue among medical men.—*Scient. Am.*

THE TECHNIC OF THE INTRADURAL INJECTIONS OF NEOSALVARSAN IN SYPHILIS OF THE NERVOUS SYSTEM

A PRELIMINARY REPORT

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While it is an undeniable fact that in syphilis of the nervous system the intravenous injection of neosalvarsan is capable of producing subjective improvement, nevertheless the peculiar isolation of the nervous system, and the relative impermeability of its membranes render treatment directed toward this system of little actual avail except subjectively. In tabes, it is true, the pains are frequently ameliorated, the gait is improved, and in rare instances optic atrophy is said to have been arrested by the intravenous injection of salvarsan. The proof, however, that these changes are not lasting, and that they really affect the progress of the disease but little, lies in the objective findings in the spinal fluid. These findings are little, if at all, changed by the treatment intravenously administered. Particularly is this true of the late manifestations of central nervous syphilis. It would seem, therefore, that the future treatment of syphilis in the central nervous system lies in the direct application of the remedy to the nervous tissue itself. The difficulties of such a method of procedure lie not only in the difficulty of administration, but also in the high susceptibility of the nervous tissue itself to foreign substances.

The intradural injection of old salvarsan is impossible, on account of its caustic action from the presence in it of caustic soda necessary to render it neutral. Neosalvarsan injected into the spinal canal was first tried by Wechselmann¹ and then by Marinesco.² Both used aqueous solutions, and after their injections it was observed that the patients suffered extreme headache, vomiting, extreme neuralgic pains in the legs, and occasional troubles of urination, all associated with a rise of temperature. Marie and Levaditi³ also treated cases of general paralysis with injections of neosalvarsan varying in size from 5 mg. to 4 cg. Their results were rather dubious. The results, therefore, of this treatment were in the main unsatisfactory. The treatment of such lesions by salvarsanized serum as practiced by Swift and Ellis⁴ has in some hands been of exceedingly great benefit. *A priori* it would seem logical to assume that if treatment by the intradural injections of neosalvarsan could be borne, it would be the method of choice over any other method.

During the past summer I had the opportunity of witnessing intradural injections as practiced by my friend, Dr. Paul Ravaut, at the Hôpital St. Louis, in Paris, in cases of syphilis of the central nervous system. Dr. Ravaut suggested that I carry on the work along his lines in this country.

According to Ravaut, the intradural injections are poorly tolerated on account of technical difficulties rather than on account of the irritative nature of the drug itself. In 1901, those who were interested in

1. Wechselmann: *Deutsch. med. Wchnschr.*, 1912, xxxviii, 1446.

2. Marinesco: *Ztschr. f. phys. u. diät. Therap.*, 1913, xvii, 194.

3. Marie and Levaditi: *Bull. et mém. Soc. méd. d. hôp. de Paris*, Nov. 18, 1913.

4. Swift and Ellis: *New York Med. Jour.*, 1912, xevi, 53. *Ibid.*, München. med. Wchnschr., 1913, xxxvi, 1977. *Ibid.*, München. med. Wchnschr., 1913, xxxvii, 2054.

injections of cocain for spinal anesthesia found that following the injection of a few centimeters of a cocain solution, patients thus treated suffered from vomiting, fever, headache and more or less neuralgic pain and troubles of urination. At first the origin of these accidents was attributed to the cocain itself or to an idiosyncrasy on the part of the patient. Ravaut and Auberg,⁵ in studying these cases, found that this train of symptoms was actually due to an aseptic, sterile meningitis. They were able to demonstrate clearly, in the spinal fluid, cytologic reactions which proved this contention. They established the fact that a watery solution which was not isotonic could produce meningeal irritation, and by substituting cocain in isotonic solutions for solutions previously used, they were able to show that the patients tolerated this with the desired anesthesia and with perfect impunity to harmful results.

In 1907 Ravaut⁶ showed that hypertonic concentrated solutions were even better tolerated than isotonic solutions. These by reason of their density are not easily diffused. Thus he was able to produce complete genital and perineal anesthesia by the injection of a single drop of water containing 2 cg. of cocain or novocain. If patients thus treated, however, were placed in the Trendelenburg position, there was a very rapid diffusion of the cocain toward the upper portion of the cord and brain, resulting in nausea and vomiting constantly and within a short time. According to the position of the patient, therefore, it became possible to direct the solution toward the inferior or superior portions of the nervous system.

Ravaut employed the method of concentrated hypertonic solutions in the injection of neosalvarsan in the spinal cord, and he has recently published his results, with an account of patients thus treated.⁷ Using the following method, as outlined to me by Dr. Ravaut, I have been employing this treatment at the University Hospital during the past nine months.

The solution used is a 6 per cent. solution of neosalvarsan in distilled water. This solution is hypertonic. Each drop of such a solution would contain 3 mg. of neosalvarsan. The dosage injected is from 3 to 12 mg.; that is, from 1 to 4 drops of the solution. The solution is made up as follows:

An ampule containing 0.3 gm. of neosalvarsan is dissolved in 5 c.c. of freshly distilled water. If the ampule contains 0.6 gm., 10 c.c. of water are used. In both solutions each drop will contain 3 mg. of the drug. The syringe employed for the injection is accurately graduated in drops. The patient is then placed in a position for a lumbar puncture, either sitting or lying, according to the choice of the operator. The puncture is then made with a needle, the end of which fits the graduated syringe. After a few drops of spinal fluid have flowed out of the cannula, or a greater quantity if a diagnostic puncture is desired at this time, the syringe is fitted into the needle, and the fluid is allowed to run back into the syringe barrel, thus mixing with the amount of the drug in the barrel. The mixed spinal fluid and drug is then gently forced into the canal, and slight suction is made on the syringe to withdraw a second amount of fluid, which washes out the needle. This is then reintroduced, the needle is quickly withdrawn and the patient placed in the Trendelenburg position, in which position he is allowed to remain for at least one hour.

Injectations thus given are exceedingly well tolerated. At most there is a slight amount of neuralgic pain, which passes off in a short time. For the most part, however, if carried out properly, the injections are quite painless. A slight amount of neuralgic pain is particularly likely to occur in tabetics. Vomiting does not occur at all. A slight amount of headache such as accompanies a lumbar puncture is, however, sometimes encountered. A slight tendency to difficulty in urination is occasionally experienced a day or two following the injection. In two cases of my own, it persisted, but in both of these my technic was at fault. I have carried out this treatment in a number of cases, and an account of these will follow in a report to be read before the Section on Dermatology of the American Medical Association in June.

AN UNUSUAL CASE OF VACCINE ANAPHYLAXIS *

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Anaphylactic reactions following the injection of horse-serum in sensitized individuals are of common occurrence, and the various phenomena in animals sensitized to foreign proteins have been extensively studied. Great effort is now being made to unify these manifestations of anaphylaxis and immunity on a single basis, despite their many striking variations.

The introduction into the human circulation of foreign proteins, in the form of bacterial vaccines, is usually in such small amount that there is but slight local and usually no appreciable general reaction.

The following case is of special consequence because of its rarity in the literature, both of anaphylaxis and of vaccine therapy:

Mrs. S. J. P., aged 53, presented a small furuncle on the left forearm and an infected hair follicle in the right axilla. Three years previously she had suffered from boils and was effectively cured with four serial doses of staphylo-streptobacterin. Similar treatment was requested in this instance, and an injection of fresh stock vaccine, containing 100,000,000 streptococci, 400,000,000 staphylococci and 200,000,000 colon bacilli was given. There was only slight local reaction, and considerable improvement resulted in the existing furuncles. On the eighth day at 10 a. m. double the dose of the same vaccine was administered; at 4 p. m. there was a diffuse erythema about the lesion on the forearm, and an angry spreading erythema covering the right axilla, upper arm and breast. A nurse was at once placed in charge and records made at three-hour intervals. By 9 p. m. a scarlatinaform erythema had involved the entire trunk and parts of the extremities. There was no sore throat or constitutional disturbance, and the temperature and pulse were normal at all times. On the third day the entire body was involved, the advancing areas were macular, but rapidly became confluent and intensely red, the turgidity of the skin and pruritus was only momentarily relieved by lotions, unguents and dusting-powders, and the suffering was intense. The neck, trunk and parts of the extremities now presented the appearance of a fulminating erysipelas.

On the administration of free catharsis and alkalies, the eruption gradually faded, and on the tenth day there remained but slight erythema and induration about the original lesions. The temperature and pulse at no time varied from normal; there were no throat symptoms, joint pains or other systemic

5. Ravaut and Auberg: *Compt. rend. Soc. de biol.*, 1901, lili, 637.
6. Ravaut: *Compt. rend. Soc. de biol.*, 1907, lxii, 1159.
7. Ravaut: *Ann. de méd.*, 1914, No. 1, p. 49.

* Reported before the Chattanooga Academy of Medicine, Feb. 20, 1914.

disturbances. Leukoeyte-counts showed but slight numerical or differential changes from normal; the urine contained no albumin, sugar or indican. The erythema, however, was so intense and indurated, that as it disappeared there was considerable fissuring of the skin in the flexures and a mild desquamation in many parts.

Such hypersusceptibility to bacterial proteins as occurred here, is, from the literature, exceedingly rare. With marked anaphylactic reaction, the absence of systemic upset is extraordinary.

The phenomenon itself is undoubted. It occurred as an intense scarlatinaform erythema, universal in extent and without constitutional disturbance. It was not an exanthematous disease, nor was the eruption related as at times, to parenteral protein digestion.

EXOPHTHALMIC GOITER AS A CLINICAL MANIFESTATION OF HEREDITARY SYPHILIS

OSCAR CLARK, M.D., RIO DE JANEIRO, BRAZIL

I have had the opportunity, during the last five years, of observing an interesting case of exophthalmic goiter in a woman, aged 24, in whom there can be no doubt that it is a late clinical manifestation of hereditary syphilis. The patient began about five years ago to suffer from palpitation tachycardia, accompanied by violent attacks of nervousness, while her mother also called attention to a swelling of the neck. There was very little protrusion of the eyes.

Four years ago when I was first consulted (shortly before leaving on a journey to Europe, during which I was kept informed of the progress of the case), the clinical symptoms had become decisive and the syndrome grew steadily worse until the patient fell into a drowsy, almost comatose condition, with pulse over 200 beats, the sphincters quite paralyzed, with continuous vomiting lasting a fortnight. Dr. Sylvio Moniz, a well-known Brazilian physician, was summoned to the patient in this very bad condition and had the happy thought of trying the Wassermann reaction. To this he was led by the "Olympic forehead" and the *crâne natiforme*, being told also that the girl when 12 years old, had had several "epileptiform" fits. The Wassermann reaction was strongly positive, both with the patient's mother and with the patient herself.

With this diagnosis, Dr. Sylvio Moniz prescribed mercurial frictions and epinephrin (1:1,000 solution, 20 drops three times daily) to relieve the arterial hypertension and the vomiting; the latter rapidly ceased, while the patient had in two days recovered consciousness.

After eight days the pulse was just 150 and the goiter sensibly smaller, while the protrusion of the eyes was a little better. After thirty frictions the patient was much better both as regards the hyperthyroidic manifestation and the general health. The next month she was given two injections of salvarsan (0.3 and 0.6 gm.). By the third month she had quite recovered. Neither the goiter nor the protrusion of the eyes was to be seen. The pulse was 75 beats and the nervousness had disappeared.

The patient returned to North Brazil (she was at Rio de Janeiro), and ceased the mercurial and salvarsan treatment. Twelve months later, however, the Merseburger triad reappeared but a fresh recovery has been effected by the same treatment.

I think that this case is undoubtedly one of hereditary syphilis appearing late, as Dr. Sylvio Moniz made every laboratory test in order to exclude tuberculosis, malaria, etc. The father is dead, of what cause I am not aware; the positive Wassermann in the mother has been mentioned. The patient is from the best society and is virgin and there can be no suspicion of syphilis by contagion. She has never had any clinical sign of infection, but on the other hand, presents skeletal stigmata, and, as previously remarked, had epileptiform fits at the age of 12.

A CASE OF DISSEMINATED CARCINOMA OF THE BREASTS AND AXILLAE IMPROVED BY RADIUM*

SINCLAIR TOUSEY, M.D., NEW YORK

The patient, a man, was referred to me by Dr. Beder. The right mammary gland and nipple had ulcerated away and there was another ulcer below that region. Both were adherent and covered with a red parchment-like epidermis and were surrounded by an indurated margin projecting $\frac{1}{2}$ inch above the level of the skin. Nodular masses larger than a hickory-nut but smaller than a hen's egg were present in both axillae and were widely scattered over the front of the chest. On the right side of the chest the skin over many of these was red, and they were evidently in a way to break down into ulcers. On the left side the nodules were smaller, white, and extended from the nipple in a cord-like mass up into the axilla. The disease had been of several years' duration; no operation even for the removal of a microscopic specimen had been permitted. There was no history of syphilis, and two careful Wassermann examinations were negative. The clinical diagnosis had always been carcinoma, and if so it was evidently similar to the cases of epithelioma cicatrisans, which are sometimes active for as long as eight years before causing death. My patient had lost weight and strength, the skin was adherent to the chest wall, and the use of the right arm was interfered with.

Treatment was by contact applications of a mass of chemically pure radium sulphate containing 20 mg. of radium element having an activity of 20,000 microcuries, in a sealed glass tube 0.3 mm. in thickness, enclosed in aluminum 0.5 mm. thick and in thin, soft rubber. Treatments were three times a week for a month and after that once a week. At each treatment several individual nodules or parts of the nodular borders of the ulcers received an application equal to a total of fifteen minutes in each place. During the first month every growth on the right side had been treated in this way and also the floor of the ulcers, but the left side had not been treated. At the end of this time all the nodular masses on the right side were perfectly flat, and the cicatrized ulcers were no longer adherent but could be raised and bent double. The arm could be raised to the greatest extent. The patient felt stronger and had gained 5 pounds in weight. The left side, untreated, showed marked improvement, strengthening my belief that the application of the Roentgen ray and radium rays to cancer develops some antibody which is carried through the system and in proper dosage produces benefit to cancer foci beyond the effective reach of the direct rays themselves.

Treatment was then begun on the left side, and the subsequent course of the case has been one of steady progress.

850 Seventh Avenue.

The Favorite Formula or Pet Prescription.—Every physician, whether optimistic or pessimistic in his general attitude toward the materia medica, usually has a favorite formula—a certain combination of drugs which he uses for many and varied selected conditions. It is his favorite formula; here is mine:

| | gm. or c.c. | |
|---|-------------|-----------|
| R Codein sulphate | 1 | gr. ii |
| Acetphenetidin | 75 | gr. xli |
| Aspirin | 2 | gr. xxxii |
| Chinchonidin salicylate | 5 | gr. viii |
| Make eight capsules. One every hour or two. | | |

With this formula, under appropriate conditions, the cure of patients becomes strictly a case of *cito, tuto et jucunde*, as we are admonished it should be. It will symptomatically cure grip, and if given on the first day will in many cases produce such an improvement by the second as to prevent its complications and incidentally—*malum in se*—do away with the doctor. I have used the favorite formula with satisfaction in most inflammations. There are other indications naturally suggested by its ingredients to which it seems excellently adapted and which it is unnecessary to enumerate.—WILFRED M. BARTON, M.D., Washington, D. C.

* Case shown at the Surgical Section, New York Academy of Medicine, March 6, 1914.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

SEROBACTERINS (See THE JOURNAL, Feb. 7, 1914, p. 457). The Council has at present no means of determining the identity and purity of serobacterins; they must be used on the guarantee of the manufacturer alone and they must be used, therefore, with due caution.

H. K. Mulford Co., Philadelphia.

Scarlatina Strepto-Serobacterin Mulford (Immunizing).—(Sensitized *Scarlatina Streptococcic Vaccine, Immunizing*).—Each package contains three syringes of *Scarlatina Strepto-Serobacterin* as follows: Syringe 1, 1,000 million killed sensitized streptococci; Syringe 2, 2,000 million killed sensitized streptococci; Syringe 3, 2,000 million killed sensitized streptococci.

PHENOLPHTHALEIN-AGAR.—Phenolphthalein-agar is agar-agar impregnated with phenolphthalein, 100 Gm. containing 3 Gm. of phenolphthalein.

Actions and Uses.—Phenolphthalein-agar is claimed to have the properties of agar-agar (which see) augmented by the action of phenolphthalein (which see).

Dosage.—1 Gm. (15 grains) twice daily, after breakfast and supper, increased or diminished according to requirements.

Manufactured by the Chemische Fabrik Helfenberg, A. G., Helfenberg, Saxony, Germany (Reinschild Chemical Co., New York). U. S. patent No. 943,163 (Dec. 14, 1909; expires 1926). No U. S. trademark.

Phenolphthalein-agar is prepared by impregnating 1,000 Gm. of agar-agar with a solution obtained by dissolving 30 Gm. of phenolphthalein in a mixture of 2,000 Cc. of water and 700 Cc. of alcohol and drying the impregnated agar-agar slowly.

Therapeutics

THE TUBERCULOSIS PROBLEM

(Continued from page 1093)

GENERAL MEDICATION IN THE TREATMENT OF TUBERCULOSIS

In the first place, drugs, as such, cannot cure, and are not antidotes to this disease. On the other hand, much can be done, with proper medication, to aid the physiologic processes.

Calcium.—It has long been thought that patients suffering from tuberculosis have previously become demineralized. This means especially that they have lost their calcium, and perhaps phosphorus, equilibrium. It is also true that tuberculous lesions heal by more or less calcification. Also, patients are more likely to have hemorrhages, if their calcium blood-content is diminished. Certain it is that patients, especially children, often improve with increased amounts of calcium in their food or as a medicament. One of the great values of a proper amount of milk for tuberculous patients is probably the calcium and phosphate content. On the other hand, many patients improve by the administration of a calcium salt, and none is better than calcium

glycerophosphate, in 0.30-gm. (5-grain) doses, three times a day, after meals.

Galliot¹ advises the following combination for children who are suffering from tuberculosis: calcium carbonate and calcium phosphate, each from 20 to 30 cg. (from 3 to 5 grains); magnesium chlorid from 10 to 20 cg. (from 1½ to 3 grains); magnesium oxid from 5 to 10 cg. (from about ¾ to 1½ grains). This he administers two or three times a day. It has often been found that tuberculous patients improve under the administration of thymus gland. This is rich in nucleoproteins, and therefore offers phosphorus in assimilable form, and also it seems to promote the calcium metabolism. This gland is very active during childhood, when the greatest amount of bone growth occurs.

Creosote.—Creosote has been long recommended and much used, and its action in tuberculosis has been lauded by able medical men.

A preparation of tar was perhaps first used in 1817 by a Dr. Crichton, physician to the Empress of Russia; and in this country it was perhaps first used in 1834 by a Dr. Morton of Philadelphia. Creosote was separated from wood-tar by Reichenbach of Blankenau in 1832, and received its name because it preserved meat. Two years later Runge extracted carbolic acid from coal-tar, which Gerhardt called phenol. In 1877 Bouchard and Gimbert began to use, in tuberculosis, a creosote prepared from beechwood.

There is a great difference of opinion among clinicians as to the value of creosote in pulmonary tuberculosis. Many physicians never use it in this disease, and others push it to such an extent that the patient is practically saturated with it, and his room and almost the whole house reeks with the odor of creosote. It seems to be true that many patients have improved appetite under its stimulant or irritant action in the stomach. It may also, for a time, improve digestion, and the patient often adds weight. During this period there is frequently a lessening of the bronchitis, and therefore a decreased expectoration, and with this decrease of the secondary (streptococcic) infection, there is likely to be less fever and therefore less sweating. It is so rare, however, for a patient to take creosote and not adopt the rest cure and other measures that go toward improving his condition, that it is not fair to attribute such improvement to the creosote. Creosote is also more or less of an intestinal antiseptic, and hence bacteria-laden sputum that may be inadvertently swallowed may be rendered harmless in the upper part of the intestine. Be that as it may, it is a fact that good bowel activity, an improvement in the intestinal digestion, and the prevention of fermentation or putrefaction in the intestine, by many so-called bowel antiseptics, will all cause an improvement in the tuberculous patient.

Unfortunately, as frequent aftereffects of the good action of creosote the pancreas becomes overstimulated by the drug and does not furnish its secretion properly; there is intestinal indigestion; the liver is disturbed; there are stomach indigestion and loss of appetite, and the patient will lose weight faster than he gained it under the creosote treatment. Too much creosote will also irritate the kidneys, and may cause albuminuria. In other words, it generally does not seem wise to recommend creosote, as such, internally in pulmonary tuberculosis. As an ingredient of an inhalant mixture it may be of value, as a positive antiseptic to the upper

1. Galliot: Arch. de méd. d. enf., 1913, xvi, 4, p. 289.

air-passages and the trachea and large bronchial tubes. If there is fetid, purulent expectoration such inhalations may be of advantage.

Guaiacol frequently in the form of a benzoate of guaiacol has been used for tuberculosis, but guaiacol has no advantage over creosote in the treatment of tuberculosis. The exponents of the creosote treatment believe that the drug should be begun in small doses and gradually increased to the point of the patient's tolerance. Tolerance means that the appetite is not interfered with, that there is no nausea or vomiting, and that the urine does not become dark and show albumin.

The symptoms of creosote poisoning are similar to phenol poisoning. From its overaction the patient not only has gastritis and intestinal disturbances, but also dark urine, perhaps nephritis, and dizziness and sweating.

Ichthyol.—The internal administration of ichthyol in tuberculosis seems to have its only advantage in acting as a bowel antiseptic. In this manner it may do some good, but as patients generally eructate it, it is exceedingly unpleasant treatment. Other methods of preventing intestinal disturbances, such as ordinary laxatives, a cathartic perhaps once a week, the administration of soured milk, yeast or lactic acid bacilli, if any such treatments are indicated, or salol if needed, are all better than the ichthyol.

Cod-Liver Oil.—This oil is a food, and as such has its advantages. A small dose of cod-liver oil is as easily taken as a large dose of some emulsion which contains but little of the oil. In other words, if one desires to give cod-liver oil, it may be given; but, as previously stated, other oils and fats are of as much advantage, and it certainly is not wise to load the system with large amounts of bile-salts. There is no difference in the effect of Norwegian cod-liver oil and the oil prepared on our own shores.

The Hypophosphites.—The hypophosphite treatment of pulmonary tuberculosis has already been discussed.² There is no chemical, physiologic or specific excuse for giving the hypophosphites; the success of treatment of lung conditions with hypophosphites is a fallacy. It is not intended to state that some phosphorus and some calcium-bearing preparations and foods containing these elements may not be of value, but one is not justified in expecting results from any hypophosphite combination of these or other elements.

Arsenic.—Arsenic has been advised for years in many lung conditions. It has been stated that the arsenic cures of France and Switzerland have been more or less immune from tuberculosis. It has been stated that patients breathe more freely and better under the influence of arsenic. However this may be, in the treatment of pulmonary tuberculosis the value of arsenic is very slight. It seems to stimulate the production of blood-corpuscles, both red and white, and in small doses it may stimulate the appetite. In any large doses arsenic is harmful, tending to cause secondary destruction of blood-corpuscles, to irritate the kidneys, to upset the digestion, and when pushed, may cause multiple nephritis. In other words, arsenic is a poison, and should not be administered to a patient unless there is a tangible, positive indication. Arsenic has come more or less to prominence as a germicide since the wonderful activity shown by salvarsan in the treatment of syphilis. It has long been known that arsenic may sometimes kill

the malarial germ; it seems also to have some activity in certain tropical germ diseases. But arsenic is such a stimulant to glandular tissue, especially to the lymph-nodes, that it would seem unwise, theoretically, to give a sufficient amount of it to cause excessive activity of these glands, with the probable pouring out of many tubercle bacilli into the lymph- and blood-streams. In good-sized doses arsenic could probably do harm just as large doses of tuberculin will do harm.

Iodin.—For many years this element in some form has been given frequently for various kinds of tuberculosis, especially glandular tuberculosis. It was recently lauded for pulmonary tuberculosis by Boudreau.³ He gives the French tincture (1 part of iodine to 12 parts of 90 per cent. alcohol), and commencing with small doses runs it up to 100 drops a day, administered in various beverages. After ten years of trial, he finds such treatment of value not only in pulmonary tuberculosis, but also in renal tuberculosis.

Although there are no other reports concerning this treatment, harm has been done in pulmonary tuberculosis by the administration of an iodide. It seems to be a stimulant to the tubercles, not unlike tuberculin, and may cause a lighting up of a quiescent tuberculous process or a serious exacerbation of a slow-going infection. The stimulant action on glands is well known, and tuberculous glands may be overstimulated to the harm of the patient. In other words, iodides should not be used carelessly in pulmonary and glandular tuberculosis. This does not militate against the possibility of small, very slowly increasing doses of iodine doing the same good that graded doses of tuberculin do, but the treatment should be most carefully watched.

Thyroid gland substance has been given in tuberculosis, but it is rarely indicated, though the thyroid is probably often affected in tuberculosis.

Though the syrup of the iodide of iron has long been given in glandular enlargements in children, experienced observers have found no greater benefit from it than from some other form of iron.

(To be continued)

3. Boudreau: Jour. de méd. de Bordeaux, Jan. 4, 1914.

First Aid in Railway Accidents.—German railways provide a first-aid train in case of railway accidents. It consists of a locomotive and two cars, the one a work car with workmen and all necessary apparatus for clearing the tracks, releasing wounded people who are caught in the wreckage, repairing the track and setting traffic in motion again. The other is a hospital car, provided with all necessary instruments for emergency operations, bandages, dressings, medicines, operating table, stretchers and eight beds in which patients can be transported to the nearest hospital. The personnel of these cars, workmen, doctors, nurses, etc., are all within call so that they can be reached very quickly after news of an accident is received, and they have drills in practice so that when an actual call comes they are expert in preparing for action quickly, sterilizing, getting operating and anesthesia tables, sutures, instruments, etc., ready. Every preparation is made on the way to the scene of the accident, so that they are ready to begin work when they arrive. These trains are stationed at frequent enough intervals along the road, so that the most isolated spot can be reached within two hours after an accident has occurred. Dr. Gilbert describes their work in *Archiv für Rettungswesen*, 1913, i, 140, and gives a further account not only of the medical work but of the work of the train crew in notifying on-coming trains, sending word to the railway officials and families of the dead and wounded, clearing the tracks for traffic and all the multitudinous details that have to be attended to in such catastrophes.

2. The Fallacy of Hypophosphite Treatment, *Therapeutics*, THE JOURNAL A. M. A., March 8, 1913, p. 747.

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DISEASES DUE TO DIETARY DEFICIENCIES

The more intimate knowledge which has been gained in recent years regarding the underlying causes of certain hitherto little-understood diseases promises to uproot and displace, or at any rate to supplement, some of the older notions that have been current. The modern development of pathology has left such an indelible impression on the study of medicine that its special point of view has long remained the dominant one, and in most cases properly so. Our diagnostic powers have been widened enormously, throughout the nineteenth century, by what has been termed the clinicopathologic investigation of disease. Osler remarks that the physician of to-day who wishes to obtain a sound knowledge of the natural history of disease must adopt Morgagni's method of "anatomic thinking." The long-prevalent influence of pathologic anatomy made it seem almost inevitable that some defect of bodily structure be found with which to associate the incidence of disease either directly or through predisposition. When modern bacteriology revolutionized the conception of the etiology of infectious diseases by giving concrete proof of the existence of the long-suspected *contagium vivum*, modern clinical medicine became still further modified. This fruitful knowledge has resulted in emphasizing the search for some agency of a positive kind in the case of every malady. As Hopkins says, we perforce recognize inherent deficiencies of structure and material in the body; but the essential and immediate cause of any disease we rather seek in the intrusion of some positive factor, some *res noxia*, be it parasite or poison. So completely is this course justified in general, he adds, that there is doubtless an excuse for the present tendency to seek for such an intruder in cases in which there would seem to be little reason to expect its presence, as in certain diseases of nutrition.

The study of the functional perversions of some of the so-called glands of internal secretion has pointed to the pathologic significance of their failure to supply some specific substance or other to the organism. Expressions like "dyspituitarism" and "hypothyroidism" testify to the growing recognition of the occasional lack

of products needed to maintain the normal metabolism of the organism. They bring this deficiency into prominence as a factor in the causation of disease. The lacking product in such cases is, however, something which appears to be manufactured in the body itself; and to call attention to its absence or deficiency is merely to direct the search for the etiologic factor one step farther back.

The remarkable newer revelations respecting the causative agencies in the manifestations of beriberi have served more than anything else to direct attention to deficiencies in the diet as an underlying etiologic feature in certain types of disease. By deficiency we do not here mean gross lack of energy-yielding substances — of calories represented by protein, fat and carbohydrate — for starvation, either complete or partial, need not be portrayed as something physiologically unique. It is rather the lack of one or more substances, perhaps of organic nature, which are present in most dietaries in small amounts easily overlooked by the chemist. Specifically in the case of beriberi induced by living on a narrow regimen of milled rice it is some component of the pericarp or millings of the cereal which is removed in the process of manufacture, the replacement of which in the diet averts or cures the pathologic manifestations.¹

In an interesting discussion of diseases due to deficiencies in diet, Dr. F. G. Hopkins² has summed up the situation which has resulted in overcoming the doubt that any important deficiency of the sort mentioned could ever occur in practical dietaries, as follows: The case of beriberi is indeed a very remarkable one. The wide consumption by whole races of a one-sided dietary, the localization of a specific substance in a grain, an artificial treatment of that grain exactly adjusted to remove the substance, and the occurrence of prominent symptoms as the result of its removal — all these coincidences were necessary to yield so striking a proof that a disease may arise from a dietetic deficiency. Without them it is unlikely that a serious discussion of the subject would have arisen.

The substitution of a deficiency factor in place of a toxic substance or an invading organism in the conception of the nature of a group of diseases has promptly afforded a new direction for interest in situations that have long puzzled physicians. The investigation of scorbutus as a deficiency disease has been renewed with exceptional vigor. This is particularly true of the form of infantile scurvy known as Barlow's disease and the somewhat related conditions of atrophic change described as *Mehlnährschaden* by the Germans. The manifest

1. The Relation of Rice to Certain Diseases, editorial, THE JOURNAL A. M. A., Feb. 24, 1912, p. 556; Polished Rice, Beriberi and the Nervous System, *ibid.*, July 6, 1912, p. 42; Recent Investigations on Rice Bran 'n Relation to Disease, *ibid.*, Sept. 14, 1912, p. 883.

2. Hopkins, F. G.: Discussion on Diseases Due to Deficiency in Diet, Proc. Roy. Soc., Section on Med. Therap. and Pharmacology, 1913, vii, 1.

tions of pellagra are being considered from the same point of view by those who are willing to take a tolerant attitude toward new hypotheses regarding this much-discussed disease. Even rachitis, osteomalacia and spasmophilia have been drawn into consideration.

Enthusiasm for the new has a familiar tendency to swing the pendulum too far in the direction of hastily accepting untested theories. With this warning we would preface a statement regarding the various symptoms of disease that have already been referred to diet-deficiency factors. They have been summarized by Funk³ as: (1) the syndrome of nerve degeneration with paralysis and contractures; (2) the cardiac syndrome involving dilatation of the right heart, dyspnea, cyanosis and oliguria; (3) anasarca, hydropericardium, hydrothorax, ascites — these three groups pertain to beriberi, for example; (4) the familiar picture of scorbutus with its disturbances in the mouth cavity, multiple hemorrhages in the skin and under the periosteum, as well as typical bone lesions; (5) the pellagra syndrome, with its stomatitis, gastro-intestinal lesions, skin erythema and multiple symptoms related to the nervous system. One fact stands out boldly amid the confusion of theory, namely, that the diseases of deficiency are no longer to be classed in the domain of tropical medicine. They appear with the occurrence of the limited or defective dietary wherever the latter may be found.

It is not an insuperable misfortune that we are at present still very meagerly instructed regarding the chemical nature of these essential components of the dietary for which Funk has promptly coined the term "vitamins." Enough facts are already at hand to furnish the scientific guidance. A diet liberal in the sense of variety and including, in the case of adults at least, plant food-products which are now known to contain countless substances other than proteins, fats and carbohydrates, is, to say the least, likely to furnish the desired essentials. For the present we must further bear in mind the experience with experimental scorbutus.⁴ The main symptoms may develop in advance of any loss of weight, while, when fresh vegetables are fed, the symptoms may remain absent even if the diet is insufficient in quantity, and weight is rapidly lost. The condition is clearly no result of simple underfeeding. But above all it is important to realize that in different foodstuffs the as yet unknown antiscorbutic substances exhibit varying degrees of stability. Whereas the symptoms are gradually removed through the use of fresh vegetables or vegetable juices, such materials are likewise known to lose their curative powers if heated, dried or kept long. Fresh milk is both antiscorbutic and antineuritic. The question of heating it needs to be considered from this aspect as well as from the present dominant point of view of necessary pasteurization.

The sum and substance of our still limited knowledge in this field is that the "vitamins," if we may employ the convenient term without prejudice as to its import, are widely distributed in nature and are also susceptible to destructive alteration in the modern processes of food manufacture and practical dietetics. The excessive milling of the grains, the undue heating of certain foods, the extraction of as yet unknown components from still other food products in present culinary practice, inappropriate methods of desiccation and preservation — all may contribute in as yet unsuspected ways to damage natural products in respect to their "vitamin" content. The sufferers thereby are those who by force of circumstances or custom are compelled to live on a limited ration. Greater safety lies in variety of diet and dictates the occasional return to the unaltered products of Nature's laboratories until the complete story of the essentials of diet is developed. On the other hand, we must not let the coining of words or the formulation of tentative hypotheses make us oblivious of the persistent shortcomings of our knowledge in this new and interesting field.

THE INDIANA MOTHERS' BABY BOOK

State and municipal health officers are realizing more and more that one of their most important duties is to teach the public, and that instruction, if properly given, is much more effective than coercion without instruction. The majority of persons are not only willing but also anxious to do what is right if they know what they ought to do, and especially if they are shown why they ought to do it.

The first development of public health administration was in the direction of compulsory laws forbidding certain actions and requiring others. These, too often, while enacted from the best of motives, and based on sound scientific knowledge, either were in advance of public opinion or were passed without any effort to develop public sentiment to support them. While often effective in the hands of an energetic and capable health officer, they have been in many cases dead letters and in others enforceable only at the cost of an enormous amount of effort, which might better have been utilized in other directions. The leading state health organizations at present are endeavoring to increase the education and enlightenment of the public, and to create public sentiment for the enforcement of such health regulations as may be necessary.

One of the strongest exponents of this doctrine is the Indiana State Board of Health. Through its bulletin and through the newspapers of the state, most of which are hearty supporters of the board, an effective educational campaign has been carried on. Realizing that nothing so appeals to the average man and woman as do efforts to save the lives of babies and prevent needless illness among infants, the secretary of the board,

3. Funk, C.: *Diät und diätetische Behandlung vom Standpunkt der Vitaminlehre*. München. med. Wchnschr., Nov. 25, 1913, p. 2614.
4. Experimental Scurvy. editorial, *THE JOURNAL A. M. A.*, Dec. 4, 1912, p. 2155.

Dr. J. N. Hurty, asked the state legislature last year for an appropriation of \$5,000 for the publication and distribution of "The Indiana Mothers' Baby Book." True to the instincts of the average legislator, the Indiana lawmakers cut this amount down one-half, and probably would have refused it altogether had not Dr. Hurty called attention to the fact that the same legislature had already appropriated a larger amount of money to stamp out hog cholera. Owing to the limited amount appropriated, the state board can send copies of this book only to the Indiana mother who has just borne her first child. Beginning last month, when the birth reports of the state for February were received by the secretary of the state board of health, the distribution of the book in this way was begun.

The book itself, which is attractively printed and bound, is intended to supplement and aid physicians by giving to mothers simple instructions concerning pregnancy, childbirth and the care of babies, in the hope that by this method a considerable amount of infantile disease and mortality may be prevented. The first part consists of chapters on parentage, pregnancy, preparation for labor and management of labor, and contains instructions for emergencies as well as advice for prospective mothers concerning their physical condition. The second part is devoted entirely to the care of the child, containing chapters on the care and feeding of the baby, advice to nursing mothers, bottle-feeding, clothing the baby, the second summer and teething. The book is thoroughly practical, written in simple language and well illustrated. The effect of this educational campaign will surely be apparent in a few years in the reduced infant death-rate in Indiana.

An additional touch is furnished by the two letters that accompany the book when it is sent to mothers. One is signed by the governor, congratulating the mother on the birth of her child; the other is from the state board of health offering its services in helping to keep the child well. Naturally, these letters greatly increase the mental impression on the parents, and lead to greater attention on their part to the instructions and admonitions in the little book.

THE HYGIENE OF ATHLETIC SPORTS—ROWING

In considering the discredit into which certain aspects of physical exercise are liable to be thrown by some of the abuses of modern athletics, we have pointed out the desirability and timeliness of ascertaining with some scientific precision and freedom from "professional" bias precisely what are the physiologic effects of the current practices.¹ The extent of the available information in respect to the specific influence of bodily exercise on the human mechanism is surprisingly limited. The time has arrived when criteria of competitive overdoing in

contrast with wholesome athletic training should be proposed and discussed in a frank and fearless way for the future benefit of American youth.

Training has been defined as the systematic preparation of the body for the exhibition of the utmost efficiency of its muscular system by means of regular physical exercise and a carefully regulated mode of life. It aims at permitting the individual to undergo vigorous bodily exertion with relative ease in comparison with the untrained individual and, above all, without jeopardy to health. This involves numerous elements of change in the organism, the precise nature of which is all too little known and has received scant attention from worthy investigators in the past. A recent study carried out at Wurzburg on the members of one of the academic boat-clubs, under the supervision of the hygienist K. B. Lehmann, furnishes some facts of immediate interest in relation to the effect of the training of candidates for competitive rowing crews.² The facts were gathered by competent observers and bear on a number of physiologic functions. The period of training comprised in the case under discussion covered about two and a half months during the collegiate year. Almost every candidate manifested a decline in body-weight, the loss averaging about 4.5 kg. (9 pounds), a figure somewhat less than is currently expected to follow rigorous training like that called for by university crew practices. There is an early drop in weight, not improbably due to a loss of superfluous fat in the beginner. The organism then adjusts itself to the need of a more liberal energy intake resulting in more stationary weight. During the final periods in which the concluding races and strenuous competitive trials occur there is, as a rule, a further decline in weight. That the weight-curve is not without direct prognostic import is suggested by the Wurzburg observer. He has noted that if it shows a sudden and steep decline the condition known among athletes as overtraining is to be feared. This may follow overexertion. It is attended with uncertain efficiency and nervous symptoms that can be averted only by a carefully instituted rest, diversion, and conservation of the physical resources of the individual.

A surprising feature in Lehrbecher's measurements is the failure to demonstrate a considerable increase in the size of the muscles of various regions in the course of a two months' training. Familiar observation and the physiologic teaching of the present day lead one to expect pronounced development in the arm, for example, when this is subjected to vigorous exercise. Several factors may have entered into the absence of evidence of increased proportions in the musculature of these German oarsmen. Hypertrophy of the muscles may have been compensated for in the total volume of the limbs and other parts measured by the disappearance of surplus fat. Furthermore, it should be borne in mind that

1. Athletic Sports in Relation to Health, editorial, THE JOURNAL A. M. A., March 21, 1914, p. 936; Athletic Sports versus Competitive Athletics, *ibid.*, April 4, 1914, p. 1094.

2. Lehrbecher, A.: Beobachtungen beim Rudertraining, Arch. f. Hyg., 1913, lxxxii, 1.

rowing does not confine its demands to limited groups of muscles, which is the case in many other sports such as boxing or fencing, but calls into play almost every larger area of skeletal musculature. In skilful rowing the arms are drawn into participation far less than the inexpert layman is wont to believe; on the other hand, the abdominal muscles and the legs are called on to assume a not inconsiderable share of the special effort. The contours of the rectus abdominis as well as of the muscles of the back gradually come into striking relief. At the outset of training the volumes of the extremities may show considerable increase after each individual series of efforts; later these immediate changes due to circulatory responses become less marked or even negligible as the muscles are accustomed to the work which they perform. The physiology of this adaptation, often attended by a disappearance of muscular pains which accompany the beginner's efforts, awaits an explanation.

All students of the physiology of exercise are agreed that the acceleration of the pulse attending a definite exertion grows less and less with training. The difference between the well-trained and the beginner in this respect was strikingly brought out in the Wurzburg experiments. The demands made on the circulatory mechanism are indicated by the fact that in covering 2 kilometers in a four-oared racing-shell the pulse-rate was raised to from 150 to 180 beats per minute in every individual. It is precisely in this feature of the extreme task of the circulatory apparatus that the greatest dangers lie and that the least definite information as to the mechanism of compensation in relation to training is at present forthcoming. The respiratory distress so common with beginners after extreme effort is likewise greatly lessened as the result of training. The thorax seems to become more mobile to meet the needs of pulmonary ventilation, and the respiratory responses grow more efficient. The temporary rise in body temperature invariably attending muscular activity amounted, on the average, to 0.42 C. (0.75 F.) during a row over the usual course. This is somewhat less than one finds in other comparable athletic sports, doubtless owing to the fact that the mode of clothing in crew practice permits a more ready compensatory loss of heat from the body. Albuminuria and attendant pathologic kidney phenomena, so frequently mentioned as characteristic of undue physical exertion, were not observed in the present experiences.

The subtle influence on the nervous system of training for a decisive competitive event is recognized by those immediately concerned as an element liable to determine success or failure, but is rarely considered from the broader point of view of its effect on the welfare of the person concerned. Most candidates show more or less "nervousness" and increased irritability toward the end of a period of training, and this mental condition is well known to the experts. There may be periods of tendency to insomnia, and diarrheas of ner-

vous origin have been observed. It has been counted as favorable in the case of college athletes that their scholastic duties act to divert attention in some measure from the "nerve-straining" features of athletic training. The same factor of distraction has been held to account for the often unexpected success of crews composed of business men who devote only their leisure moments to the somewhat monotonous rigor of training and practice.

The conclusions of a physiologic observer who has followed a season of training with unbiased expert eyes are worthy of close consideration. The possible dangers of competitive rowing are not concealed by him. Even with careful supervision, overexertion of the heart, nervous exhaustion and other untoward symptoms may arise. Such features can be averted by intelligent guidance; in other words, by training under the eye of a competent medical adviser rather than a muscular giant or an athletic trickster. Speaking from a personal experience, Lehrbecher frankly says that the choicest reward of the great effort of six weeks' preparation is not the absolute gain in muscular strength or bodily mastery, but rather a unique feeling of control over an organism that is equal to the greatest exertions. The feeling of having participated in a regatta is not greatly unlike the sense of satisfaction which attends the successful completion of an examination. The one demonstrates the mastery of the body, the other that of the mind. We are warned, however, of an additional duty rarely fulfilled by the present system of athletic competitions. It is the necessity of providing for some acceptable continuance of activity so that the derived gain of a season's training will not change to loss and the well-trained person revert to the other extreme of unhygienic living.

THE UNITED STATES PUBLIC HEALTH SERVICE

The annual report of the Surgeon-General of the United States Public Health Service for the fiscal year 1913 really is only a mere outline of the work of the department for the year, the full accounts of its wide and varied activities being contained in numerous bulletins and other publications issued from time to time. In the one hundred and fifteen years of its existence the service has rapidly grown, especially during recent years, both in the extent of scientific work and in the practical application of the knowledge so gained to the welfare of the people. It is doubtful whether the average citizen has any real conception of the extent or the great value of the achievements of the service.

It is worthy of note that not one case of cholera occurred in the whole of the Philippine Islands during the year, and only a few cases of plague, a disease which was never allowed to arise to the dignity of a menace. Yet these diseases have been from ancient times two of the scourges of the earth. Small-pox, which formerly killed 40,000 people annually in the islands, occurred in

such a small number of cases (and those among persons inaccessible to vaccination) that it is an item of only minor importance in the report for 1913. Yellow fever since its banishment following the Spanish War, through constant watchfulness, has never again gained a foothold anywhere in our possessions, and is only mentioned in connection with the strict quarantine maintained against Central and South American countries where the disease is always present.

Concerning the United States proper, highly interesting and significant of the practical activities of the service are the reports of the field investigations on pellagra, trachoma, malaria, Rocky Mountain spotted fever, typhoid fever, tuberculosis, parasitic diseases, pollution of navigable waters, sanitary administration, school sanitation and the hygiene of occupations. Much of this work was done at the request of and in cooperation with state health boards. The work also included laboratory investigations of many of the diseases primarily named as well as others, studies in connection with the supervision of viruses and vaccines, serums and toxins, the preparation and distribution of antirabic virus, the enforcement of the white-phosphorus-match law, etc. As a result of the investigations since 1906 by the service and by others, sufficient knowledge of typhoid fever is said to exist which, if utilized, would abolish the disease. It continues to prevail, however, and the department in future will endeavor, by studying local outbreaks, to stimulate interest in the adoption of measures for prevention, not the least of which is antityphoid inoculation. A great portion of the activities and of the forces of the Public Health Service are connected with the quarantine and immigration services, and the account of that work given in the report is of decided interest and importance. We have commented a number of times during the past year on the work of the immigration service, especially in connection with the admission or exclusion of the feeble-minded and the insane. This report as a whole shows that an amazing amount of work of the most practical value has been accomplished by this service. For a body inadequately manned, and provided with insufficient appropriations to carry out a tithe of its possibilities of benefit, the United States Public Health Service has demonstrated anew its whole-hearted interest in humanity and its great power for good.

THE SERUM TREATMENT OF TETANUS

The great value of antitetanus serum as a preventive is unquestioned. Indeed, Kocher says that failure to inject antitetanus serum as early as possible in all cases of wounds contaminated with street dirt would be culpable neglect. As a specific cure, however, this serum has fallen far short of the earliest expectations; it even has been asserted that so far the statistics and the evidence obtained from watching patients treated with

serum do not indicate that it has any real curative value. It has been shown experimentally, however, that antitetanus serum may save animals already suffering from the symptoms of an otherwise fatal intoxication, but in order to accomplish this result the serum must be given in several hundred times the quantity required merely to protect, and it must be injected within a short time, from twenty-four to thirty-six hours, after the onset of the tetanus. Furthermore, it cannot be denied that the weight of statistics favors the serum. It is generally stated and accepted that the death-rate of tetanus before serum treatment was introduced was from 80 to 85 per cent. We now have several series of cases under serum treatment which all give a somewhat lower death-rate—from 60 to 65 per cent.—whereas in cases without serum treatment the higher rate of earlier days appears to prevail.

Permin,¹ in a recent and thorough review, reaches the general conclusion that antitetanus serum has reduced the mortality of tetanus approximately 20 per cent. He gives figures from Denmark, which are especially valuable because gathered from a small area, and hence representing fairly uniform conditions: 199 cases not treated with serum gave a death-rate of about 80 per cent., while 189 cases in which the serum was used gave a rate of 58 per cent. It is significant that the Danish figures correspond closely to American statistics and those of other countries. In view of this evidence in favor of the serum in tetanus it is self-evident that the physician is under obligation to give every patient with tetanus the opportunity to obtain any benefit there may be in the serum.

At this point the question may be raised: What is the reason that the antitetanus serum is not more effective than it has been? An attempt to answer this question requires a brief word concerning the genesis of tetanus. The symptoms of tetanus are caused by a toxin which is said to be the most virulent of all poisons. This toxin is produced by the bacilli lodged in the wound and it reaches the brain and cord by way both of the circulation and of the muscular nerves, along which it travels with considerable rapidity; it has a special affinity for the ganglion cells of the brain and cord, and its action on them causes the stiffness and spasms characteristic of the disease. It has been determined by experiment that tetanus antitoxin, no matter how introduced into the body, probably has practically no effect on the toxin which already has entered the ganglion cells; antitoxin does neutralize, however, the toxin which is free in the blood and lymph, and it does this most quickly and effectively when the antitoxic serum is introduced intravenously or intramuscularly. According to the experiments of Permin, it seems that the antitoxin so introduced does not reach, and hence does not neutralize that toxin which is still in the nerves. Permin was able to

1. Permin: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1913, xxvii, 1; abstr., THE JOURNAL A. M. A., Jan. 10, 1914, p. 170.

produce tetanus experimentally by injecting toxin directly into suitable nerves, even though the animal was thoroughly immunized beforehand by the injection of antitoxic serum. That is, a muscular nerve, even though bathed in lymph containing tetanus antitoxin, will nevertheless convey fatal quantities of tetanus toxin to the nerve-centers. The only way in which the antitoxic serum can neutralize this intravenous toxin is through intraspinal injection. By this method the antitoxin reaches not only the toxin still in the nerves, but also that which has passed into the blood and lymph. From this we learn, then, two very important facts, namely, first, that the serum does not affect the morbid process initiated by the entrance of the toxin into nerve-cells, as its preventive action lies in neutralizing the toxin which is still free; and, second, that only by intraspinal injection can it reach the toxin traveling in the nerves. Hence, the reason for the ineffectiveness of the serum treatment of tetanus must be failure to begin the treatment, which is essentially preventive, early enough; the use of too small a number of antitoxic units, and the selection of a place of injection not best suited to secure the maximum neutralizing action.

The recognition of the natural limitations of the serum treatment of tetanus will serve to emphasize the importance of early and liberal use of antitoxic serum largely by intraspinal introduction in order to neutralize the toxin that still is free and on its way to the nerve-cells, the necessity of thorough cleansing of the wound to remove all source of continued intoxication, and of conserving the strength of the patient in the hope that the morbid process caused by the toxin already in the nerve-cells may be overcome.

SALVARSAN THERAPY

By a careful review of the fatalities from salvarsan not only under his immediate observation, but also of the cases in the literature, Wechsellmann,¹ in a pamphlet issued recently, attempts to prove that the cases of encephalitis hemorrhagica following salvarsan treatment were due to uremia. This was the result of the irritation of kidneys which in most cases had been rendered insufficient by mercury. The kidney lesions, while not so severe as to give clinical or laboratory evidences of trouble, yet reacted to salvarsan by a fatal suppression of urine. He supports this argument by the findings in a series of animal experiments showing that mercury, like chromium, damages the tubular epithelium of the kidney, while arsenic, like cantharidin, acts on the glomeruli. He explains that kidneys long irritated by mercury are so injured that the comparatively slight irritation of salvarsan can cause suppression.

On the basis of this theory, which he grants is not proved, he argues in favor of a pure salvarsan therapy

in place of the generally accepted combined mercury and salvarsan therapy. His opinions can scarcely succeed in making many converts to pure salvarsan therapy; but they are valuable, especially as coming from a salvarsan enthusiast, because of the emphatic warning that no pains should be spared in the detection of contra-indications, and in the accurate determination of the proper dose if no contra-indications exist.

Whether or not the insufficiency of the kidneys is the key to the situation, the suggestion that careful examination of their efficiency be made in every case before giving salvarsan is a good one, and too much emphasis cannot be laid on the admonition to regulate the size of the dose according to the individual. Only by such care can deaths from salvarsan be avoided. Wechsellmann's caution against giving salvarsan immediately after intensive mercury therapy can at least warn us against overenthusiasm in both lines.

His special pleading on behalf of salvarsan is well illustrated in the following passage (p. 59): "According to all these findings we are justified in saying that salvarsan of itself is not poisonous to normal human beings in the usual dose. A failure of some organ, especially the kidneys, is always responsible. For this insufficiency mercury is often to blame, only perhaps exceptionally salvarsan or such other factors as the effect of syphilis or other infections on the blood-vessels."

His conclusions (after a review of 140 cases in the literature) are also worth quoting: "One sees that here is a many-colored mixture of fatal cases of no single type, for only the smallest percentage of which can salvarsan be blamed. The very variety of the pathologic conditions under which encephalitis hemorrhagica appears shows that salvarsan, at least for the great proportion of these cases, is only a determining factor, not the real cause of death. Therefore no explanation applying to all cases can be made. . . . A glance at the case histories shows how blindly salvarsan was at first used and that certainly most of the deaths could have been avoided. . . . We are well aware that our exhibit is very incomplete, and that we have often arrived at conclusions through analogy and deduction. But because of the great practical value of a review of the salvarsan deaths I hold it my duty, in spite of the incompleteness of my data, to present further precautions in the use of salvarsan. . . . Only after these precautions are observed can the real investigation of apparently so simple but really so complex a question as that of deaths from salvarsan be instituted."

No one can dispute the statement that many of the deaths from salvarsan have been caused by its ill-considered use either in the face of contra-indications or in too large or too frequent dosage; but to argue from this that the fatalities are therefore not due to salvarsan and that salvarsan is not toxic is far from logical. The unwise use of salvarsan may be expected as a result of

1. Wechsellmann, Wilhelm: Ueber die Pathogenese der Salvarsantodesfälle, Urban and Schwarzenberg, Berlin.

such arguments, and the stubborn denial of the toxicity of the drug has encouraged its careless administration. The arguments advanced by Wechselsmann will be to the thoughtful reader a warning against the indiscriminate use of a remedy that has proved itself dangerous if handled without due caution.

Current Comment

AN EASY TEST FOR SUSCEPTIBILITY TO DIPHTHERIA

In many persons the blood normally contains diphtheria antitoxins in readily demonstrable quantities. This is the case in about 80 per cent. of the new-born, 90 per cent. of adults and from 50 to 60 per cent. of children. There are good reasons for believing that such persons are insusceptible to diphtheria, and if this is true, then the prophylactic injection of diphtheria antitoxin might be omitted in many cases, provided it were possible to detect promptly the persons supplied by Nature with antitoxin. A practicable method for this purpose appears to be available in the intracutaneous injections of minimal quantities of diphtheria toxin. Such injections are followed in a few hours by a definite reaction of local redness and infiltration in persons devoid of antitoxin, while persons having natural antitoxin in the blood as a rule give no reaction at all of this kind. That the reaction is really significant is indicated by the fact that children sick with diphtheria give the reaction when tested before having received antitoxic serum; on the other hand, the new-born, who as a rule do not contract diphtheria, give the reaction only in exceptional cases. Schick,¹ who has been working on this reaction in von Pirquet's clinic in Vienna, observed that among the nurses those giving the reaction are likely to become sick with diphtheria. Systematic observations by several workers indicate that according to the results of the intracutaneous injection of diphtheria toxin 93 per cent. of the new-born are protected, 57 per cent. of children in the first year, 37 per cent. of children between 2 and 5 years of age, and 50 per cent. of children between 5 and 15. These figures indicate that at all ages a large proportion of children really may not need to receive preventive injections of antidiphtheria serum. Presumably, adults are protected in still larger proportions. The test is very simple: the quantity of toxin injected is one-fiftieth of the minimum lethal dose for the guinea-pig, and this is diluted so as to represent 0.1 c.c. of fluid. The results are available at the end of twenty-four hours. This test seems to be easily adaptable to institutions of various kinds; when diphtheria breaks out, all the inmates can be tested and only those who show inflammatory reaction injected. In this way much annoyance on account of serum reactions as well as much expense may be avoided. The results of further observations will be awaited with interest.

1. Schick: München. med. Wchnschr., 1913, lx, 2608. This article gives the references.

ALCOHOL BARRED FROM THE NAVY

Alcohol as a beverage has been barred out of the United States Navy. Following the recommendation of Surgeon-General Braisted, Secretary of the Navy Josephus Daniels has issued an executive order abolishing all alcoholic liquors from every ship and station of the Navy. The order reads, "The use or introduction, for drinking purposes, of alcoholic liquors on board any naval vessels, or within any naval yard or station, is strictly prohibited, and commanding officers will be held directly responsible for the enforcement of this order." The significance and extent of the change which has taken place in popular views regarding alcohol, as indicated by this sweeping order of the secretary, can be appreciated only when one recalls the stories of naval experiences of past generations, when rum, brandy and whisky formed a part of the regular official rations, when liquor of some kind was served, as a routine procedure, to officers and men before going into action, and when one of the chief characteristics of sailors, whether officers or seamen, was their ability to dispose of an amazing quantity of intoxicants. The development of scientific methods and the use of instruments of precision in warfare have made alcohol absolutely detrimental to the modern naval man. Sea-fights in the past were won by brute hardihood and physical endurance which could perhaps be stimulated, temporarily at least, by large doses of alcohol. The modern war-ship is a floating laboratory of delicate and accurate machines. The gun-pointer who directs a 14-inch rifle on the modern man-of-war needs not only personal courage, but also absolute steadiness of nerve, clearness of vision and fine muscular coordination. All these things modern physiology has shown to be impaired by even small amounts of alcohol. The engineer who superintends the machinery at the heart of the modern battleship, the man at the wheel who directs its course and the captain or the executive officer on the bridge, as well as the most humble member of the crew, need at all times to be in a condition of maximum physical and mental efficiency. Intoxication in the naval officer to-day might easily be as disastrous as cowardice and treason. Surgeon-General Braisted's recommendations and Secretary Daniels' order are simply in line with our growing knowledge. The nation needs on its battleships to-day the most capable, clear-headed, cool-brained and steady-handed men, and these men are not found among the habitual or occasional users of alcohol in any form. Entirely aside from moral or sentimental reasons, and considered simply as a scientific regulation in the interest of efficiency, this order will recommend itself to the vast majority of the American people.

THE FORMATION OF FAT FROM PROTEIN

The time has passed when an undue accumulation of fat in various organs and tissues can be labeled "fatty degeneration" without further concern as to the conditions causing the accumulation. The demonstration of the wide-spread occurrence of a true "fatty infiltration" has broadened the views concerning the phenomena of fatty metamorphosis. In accordance with the theory

of Virchow, to whom we owe the early classic investigations on the histology and pathology of these changes, they were long considered to be due to a direct transformation of cell proteins into fat — a true fatty degeneration of protoplasm. This in turn became one of the strong arguments in favor of the theory of the direct formation of fat from protein. Many additional evidences to support the theory were brought from other fields of study, among them the supposed increase in fat in the ripening of protein-rich cheese. This "proof," like many others used to maintain this much-debated point, must also be finally discarded. Kondo¹ has demonstrated by painstaking analyses that under no circumstances does an increase occur in the fat content of ripening cheese. When the process goes on in the presence of fungi exposed to the air, there usually is an actual disappearance rather than a new formation of fat; and even in an atmosphere deprived of oxygen, the quantity of fat at best remains unchanged.

PUBLIC EDUCATION THROUGH LOCAL NEWSPAPERS

A striking illustration of the way in which our local medical organizations can instruct the public on health topics is found in the special Y. W. C. A. edition of the Knoxville (Tenn.) *Sentinel*, issued by the women of Knoxville. This edition contains a large number of special articles on many topics of local and general interest, an entire page being given to public health. A large share of this page is occupied by an article on "Organized Medicine, What it Stands for, and Some of the Things it has Accomplished," which presents the entire argument for medical organization as a benefit to the public. The objects and advantages of organization, for both local and national associations, are presented clearly and forcibly. Other articles on the page are, "Immunity First Aid to Preventive Medicine"; "Advantages Claimed for General Hospital Plan"; "Garbage Disposal," and "Vivisection." A reprint of Rudyard Kipling's article on "The Doctor and the Patient" from the *Ladies' Home Journal* completes the page. This example is a good one for other county societies to follow. In counties in which the medical profession is properly and effectively organized, a request from the society as a body, for an insertion in the leading papers of the county of suitable educational articles on public health topics, will be disregarded by very few local newspapers. Articles prepared under the supervision of the county society and published with its approval will carry an amount of authority and influence that would not be possible in the case of articles prepared and signed by individual physicians. With the advance in preventive medicine and the increase in knowledge of the methods of transmission of contagious diseases, the doctor is reverting more and more to his original rôle of teacher, and the sooner physicians as a class qualify themselves for this educational function, the sooner will they have the overwhelming support of intelligent people.

HOLMES, NOT SEMMELWEIS

We recently received a reprint of the memorial address delivered at the annual banquet in honor of Semmelweis by Julius Dollinger,¹ professor of surgery at Budapest. It is a commendable custom thus to keep alive the memory of a physician who has helped by a great discovery to preserve the lives of countless women in the performance of their highest service to the world. Although no history of Semmelweis' work was given, Dollinger assumes that Semmelweis was the originator of the theory of the contagiousness of puerperal fever. He is probably unaware that before Semmelweis announced his views the leading English authorities regarded puerperal fever as a specific contagious disease, and that, in America, Oliver Wendell Holmes in a masterly essay had presented the true situation and had aroused the members of the American profession to appreciate their responsibility for the spread of this dread disease. The clinical proof offered by Semmelweis enabled him, in the face of much opposition from obstetricians of Continental Europe, to establish the contagiousness of puerperal fever. He well deserves the honor which he has received, but his countrymen ought to remember that the glory of this great achievement is not for Hungary alone. A wider acquaintance with literature would obviate such mistakes. We may repeat the question which we asked some years ago.² Why should not America honor Holmes as Hungary has honored and still honors Semmelweis? Why should not we, like the Hungarians, by an annual dinner or address, recall the work of Holmes and incidentally testify to the value of early American medical work and literature?

CHIROPRACTIC

Chiropractic is a freak offshoot from osteopathy. Its followers assert that disease is caused by pressure on the spinal nerves and can be eradicated by "adjusting" the vertebrae. It is the sheerest kind of quackery, practiced largely by men whose general education is as limited as their knowledge of anatomy, and who are profoundly ignorant of the fundamental sciences on which the treatment of disease in the human body depends. Chiropractic is taught — heaven save the mark! — on the mail-order plan. The modern medical school requires that its matriculants have a fairly good general education. The so-called "colleges" of chiropractic matriculate anybody who can pay the fee. The medical school requires, in addition to a good preliminary educational foundation, four years — in some cases five — of hard study with much practical work before granting the degree of doctor of medicine. The chiropractic "schools" profess to teach individuals how to treat disease by a few weeks' mail-order instruction. Study the advertisements of any concern that professes to give a "course" in chiropractic. Send for the advertising matter and obtain the follow-up letters by which these alleged schools obtain "students." The key-note of every piece of advertising matter that emanates from

1. Kondo, K.: Ein experimenteller Beitrag zur Frage der Fettbildung aus Eiweiss bei der Reifung des Käses, *Biochem. Ztschr.*, 1914, lxx, 113.

1. Dollinger, Julius: Semmelweis-Denkrede, *Pester Medizinische-Chirurgische Presse*, 1914, L, No. 6.

2. Puerperal Fever and the Monument to Semmelweis, editorial, *THE JOURNAL A. M. A.*, Dec. 8, 1906, p. 1920.

these sources is that there is "big money" in chiropractic. Chiropractic is in no sense a profession. It is a scheme by which sharpers induce men, generally of little education and with a dwarfed sense of moral obligation, to learn the tricks of a disreputable trade — quackery.

Medical News

ARIZONA

Personal.—Dr. Thomas Watkins, after five years connection with the medical department of the Copper Queen Company at Bisbee, has resigned and returned to his former home, Richmond, Va.

Arizona Anti-Tuberculosis Society.—The Arizona Anti-Tuberculosis Society, of which Dr. John W. Flinn of Prescott is president, will meet in Tucson the day following the session of the state society.

Meeting of State Medical Society.—The State Medical Society will meet at Tucson, April 20, 21 and 22. Arrangements are in charge of the local committee of which Dr. Meade Clyne is chairman.

CALIFORNIA

Personal.—Dr. Percy T. Phillips, Santa Cruz, fractured two ribs in an automobile accident near Calistoga, March 29.—Dr. William E. MacCoy, Los Angeles, was awarded \$1,000 in his suit for payment for medical services against H. R. Gage, March 23.

Summer School of Medicine.—Stanford University Medical School, San Francisco, announces that it will offer a summer course for physicians from July 6 to August 16. Special work will also be given in the laboratories of the medical school, in the Lane Hospital, the San Francisco City and County Hospital and the Isolation Hospital.

New Officers.—Southern California Alumni Association of the College of Physicians and Surgeons, Chicago, at Los Angeles, March 24: president, Dr. Charles H. Whitman; secretary, Dr. Walter F. Wessels, both of Los Angeles.—Lassen-Plumas Counties Medical Association at Susanville: president, Dr. William E. Dozier; secretary-treasurer, Dr. Robert W. T. Garner, both of Susanville.

ILLINOIS

Chicago

Personal.—Dr. Arthur R. Elliott, who was operated on for appendicitis at St. Luke's Hospital, April 3, is making satisfactory progress toward recovery.

Banquet of County Hospital Physicians.—The annual banquet of the Cook County Hospital physicians was held in the new Fort Dearborn Hotel, April 2. One hundred and four physicians and guests were present. Dr. Frederick G. Dyas acted as toastmaster.

Baby Week.—The Chicago Infant Welfare Society has announced April 19 as the beginning of "Baby Week," during which a vigorous campaign will be conducted to interest every one in the subject of infant welfare in Chicago. Out of this work it is hoped that a permanent campaign may be vitalized. The churches, newspapers, moving picture theaters, posters, theater programs and many other agencies will be employed in arousing interest in the campaign. The society maintains stations with trained nurses in charge where mothers may go for advice and help, and nurses are sent to the homes. In 1913 the society spent between \$25,000 and \$30,000 in maintaining thirteen infant welfare stations; 1,212 conferences were held, 3,678 babies were cared for and 41,647 calls were made by the thirteen nurses. The physicians connected with the work of the society donated their services. The general infant mortality of Chicago is 19.6 per cent., whereas in the area in which the society carried on its welfare work the death-rate was 3.8 per cent. It is hoped that fifty stations may be maintained during the present year.

INDIANA

Small-Pox.—The small-pox epidemic in Indianapolis is on the decrease; 458 cases were reported during the month of February without a single death.

Hospital at Bloomington.—A new hospital for Bloomington, Ind., is one of the promises of the near future; \$40,000 is being raised by local federations of clubs for that purpose.

Tuberculosis Dispensary.—The opening of the dispensary of the Fort Wayne Anti-Tuberculosis League at 39 Schmidt Block occurred March 16. Drs. Eric A. Crull, Edmund M. Van Buskirk and Charles G. Beall are on the staff of physicians. The dispensary is in charge of Miss Irene Byron, visiting nurse.

Tuberculosis Camp and Hospital.—A farm of eleven acres has been offered to the city of Indianapolis for the establishment of a temporary tuberculosis camp. The county commissioners of Marion County have decided that a hospital for tuberculosis patients will be erected in the near future as it has been shown that there were 2,715 deaths from tuberculosis in Marion County during the past five years.

Personal.—Dr. John Eberhart and son Clyde of Lewis Creek were badly burned by a gasoline explosion.—Dr. George W. Bowman and Dr. Walter Tinsley have been appointed district physicians at the city dispensary, Indianapolis.—Dr. William F. Walsh, Indianapolis, was seriously injured by being struck by a Cincinnati, Hamilton and Dayton Railroad train, March 21.—Dr. Luke H. Kelly, Hammond, was injured in an automobile accident, March 26. He was removed to St. Mary's Hospital, where it was found that several ribs were fractured, and that he was severely bruised.

Visiting Nurses in the Public Schools.—The City Board of Health, Indianapolis, has decided to inaugurate a system of visiting nurses in the public schools. As \$10,800 is raised annually on a one-half cent tax levy for school inspection which is provided for by the state law, part of this will be devoted toward employing nurses. It is expected by next fall sufficient funds will be available to provide for an assistant superintendent of nurses at the city hospital, who will have charge of all nurses. At first pupil-nurses from the city hospital will be employed, who will devote part of their time to the work; later regular nurses will devote all their time to it.

LOUISIANA

Personal.—Dr. Thomas B. Pugh, Napoleonsville, has been named as mayor of that city.—Dr. Sidney D. Porter has been named as chairman of the coming conference on hookworm, which is soon to be held in New Orleans.

Meeting of State Medical Society.—The Louisiana State Medical Society will meet at New Orleans, April 21. The meeting of the society will be preceded, April 19 and 20, by the conference of State Health Officers. Special rates have been arranged with the hotels.

New Parish Societies.—The Webster Parish Medical Society was organized at Cotton Valley, March 9. Dr. Fred J. Mayer, Opelousas, addressed the meeting on small-pox and typhoid vaccination.—The Medical Society of St. Martin's Parish was organized with the assistance of Dr. Fred J. Mayer, president of the State Medical Society, March 23. The following officers were elected: president, Dr. A. P. Sillan; secretary-treasurer, Dr. E. Fred Stockton, both of St. Martinville.—Lafayette Parish Medical Society at Lafayette: president, Dr. John L. Chiasson, Scott; secretary-treasurer, Dr. Merrick E. Saucier, Lafayette.

Improvements at Leper Station.—At the meeting of the board of control of the Louisiana Leper Home, White Castle, preliminary plans were presented for improvements for the home. Plans for additional cottages are included and for a large central building which will operate the sewage disposal plant, hot and cold water-supply, electric light and fuel-producing systems and refrigerating plant. The home now cares for eighty-seven patients, but additional rooms are necessary. It is estimated that only one-third of the lepers of the state are inmates of the institution. The legislature will be asked for a larger appropriation to cover the improvements.

Medals for Distinguished Services.—Drs. Charles C. Bass, Charles W. Duval and Abraham L. Metz were presented with medals of honor, March 14, by the resident members of the National Institute of Social Sciences, New Orleans. The presentation took place in the council chamber of the City Hall, and was in honor of the distinguished services performed by the physicians in scientific research. The distinguished services mentioned in the case of Dr. Bass were his cultivation of malarial plasmodia, a test for typhoid fever, and his contributions to the study of hookworm and pellagra. In the case of Dr. Duval, for his discovery of the cause of epidemics of dysentery, in collaboration with Dr. Charles E. Verdier, his contributions to the study of tuberculosis, arteriosclerosis,

pneumonia and the treatment of leprosy. Dr. Metz was honored for his sanitary work in connection with yellow fever in 1897 and 1905, and for his crusade against insanitary dairies and adulteration of milk, and for much other sanitary work of peculiar excellence.

MARYLAND

Baltimore

Bond Issue for Sydenham Hospital.—The bill, authorizing a bond issue for \$750,000 to provide an adequate hospital for infectious diseases for Baltimore city, has been passed by the general assembly.

Home for Widows and Orphans of Physicians Aided.—The Dawkins bill, appropriating \$3,000 annually for the next two years for the support of the Home for Widows and Orphans of Physicians of Baltimore, was passed by the general assembly and signed by the governor.

To Aid Mercy Hospital.—To arouse interest in Mercy Hospital and to give their business judgment for the extension of the institution, more than a score of business and professional men held a meeting in the board rooms of the Fidelity Trust Company on April 3 and partially perfected an organization. Cardinal Gibbons was elected honorary general chairman.

Small-Pox in Johns Hopkins Medical School.—Chester A. Downes, a member of the graduating class of Johns Hopkins Medical School, was taken to the Quarantine Hospital last week after an examination had disclosed that he was suffering from small-pox. At the Johns Hopkins Hospital it was stated that great precautions are being taken to prevent an outbreak of the disease among the students and the faculty, all of whom will be required to undergo vaccination.

Personal.—Dr. William J. Coleman, Baltimore, superintendent of University Hospital, has been confined to his bed with an attack of grip. It is thought that he will be able to resume his duties within a few days.—Dr. Horace M. Simmons, formerly editor of the Maryland Medical Journal, is traveling in the Hawaiian Islands.—Dr. A. Trego Shertzer has been seriously ill at his home for the past ten days.

Hopkins Man to Plan Big Hospital.—The directors of the University of California, after looking over the relative attainments of many hospital organization specialists throughout the country, have selected Dr. Winford H. Smith, superintendent of the Johns Hopkins Hospital, to act as consultant of building, organization and administration plans of the new \$1,000,000 hospital to be erected in San Francisco in connection with the University. Dr. Smith has left for the Western city and will be gone about eight weeks. During the last three years Dr. Smith has helped to plan the Phipps Psychiatric Clinic, the Harriet Lane Children's Hospital, the Brady Urological Clinic, and the Marburg Ward, the four big departments of Johns Hopkins Hospital.

Crusade for Clean City.—The Health Department, in cooperation with the Police Board, as a result of a conference at the City Club, has started a clean city crusade that promises permanent results. The plan will be worked out by means of a corps of sanitary policemen to be detailed by the Police Board and known officially as the "Sanitary Squad." Every patrolman is to be made responsible for the cleanliness of his beat, both as to alleys and private premises. Patrolmen are to be instructed and their work supervised by eight sanitary officers, one for each police district. The commissioner of street cleaning will cooperate to the extent of removing all refuse he is required by law to haul away. The assistance of the Women's Civic League has also been assured. It will be the duty of the "Sanitary Squad" to inspect all alleys in the districts to which they are assigned and see that garbage is not left lying where it will attract mosquitoes and vermin, as well as rodents. It will be their duty to educate the public in taking proper precautions against any negligence which might result in the spread of disease.

MONTANA

Spotted Fever.—Two cases of Rocky Mountain spotted fever have been reported from Hamilton and Stevensville, in the Bitter Root Valley. Surgeon L. D. Frieks of the United States Public Health Service has again taken up the study of the tick fever in the valley.

NEBRASKA

Meets in New Quarters.—The Douglas County Medical Society met, March 3, in its new quarters in the Omaha City National Bank Building. The address was by Dr. Fred C.

Zapffe of Chicago, on "Bone Tumors," and was illustrated by lantern slides.

Meeting of State and Local Health Officers.—The second annual conference of the state and local health officers was held in Lincoln, March 11. Nearly two hundred health officers were in attendance. The conference was in session two days at the Lincoln Hotel.

Society Meeting and Banquet.—The Fillmore County Medical Society met March 10 at the Hotel Jamieson in Geneva. They had as guests members of the dental profession residing in Fillmore or surrounding counties. After the business meeting, a banquet was held in honor of Dr. Royal Woods, a practitioner of twenty-five years' standing in Geneva who has recently removed to Heigler.

New Fraternity House for Physicians.—On March 9, ground was broken for the new fraternity house of the Iota chapter of the Phi Rho Sigma fraternity. The occasion was the thirteenth anniversary of the founding of the chapter at Omaha. The program was in charge of Drs. M. F. Tinky, Burton W. Christie and others. The fraternity house is to be at Forty-Second and Dewey Avenues and will cost \$15,000. It will be a three-story structure with basement, and fitted with club and living rooms.

Decision Validating Sanitary District.—The Supreme Court of Nebraska, March 13, affirmed the decree of the Lancaster County District Court, validating the laws creating Lancaster County a sanitary district. This district had been in existence for twenty years and much work had been done in the way of public sanitation and upwards of \$200,000 had been spent. The injunction was asked in 1911 by C. O. Wheedon, to enjoin the sanitary district from performing its functions on the grounds of unconstitutionality.

Personal.—Dr. Albert P. Fitzsimmons, Tecumseh, has received notice of his appointment as a member of the municipal commission of the Philippine Islands.—Dr. Clinton K. Timmons, Columbus, has received his appointment as surgeon of the Illinois Central Railway, with headquarters in Chicago.—Dr. Oscar S. Hoffman, Omaha, after an accident in which his shoulder was dislocated, made two calls on his patients before having the dislocation reduced.—Dr. W. Howard Heine, Hooper, had his collar-bone broken in an automobile accident.

NEW YORK

New Officers.—Utica Medical Club, March 19: president, Dr. Frederick R. Ford; secretary-treasurer, Dr. Raymond L. Baker.

Berlin Professor to Lecture in Buffalo.—Prof. Ludwig Pick, Berlin, will deliver the Herrington lecture to the Medical Department of the University of Buffalo. His topic will be "Some Advances in Pathologic Anatomy."

Personal.—Dr. Harriet M. Doane has been appointed health commissioner of Fulton.—Dr. J. W. Cox, pathologist to the Crouse-Irving Hospital, Syracuse, has resigned on account of ill health.—Dr. Erastus Corning, Albany, has been appointed a trustee of the State Hospital for Incipient Pulmonary Tuberculosis.

Tuberculosis Among Cows.—The New York Milk Committee has just sent to Governor Glynn the statement that 500,000 of the 1,500,000 dairy cows in this state are tuberculous and that 40 per cent. of these are spreaders of the disease. The suggestion is made that the Webb bill, providing for a compulsory examination of all dairy cattle and the destruction of all showing physical signs of disease would only slightly retard the spread of the disease. It was urged that such physical examination of dairy cows was irregular and uncertain and would only detect a small percentage of the cows affected. It was stated that the only reliable method of detecting bovine tuberculosis was by the tuberculin test. It is asserted that 90 per cent. of the residents outside the city of New York consume raw milk and are therefore exposed to infection.

Wood-Alcohol Legislation.—A joint hearing was held on March 18 on the Griffin-Thorn bill which prohibits the manufacture and sale of wood alcohol combinations without the poison label. The bill was drafted by the New York Committee for the Prevention of Blindness and has the support of a number of influential organizations. It prohibits the manufacture or sale of any article of food or drink containing methyl alcohol or of any preparation or mixture containing methyl alcohol intended for internal use by man. It provides also that no person or corporation shall sell or offer for sale methyl alcohol in any form, or any preparation containing methyl alcohol, under any name or trade mark, unless there be affixed to the bottle or vessel containing the same

a conspicuous label bearing the words "Poison, Likely to Cause Blindness or Death." Violation of the provisions of this bill is made a misdemeanor.

New York City

For Maternity Hospital.—A seven days' carnival was opened March 28 for the benefit of the Bronx Maternity Hospital which is to be erected at Hunt's point. There is a baby show in connection with the carnival in which more than 1,500 babies have been entered.

Physical Examination for City Workers.—Employees of the New York City Health Department, 3,000 in number, are to be physically examined, that the department may have a record of the physical status of its employees. This step is in accordance with the plans of the Life Extension Institute.

Babies' Dairy Exhibit.—The Babies' Dairy in West Forty-First Street recently gave an invitation exhibit of its method used in preparing milk for sick babies less than a year old. The milk is supplied in single-feeding bottles in refrigerator boxes containing a day's supply. The babies are examined by physicians and the proper amount of milk prescribed and then put up by experts. There are now three such dairies in different parts of the city.

Large Gift for Animal Study.—It is announced that John D. Rockefeller has given an additional \$1,000,000 to the general endowment fund of the Rockefeller Institute for Medical Research for the purpose of organizing a department for the study of diseases of animals. It was also announced that James J. Hill had pledged \$50,000 to aid in the study of hog cholera. Hitherto the Institute has confined itself to investigations in the fundamental problems of biologic science and to investigations in the field of human diseases. One of the features of the work of the new department, it is said, will be the study of cattle tuberculosis.

Urges Vaccination on All.—Health Commissioner Sigismund S. Goldwater is having printed for immediate distribution throughout the city 800,000 circulars warning those in need of vaccination not to delay in taking this precaution, owing to the prevalence of small-pox in the northern part of this state and in Pennsylvania, Ohio and South Carolina. There has not been a general vaccination of those living in New York for twelve years and it is estimated that a general vaccination would cost \$150,000. Dr. Goldwater states that the school children are all protected but that vaccination is neglected among very young children and adults.

New Procedure in Typhoid Fever.—On March 2, two important changes in the method of sanitary supervision of typhoid fever went into effect. The first was the adoption of the district unit system of direct assignment and report. That is, each inspector calls daily at the branch office, receives his new assignments and reports for those of the previous day. The second change is the prompt investigation at milk stores, by policemen of the sanitary squad, of the source of supply of the milk used in families of persons suffering from typhoid fever. This is another step along the line of employing policemen for police duty in health matters. Motorcycle policemen also deliver diphtheria antitoxin to the homes of patients in the different boroughs. This has proved highly satisfactory and it is believed that similar results may be expected in the milk work.

Personal.—Dr. Max Terbst has been elected a member of the board of managers of the Mohansic State Hospital. A farewell dinner will be given to Dr. Elise S. L'Esperance, winner of the Mary Putnam Jacobi fellowship, at the residence of Dr. Emily Dunning Barringer, April 14. Dr. Alice Rohde, Pittsburgh, Pa., first winner of the fellowship, will also be a guest of honor on this occasion. Dr. L'Esperance sails for Europe this month to continue her research work on cancer. —Captain Arthur N. Tasker, M. C., U. S. A., has been appointed professor of tropical medicine at the Long Island College Hospital. —Dr. J. J. Flynn, resident physician of St. Mary's Hospital, Brooklyn, was painfully injured in a collision between his automobile and a trolley-car, March 28. —Dr. Haven Emerson has been appointed sanitary superintendent of New York City, vice Dr. Walter Benschel, retired.

Encouraging Vaccination.—On account of a number of instances of small-pox arising from infected persons coming in from outside of the city, and the constant danger to which persons visiting the large stores, hotels, theaters, etc., are subject from such sources, more complete vaccination is urged by the Department of Health. A recent canvass by the department shows that while a large proportion of the population has been vaccinated, in many instances it has been so long ago that the protection has probably been lost, and revaccina-

tion of every one is urged. In order to facilitate this the department offers to furnish the vaccine and even to vaccinate every one who applies. The proprietors and managers of large establishments, stores, hotels, factories, etc., are especially urged to have their employees vaccinated, and when this has been done the department proposes to place them on a "white list" to which publicity is to be given through the bulletins of the board and otherwise, as being places protected against small-pox and safe for persons to visit.

NORTH CAROLINA

Hospital Notes.—The city council of Wilmington has decided to increase the annual income of the James Walker Memorial Hospital from \$6,000 to \$9,000. —The McDaniel Memorial Hospital, Kinston, has changed its name to the Parrott Memorial Hospital. It has an authorized capital stock of \$25,000. An additional building of brick and stone has been erected, and will contain surgical rooms and nurses' quarters. —Dr. Isaac M. Taylor, Morganton, proprietor of the Broad Oaks Sanitarium, has purchased Catawba Heights, near Morganton, and will establish a sanatorium there.

Personal.—A banquet was given in honor of Dr. Lewis G. McBrayer, Asheville, by the Buncombe County Medical Society, March 28. —Dr. M. Hall Fletcher, Asheville, has been appointed local surgeon of the Southern Railroad. —Dr. William T. Rainey was operated on for appendicitis at Highsmith Hospital, Fayetteville, March 26. —Dr. Thomas A. Norment, Lumberton, has resumed practice after an absence of several months. —Dr. William T. Parrott, Kinston, fractured his forearm and two ribs while cranking his motor-car recently. —Fire at Durham, March 25, destroyed the offices of Drs. Robert L. Felts, Rufus J. Teague, Burton W. Fassett, S. Dace McPherson, Lyle S. Booker and Norval L. Coiner, all of whose offices were located in the Duke Building.

OHIO

Small-Pox.—It is interesting to note in the annual statement submitted by Chief Medical Inspector, William H. Peters, of the Department of Health, that forty-five cases of small-pox were reported during the year, thirty-eight of which had never been vaccinated, and not one of which had been vaccinated during the past seven years. This report is entered as a strong plea in favor of vaccination.

Board of Health.—The recent controversy which took place between the Mayor and the Board of Health has been very satisfactorily adjusted. In view of the excellent character of the service rendered by the present board throughout its administration, great pressure was brought to bear by its friends, both personal and professional, by business organizations and various civic bodies, to the effect that the members were induced to withdraw their resignations and resume their official duties, thus putting an end to a very deplorable situation.

Personal.—Dr. Robert Austin, Xenia, has been appointed pathologist and second assistant surgeon to the St. Mary's Hospital, Rochester, Minn. —Dr. De Witt T. McGriff, Lima, is in the City Hospital on account of an accident in which his automobile was struck by some cars which were being switched on the Erie Railroad. —Dr. Louis F. Bucher, Dayton, has been reelected president of the League of German-American Societies. —Dr. and Mrs. Charles W. Thomas, Warren, gave a dinner in honor of Dr. Clarence S. Ward on the anniversary of forty years of service in the practice of medicine in Warren.

Ruling on Plumbing Code.—The attorney-general of the state of Ohio has recently ruled that the state plumbing code is the minimum standard code of Ohio, and is effective in all communities in the state whether local regulations have been promulgated or not. About thirty municipalities have adopted regulations concerning plumbing, and the same number have local systems of plumbing inspection. The state plumbing inspector and his assistant have sole jurisdiction in enforcing the plumbing code in all other parts of the state. An attempt is being made to increase the force of local inspectors, and the campaign is meeting with some measure of success.

Tuberculosis Hospital.—On March 31, the ground was broken for the additional building of the Cincinnati Tuberculosis Hospital. Dr. Christian R. Holmes, in addressing the gathering, gave an interesting history of the growth of the work done in connection with the tuberculosis movement, and submitted some valuable suggestions for its continued progress. He laid particular stress upon the suggestion that provision should be made by the city to give professional nursing to the middle classes afflicted with tuberculosis in its early stages.

this service to be furnished at a moderate rate, within the means of the patient. Dr. Simon F. Cox, of Boston, gave some very interesting data connected with his study of tuberculosis in European sanatoria, drawing therefrom conclusions which furnished valuable suggestions for the work in Cincinnati.

Public Health Exhibit at Newark.—A new feature was added to the Public Health Exhibit of the Ohio State Board of Health in Newark, when a local newspaper, the *Advocate*, undertook a health contest. Coupons were printed in each issue and these could be exchanged for attendance coupons after each public health lecture. Three attendance coupons rendered the owner eligible to enter the contest. Each person submitted ten suggestions for the betterment of health conditions in Newark, and there were three prizes offered, \$50 in all. This plan was so successful in Newark that it was continued in Zanesville and Coshocton, where it met with the same success. Not only was the attendance at the public health lectures increased but more interest was taken in local sanitary conditions, and the suggestions offered were in many cases not only interesting but of practical value.

State Board Ruling as to Dumping Refuse.—The local board of health of Put-in-Bay requested the State Board of Health to define their authority in controlling the dumping of refuse into Put-in-Bay from boats lying alongside the docks. Thousands of day excursionists come to this summer resort, eat their lunches on board and the refuse is afterward dumped into the bay. Much of it is carried in shore and lodged there, creating a condition that is not only unsightly but becomes a nuisance when there is putrescible matter in the refuse. This condition is found not alone in Put-in-Bay but at all summer resorts fronting Lake Erie. This inquiry of the local board of health was forwarded to Attorney-General Hogan who ruled that such board had ample power and jurisdiction to provide for the abatement of the nuisance in question, and that such power also resided in the legally constituted board of health of any township. This decision is of great moment to all boards of health having jurisdiction along the lake front.

OKLAHOMA

Personal.—Dr. Loyal M. Martin, Newkirk, recently sustained a fracture of the scapula in an automobile accident.

Hospital Notes.—The Muskogee City Hospital has been turned over to the Physicians' and Surgeons' Hospital Association of that city, recently incorporated by Drs. Francis B. Fite, Sessler Hoss and Frederick J. Wilkiemeyer, Muskogee. —A movement has been started to construct a hospital at Bartlesville.

New Officers.—Adair County Medical Society: president, Dr. David A. Beard, Westville; secretary-treasurer, Dr. Charles M. Robinson, Stillwell. —Pottawatomie County Medical Society: president, Dr. John E. Hughes; secretary-treasurer, Dr. Walter C. Bradford, both of Shawnee. —Woodward County Medical Society: president, Dr. Fred L. Patterson, Fargo; secretary-treasurer, Dr. Jesse J. Davis, Woodward. —Woods County Medical Society at Alva, March 31: president, Dr. Romulus Z. Linney, Hopeton; secretary, Orion R. Gregg, Alva.

PENNSYLVANIA

Trachoma at Farrell.—Fifteen cases of trachoma have been reported among the employees of the Carnegie mills at Farrell and the situation is under investigation by the State Health Commissioner.

Personal.—Dr. George A. Stock, superintendent of the State Tuberculosis Dispensary, Danville, has retired, and has been succeeded by Dr. Cameron Schultz. —Dr. Edward G. Heyer Hazleton, has been elected superintendent of the Nanticoke Hospital, vice Dr. August Traphold, resigned.

Small-Pox in Hospital.—Owing to the discovery of a case of small-pox in the Homeopathic Hospital of West Chester, that institution has been quarantined for sixty days. The entire hospital staff consisting of five doctors and eleven nurses was vaccinated on March 20, as well as the forty-eight patients. There are a number of cases at Toughgenomen and Kennett Square and all schools and churches are closed. Dr. Charles J. Hunt of the State Health Department has ordered guards stationed at all houses where the disease exists.

Philadelphia

Hospital Purchases Site.—The Northeastern Hospital has purchased for \$7,000 a plot of ground on the north side of Allegheny Avenue 100x80 feet.

New Ward for Jewish Hospital.—Work has been commenced on the two-story medical ward building for the Jewish Hospital, to cost \$60,000.

Piggeries to Move.—On March 22, inspectors from the Department of Health and Charities obtained signed agreements from twenty raisers of pigs that they would vacate their present premises immediately. Those who fail to comply with the law will be liable to a fine of \$25, and of \$5 a day thereafter until they move.

Personal.—Dr. Joseph S. Neff, who has been ill since December last, is convalescing, and has resumed his work as director of the Department of Public Health and Charity. —Dr. John Wanamaker, III, has been assigned to permanent service at the Central Station at City Hall as police surgeon. Heretofore this station had no surgeon of its own.

Plans of the Child Federation.—The future plans of the Child Federation include health centers to concentrate the efforts of the nurses and doctors and investigators of the most densely populated square of this city, which is said to contain forty-one thousand people. The work will start on May 1 and continue until October 1. Efforts will be made to eliminate bad plumbing and insanitary conditions and to conduct a systematic campaign of education with practical demonstration.

County Society Permanent Home Appeal.—Substantial progress can be reported in the popular movement for a building for the Philadelphia County Medical Society. The Members' Committee of Twenty, that includes some of the most astute financiers in the profession, having a number of eligible properties in view, has decided to call for pledges, subscriptions and contributions to ensure a fund of \$40,000 or \$50,000. This, in addition to the permanent funds of the Society, will furnish a working capital that must assure success.

Nurses' Home.—Contractors are estimating on the plans for building of the Germantown Hospital to be used as a nurses' home, with accommodations for about sixty-five nurses. The building will be fire-proof, and will contain reception rooms, suites for the directress of nurses, and rooms for head nurses. A special feature of the building will be the large recreation or sun rooms on the roof, and a tile roof garden with open porch and sleeping porches. Another feature is the fact that there will be more shower baths than bath tubs.

Psychopathic Wards at Blockley.—A great change is under way in the section of the Philadelphia General Hospital in which suspected cases of insanity are temporarily confined. This includes an equipment of at least 140 beds, and a system of treatment that will enable the patients to return to their homes, under the supervision of social workers, instead of being sent to an asylum for the insane. Under the old system, committing physicians simply made an examination of the patients referred to them, and prepared papers for their commitment and admission to asylums.

Big Corporations Cooperated in "Clean-Up Week" Movement.—Department stores, merchants, public utility corporations and hundreds of business men in every line of trade throughout the city are heartily entering into the spirit of the "municipal clean-up week" movement, April 20 to 25. Correspondence of business firms, department stores, manufacturers and shopkeepers throughout the city, is being labeled with an attractive blue paster, "Remember Clean-Up Week, April 20 to 25, Philadelphia, 1914," as is also the correspondence of the various departments and bureaus at city hall.

GENERAL

Missouri Valley Meeting.—At the semi-annual meeting of the Medical Association of the Missouri Valley, held in Lincoln, Neb., March 27, it was decided that the next annual meeting should be held in Des Moines and Colfax, Iowa—one day in Des Moines, and two days in Colfax.

A Warning.—A man claiming to be a physician has been calling on medical colleges, medical publishers and physicians, and demonstrates various dislocations, throwing joints out of sockets, etc. Incidentally he claims that he is subscription agent for prominent publishers, and on furnishing seemingly reliable references, borrows text-books from the party on whom he calls, and is seen no more.

Bi-State Association Organized.—Physicians of Modoc County, California, and Lake County, Oregon, met for organization at Alturas, Cal., March 30, with an initial membership of eighteen. The organization is to be called the Modoc County, Cal., and Lake County, Ore., Medical Association. The following officers were elected: president, Dr. John Stile, Alturas; vice-president, Dr. Hiram B. Ehle, Milpitas, Cal.; secretary-treasurer, D. Walter E. Coppedge, Alturas. The next meeting will be held at Lake View, Ore., in June.

Bequests and Donations.—The following bequests and donations have recently been announced:

Presbyterian Hospital and St. Luke's Hospital, Chicago, Chicago Visiting Nurse Association, and Chicago Home for Incurables, each \$10,000, and Allee Home, Lake Forest, Ill., \$5,000. St. Luke's Hospital, Chicago, \$500, toward the up-keep of the Solomon H. Smith ward, by the will of Byron L. Smith.

Presbyterian Hospital, Chicago, \$10,000, by the will of Frederick William Crosby.

Chicago Charity Hospital, and Chicago Home for Incurables, each \$75,000, by the will of Kenneth S. Wallbank, on the death of his wife.

Associated Jewish Charities, \$5,000, Chicago Visiting Nurse Association, \$500, and Chicago-Winfield Tuberculosis Sanatorium, \$3,000, by the will of Isaac Wedeles.

Gil W. Barnard Hospital Association, Chicago, a site valued at \$20,000, from J. Newton Roe.

German Hospital, Chicago, \$5,000, by the will of Michael Ullrich.

Neversink Mountain Tuberculosis Sanatorium (Pa.), \$1,000 donation by the Berks County Commissioners.

St. Luke's Hospital for Women, Shanghai, China, \$3,000, by the will of Mrs. Eliza Callahan Stevens, Jamaica Plain.

Methodist Hospital, Philadelphia, \$1,000, by the will of Joseph Patten, Columbus, Pa.

St. Vincent's, St. Francis' and St. Joseph's Hospitals, New York City, each one-eighth of the estate of James J. Dunne, valued at more than \$20,000.

St. Vincent's Hospital, New York City, \$1,000, by the will of William Lummis.

St. Luke's Hospital, New York City, \$15,000, for the endowment of three beds, by the will of Mary B. Lane.

Camps of Instruction for Medical Officers.—General A. L. Mills, chief of the Division of Militia Affairs, announces that during the coming summer camps will be established for medical officers and non-commissioned officers of the Hospital Corps of the Organized Militia. It is contemplated to provide these camps with complete regimental hospitals and infirmaries, and such other paraphernalia as may be necessary to offer every facility for a thorough course of instruction. These camps are to last six days, the instruction beginning Monday morning and terminating at noon on Saturday. These camps will be located as follows:

Plattsburg Barracks, June 7-13, for medical officers of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, and New York.

Fort Myer, Virginia, May 17-23, for medical officers of Pennsylvania, New Jersey, Delaware, Maryland, Virginia, West Virginia, and the District of Columbia.

Fort Oglethorpe, Georgia, May 10-16, for medical officers of North Carolina, South Carolina, Georgia, Florida, Mississippi, Tennessee, Kentucky and Alabama.

Fort Sheridan, Illinois, May 24-30, for medical officers of Ohio, Illinois, Indiana, Minnesota, Wisconsin, Michigan, North Dakota and South Dakota.

Fort Leavenworth, Kansas, May 17-23, for medical officers of Kansas, Missouri, Oklahoma, Iowa, Nebraska, and Arkansas.

Fort D. A. Russell, Wyoming, June 7-13, for medical officers of Montana, Wyoming, Utah, and Colorado.

Fort Sam Houston, Texas, May 17-23, for medical officers of Texas, Louisiana and New Mexico.

Vancouver Barracks, Washington, June 7-13, for medical officers of Washington, Oregon and Idaho.

Presidio of San Francisco, May 10-16, for medical officers of California and Arizona.

The program of instruction includes the detail of preparing the sanitary personnel of the different units for the field, discipline and education of the Hospital Corps, training of medical officers, and equipment with the regulation supplies and transportation, with the position of the personnel and divisional sanitary units on the march and on the battlefield. During the course, practical talks and lectures on military subjects of interest to medical men will be given by line officers at the posts. In the evenings, the work of the day will be discussed, all members of the class being encouraged to join in the discussion.

CANADA

New Brunswick Sanitarium.—In their report to the provincial government of New Brunswick, the commissioners of the New Brunswick Sanatorium state that many improvements will be added during the present year to the Jordan Sanatorium, and recommend that \$7,000 be expended in completing the capital expenditure. This will provide a laboratory, quarters for male help, etc. The original gift of Mrs. J. C. Jordan for this institution was \$104,195, while the government has expended \$24,802.27.

Personals.—Dr. Charles O'Reilly, Toronto, has returned from the Southern States very much improved in health.—Dr. Kennedy C. Mellwraith, Toronto, has gone abroad for several months for hospital work.—Dr. Reginald A. Jones, Toronto, is visiting the New York hospitals.—Dr. J. J. Middleton has returned to Toronto after six months in Great Britain.—Dr. James F. Cattermole, physician at the Penetanguishene Hospital, has been transferred to the Woodstock Hospital for

Epileptics, Ontario.—Dr. John A. McCollum, Toronto, has been spending several weeks in Jamaica.

Pathologists to Meet in Toronto.—On Friday and Saturday, April 10 and 11, the American Association of Pathologists and Bacteriologists met in Toronto, under the presidency of Prof. J. J. McKenzie of Toronto University; on Thursday preceding the International Association of Medical Museums met in the Pathological Department of the University. Prof. R. M. Pearce of Philadelphia was the president. The American Association for Cancer Research met in the Toronto General Hospital the same day. The latter was under the presidency of Dr. Ernest E. Tyzzer, Harvard University Medical School, Boston.

Ottawa for Mechanical Filtration.—The citizens of Ottawa voted on March 31 on the question of a pure water-supply. Sir Alexander Binnie, the well-known British expert, had reported on and in favor of an unfiltered water-supply from Thirty-One Mile Lake at a cost of \$8,000,000. The city engineer and the mayor were in favor of mechanical filtration of the Ottawa River water at a cost of \$2,000,000. The latter gained the day by a vote of 7,544 for mechanical filtration and one of 6,236 for the Binnie alternative. The city will now proceed to the Ontario Legislature for legislation to raise the money.

Ontario Board of Health Supplying Antitoxin.—The Ontario Board of Health has made arrangements to supply antidipteric serum to local boards of health and druggists throughout that province. The prices are greatly reduced from what is ordinarily paid for these goods. The antitoxin is of standard quality 30 per cent. in excess of that marked on the label. In syringe packets, 5,000 units will cost boards of health \$1.35; to druggists, \$1.70; 10,000 units, \$2.60 and \$3.25. It is also furnished in vials at a less rate. The Ontario Board of Health feels that this arrangement lowers the price of antitoxin in Ontario below that of any other place in the world. Medical practitioners are not to be supplied directly with the serum, but may order through certain dealers and druggists or boards of health.

The University of Toronto Faces Financial Crisis.—Unless the government of Ontario comes to the aid of the University of Toronto, this first-class institution will not be able to maintain its place as an institution of higher education. Plain facts have been placed before the government by Sir Edmund Walker, chairman of the Board of Governors, and President Faleoner. Although an appointment had been arranged beforehand, only twenty-six members of the legislature were present at the conference between the government and the two aforesaid gentlemen. Sir Edmund showed how the university had grown from 500 students to 4,200, and that when the standard was raised a few years ago it went back to 3,500, but had again come up to 4,000. It was utterly impossible to check the flow of students to the institution. Although no new buildings are urgently needed, there was great necessity for new and enlarged equipment, while the teaching staff was numerically too small. It is a hardship on the governors to pare down the salaries of the three or four hundred men who are following academic life. Either the Governors would have to lessen the attendance, raise the fees or get an increased income. The deficit for the present year is \$85,000 and it will be \$120,000 for the coming year. In all he estimated the requirements of the university at \$1,400,000. President Faleoner by producing figures showed that Toronto was among the big institutions of America and that private munificence could no longer be depended on to meet the situation. It is understood that the Western University at London will strongly oppose any further aid at this time to the University of Toronto from the provincial purse.

LONDON LETTER

LONDON, March 20, 1914.

Infection from Library Books

Dr. R. Kenwood, health officer for the Borough of Stok Newington and professor of public health, University of London, delivered an interesting lecture on "Books and Infection" in which he described some recent experiments. He said it had been stated that there was no case on record of book infection, and he admitted that he had not been able to trace any record of such a case; but he said that it was not by any means conclusive that such infection did not take place, for as health officer he was not able to trace the source of infection in 80 per cent. of the cases that came under his notice. The views of bacteriologists amounted to a general consensus

of opinion that books might be a means of conveying infection, but there was an equally general opinion that books rarely conveyed infection. Few experiments had been made under the essential conditions of a true test. Most of them had been performed on artificially cultivated germs, which developed greater powers of resistance than germs coming direct from the human body. For the purposes of a true test a patient should be made to infect a book. In his own recent experiments he had pursued that course. The disease which he had selected was consumption; and the books were from two public libraries and from a sanatorium, and in all cases were used by consumptive patients. The methods of infection were of three kinds, namely, coughing on a book, reading aloud with the lips near the book, and smearing or damping the corners of pages after the manner of persons who wet their thumbs to turn the leaves. With the germs obtained by the first two methods a number of guinea-pigs were inoculated, but negative results were obtained in every instance. When, however, the guinea-pigs were inoculated with germs obtained from the sputum used on the wetted corners of leaves, microscopic examination of the tissues of the animals proved the existence of the disease. In another series of experiments a book which was infected by the coughing of an infirm patient was employed for inoculating six guinea-pigs, but only one was infected. None of these experiments was entirely satisfactory. For instance, the wetted pages were more heavily smeared than they would be in actual practice on the part of the book-readers, and the experiments were being repeated under conditions more nearly approximating to those of ordinary experience. Then, again, there was the important fact that the dosage which would be sufficient to infect a guinea-pig would not have the same effect on a human being. Another series of tests related to the effects of disinfection. These produced varying results. Dr. Kenwood had obtained positive evidence of the persistence of infection after books had been disinfected by the methods ordinarily employed, but when moist heat was employed the germs were destroyed, and this was the method which he recommended.

Tropical Sanitation and Hygiene

The London School of Tropical Medicine has decided to start a special course in tropical sanitation and hygiene. It is proposed to hold two courses annually, commencing May 1 and October 1, each extending over a period of eight weeks. Hygiene and public health in the tropics, port hygiene, the care of the sick on board ship in the tropics, surveying and sanitary engineering, bacteriology, protozoology, helminthology and medical entomology will all be treated by experts. Practical demonstrations will also be given, the general desire of the committee of the school being to make the course as practical as possible, and not to let theory play too great a part. The course is the application of the results of much laborious and painstaking research in the laboratories. Manson and Ross' scientific work on malaria led the way and showed how this common source of illness and death can be stamped out. This in turn led to the abolition of yellow fever in Cuba and the West Indies and made the Panama Canal possible. Bruce's researches on undulant fever have resulted in the abolition of that disease from the navy and army in Malta.

Scarlet Fever and Fleas

In the annual report of the school medical officer to the London county council, an interesting observation is made suggesting that scarlet fever may be a flea-borne disease. From the beginning of 1909 onward, attempts have been made to obtain a detailed record of the seasonal prevalence of fleas in London. Until last year the inquiry was limited to observation of flea prevalence as affecting persons of the common lodging-house class. At the end of last year, however, it was possible to secure the additional information on the subject made available by the examination of pupils of elementary schools. The results have been published in the form of graphic charts, all of which show a great increase of fleas during late summer and autumn and a rapid decrease toward the end of the year. The curious feature of these records is that the curve obtained in respect to flea prevalence is almost identical with that of the incidence of scarlet fever in London.

BERLIN LETTER

BERLIN, March 24, 1914.

In the interval which has elapsed since publication of the last Berlin letter a considerable number of important events have occurred, the most important of which will be reviewed.

Personal

The first to notice is the sixtieth birthday of two of our most prominent scientists, Ehrlich and Behring. The former was born on the 14th, the latter on the 15th of March. While with Germany as with the rest of the civilized world, the seventieth birthday is commonly the occasion of public honor, there was good reason in the case of such noted investigators to make an exception and to give expression to the general esteem and gratitude of their contemporaries on their sixtieth anniversary. In fact there is no doubt that the greatest therapeutic progress of the present age has been achieved by these twin sons of science and humanity. Diphtheria antitoxin which met many opponents in the first decade after its discovery is regarded to-day as ineffective only by a few. With the discovery of this remedy alone Behring earned his claim to genius and the right to be classed with Jenner among the greatest benefactors of humanity. Moreover, his other labors on tetanus antitoxin, tuberculosis serum, etc., although they have not secured by any means, as brilliant results as the diphtheria antitoxin, are marked scientific achievements which have enriched the investigation of serotherapy.

Ehrlich cannot show as great and undisputed achievements, but his important cooperation with the work of Behring in making the diphtheria remedy useful in practice, his recommendation of methylene blue in malaria, one of the first products of his chemical therapeutic studies, and a number of similar discoveries terminating in salvarsan, have given him a place among those great minds to whom science and medical practice owe lasting progress. This recognition also received expression at the celebration of his birthday. Among other things, Behring was made an honorary citizen of Marburg where, as is well known, he has been acting as professor of hygiene for nearly two decades. Ehrlich received from the dermatologists a complimentary address in which they expressed their gratitude for the discovery of salvarsan.

February 4, the senior of the German medical profession, Friedrich Körte (the father of the noted surgeon), died at Berlin at the age of 96. He rendered marked service in the economic crises of the medical profession and, in addition to this, was highly esteemed by all German physicians on account of his excellent character.

February 12, the director of the Breslau Pharmacologic Institute, Professor Filehne, celebrated his seventieth birthday and on the 16th, the noted naturalist, Ernest Haeckel, of Jena, celebrated his eightieth birthday.

February 18, Professor von Hippel, of Giessen, celebrated the semi-centennial of his doctorate.

Professor Nietner, general secretary of the German Central Committee for the campaign against tuberculosis, died February 12. He devoted himself to the organization of the German Central Committee and has also produced some excellent articles on the campaign against tuberculosis of the lungs. In 1907 he was general secretary of the International Congress of Hygiene at Berlin, which was lauded by all the participants for its excellent organization. He was also a co-editor of the *Zeitschrift für Tuberkulose*.

In the last-named position he has been succeeded by the well-known investigator of tuberculosis, Prof. Lydia Rabinowitsch-Kemper. She was the first woman editor of a German medical journal.

February 28, Professor Joachimsthal, director of the University Poliklinik, died at Berlin. He was a pupil of the distinguished orthopedist, Julius Wolff. He became the assistant of Wolff, who was his uncle, after passing the state examination. In 1898 he joined the faculty of the Berlin University. In 1902 he was granted the title of "professor" and, after the death of Hoffa, he was made director of the University Orthopedic Poliklinik. He has published a great number of excellent scientific articles. In 1897 he was awarded the Pourat prize by the Paris Academy of Science for his essay on the "functional changes in the shape of muscles." He studied on animals the physiologic effect of orthopedic measures and made a number of contributions to the treatment of the congenital dislocation of the hip-joint by which he improved the Lorenz method.

Among his larger works, should also be noticed his articles on congenital deformities of the extremities. He published a large "Handbuch der orthopädischen Chirurgie" and, after the death of Hoffa, he became the editor of the *Zeitschrift für orthopädische Chirurgie*. He was president of the Deutsche Gesellschaft für orthopädische Chirurgie.

The orthopedic surgeon, Professor Ludloff, received early in March, a call to the university at Frankfurt-on-the-Main, which will be opened the first of October of this year, in all probability.

Professor Kraus of Marburg has been appointed director of the eye clinic at the academy of practical medicine at Düsseldorf, following the death of Professor Pfalz.

Dr. R. L. Müller, a brother of the distinguished Munich clinician, has been called to Würzburg as the director of the University Policlinic for internal medicine in place of Professor Matterstock. Dr. Müller has been heretofore in charge of a department of the municipal hospital at Augsburg.

March 12, the former director of the Berlin University gynecologic clinic, Professor von Olshausen, celebrated the fiftieth anniversary of his professorship.

Fatal Results with Friedmann Vaccine

Professor Vulpius, professor of orthopedics at the University of Heidelberg, together with Privat-docent, Dr. Laubheimer, assistant at the Heidelberg Hygienic Institute, published an article in Number 10 of the *Deutsche med. Wochenschrift*, in which they reported a fatal case which presented symptoms of sepsis following the intravenous injection of Friedmann's remedy. (Abstract 139, p. 1206.) Naturally this publication aroused interest. It may well cause practicing physicians to exercise caution in the use of the remedy. Friedmann did not wait long before opposing the threatened injury to his remedy with the help of the daily press, the confidence of which he enjoys so fully.

A statement in which he protested against the publication of the article by Vulpius and Laubheimer, was printed in a number of daily papers, by the news bureau, with an introduction to the effect that it had been given to the *Deutsche med. Wochenschrift*. It did not appear in this journal, however. It would seem, then, that the close relations of Friedmann with the daily press, which had been suspected on account of his wide-spread advertisements soon after his first address, were established with certainty. In addition, Professor Vulpius, in the article referred to, reported that in forty patients whom he had treated with Friedmann's remedy, he had noticed no changes which he could attribute to the remedy itself, although, as he adds, the time of observation is still too short for a decisive opinion.

However, Professor Brauer, the well-known director of the Eppendorf hospital at Hamburg, at the congress of balneology, also gave an account of unfavorable results which he had had in the application of Friedmann's remedy. On this account he has given up the continuation of his therapeutic tests. So far no further experiences with the Friedmann remedy in Germany have been reported.

A Movement Against Salvarsan

Still greater interest than that excited by the single case of Vulpius and Laubheimer has been created in the public mind by an article by the Berlin dermatologist, Dr. Dreuw, against salvarsan. Dreuw, from a review of the literature and from communications which he obtained by a circular letter to dermatologists, claims that nearly three hundred deaths have resulted from injection of salvarsan and, in addition, a series of other severe injuries, particularly cases of blindness. On the basis of this determination, he demands from the government at least an exact limitation of the maximum dose of salvarsan and, if possible, a prohibition of the further use of so dangerous a remedy. This publication was sent out widely by a news bureau to the public press and naturally produced great alarm among the public because Dreuw, from his position as police department physician for prostitutes, gave the impression that he was an official. His reference to an interview which he had had some time before with the president of the imperial health office on this subject, gave further the impression that the president agreed with his course. Naturally, the press, friendly to Dr. Dreuw, especially the anti-Semitic press, took up the agitation against salvarsan, and made it its aim to make the public believe that the use of salvarsan was attended with the greatest danger. Not only the reputable newspapers but also the government opposed this agitation. The government was given opportunity for expression of an opinion through an interpellation addressed to the imperial chancellor by a medical member of the Reichstag. In the Reichstag, March 6, a representative of the government made an official reply in the name of the imperial chancellor: (The appeal and the reply were given in THE JOURNAL, April 4, p. 1105.)

The effect of this official statement was strengthened by an extensive discussion on the treatment of syphilis which took place a few weeks ago in the Berlin Medical Society, following reports by Professor Lesser and Wechselmann. This discussion had been planned a long time before Dreuw's communication was published. While the conservative and

unprejudiced speakers in this discussion refrained from exaggerated praise of salvarsan (which, unfortunately, was too much indulged in at the beginning of the salvarsan treatment) still the general verdict with regard to the remedy was thoroughly favorable, and it was recognized to a greater or less extent by all the speakers, that in salvarsan the treatment of secondary and tertiary syphilis had made an essential advance.

BUDAPEST LETTER

BUDAPEST, March 14, 1914.

Combined Dispensaries for Alcoholics and Lung Patients

The Hungarian Antialcoholism League has begun action toward uniting the dispensaries for alcoholics and for lung patients, with a view to reaping the following advantages:

1. A given locality would be better served if separate hours were assigned for the two purposes.
2. The same attending physicians could be employed for the institutions.
3. The systematic family care of the tuberculous patients would be more successful through being carried on in conjunction with the alcoholic work.
4. The misery of the alcoholic family, its suffering, privations, bad food, unhealthful living and the overworking of the women and children often lead to tuberculosis, which could be effectively combated at the same time that alcoholism was being worked against.
5. A habitual drinker can be prevailed on to change his ways much more easily if he sees that the caretaking nurse deals also with other members of the family.
6. The mending of an alcoholic sometimes succeeds only if the nurse enlightens the drinker's wife in a corresponding manner.
7. The work of the caretaking women is well known to the magistrates and the leaders of the poverty committees, and therefore they obtain easier access to the alcoholic head of the family while he is at work. By reason of the direct observation of the families the nurses gain more experience.
9. Alcoholic and tuberculous families generally live near each other and thus the nurse loses little time in visiting both kinds of families.

The Regulation of Public Bars

It has been the custom in Hungary for bars to remain open the whole night, even on Sundays, and in most places barmaids are employed to serve the guests. Both these points have been severely criticized lately in *Antialcoholismus*, the official paper of the "Good Templar" branch. The articles, were republished in the newspapers, with the result that about thirty members of parliament are proposing a new bill for the regulation of public bars. The chief purposes of the new bill are the prohibition of female service after a certain hour in the night, and the closing of bars on Sundays.

The International Office to be Organized for the Unification of the Pharmacopeias

The Austro-Hungarian common foreign secretary has written to the Hungarian government asking it to support morally and materially the establishment of an international secretarial office for the purpose of unifying the pharmacopeias. In 1896 the Austrian, Danish, Spanish, Italian, Luxembourg, Holland, Norwegian, Russian and Swiss governments adopted the plan, but the Hungarian government has held back. The Belgium government believes that the time is ripe for other countries, including Hungary, to cooperate. According to the tentative plan, each government would contribute 2,000 francs (\$400) toward the maintenance of the office, the task of which would be to study according to the progress of science the unity of production and composition of efficacious medicines in the different pharmacopeias, that is to say to continue and to extend that work which was done by the international conference at Brussels in 1902, and to prepare the program of a newer conference. The seat of the international office would be Brussels, and it would be controlled by a committee which would be composed of the delegates of the different states partaking in the maintenance of the office.

The Hungarian Public Health Board had a meeting some days ago, and the president, Prof. Árpád de Bokay, has proposed (this having been accepted by the board unanimously) that Hungary shall definitely accede to the establishing of the office, and that the board shall appoint a delegate who shall go to the new conference, and shall be authorized to sign an understanding which he may deem proper.

Deaths

Joseph Decatur Bryant, M.D., of wide renown as a surgeon, the Nestor of the faculty of Bellevue Hospital Medical College, president of the American Medical Association in 1907 and 1908, Surgeon-General of the National Guard, State of New York, from 1882 to 1894, died in St. Vincent's Hospital, New York City, April 7, from diabetes, aged 69.

He was born in East Troy, Walworth County, Wis., March 12, 1845, the son of Alonzo A. and Harriet (Atkins) Bryant. His preparatory collegiate work was done at the Norwich (N. Y.) Academy, after which he entered Bellevue Hospital Medical College, New York City, graduating in 1868. After his internship in Bellevue Hospital, he became assistant to the chair of anatomy in his Alma Mater in 1871, and then passed through the teaching positions of lecturer on surgical anatomy, assistant demonstrator of anatomy, professor of general, descriptive and surgical anatomy, professor of anatomy and clinical surgery, and associate professor of orthopedic surgery until 1898, when at the merger of the University and Bellevue Hospital Medical colleges he became professor of the principles and practice of surgery, operative and clinical surgery, holding this position until his death.

In addition to this teaching service, which extended over more than forty years, Dr. Bryant served as sanitary inspector in the Health Department of New York City for six years, as commissioner of health, and commissioner of the New York State Board of Health for six years, and as attending and consulting surgeon for many hospitals. In addition to his Fellowship in the American Medical Association, he served as president of the New York State Medical Association in 1898; of the Medical Society of the State of New York in 1906, and of the New York Academy of Medicine in 1895. He was also a fellow of the American Surgical Association, a member of the Association of Military Surgeons of the United States and of many other scientific organizations.

In 1873, he was appointed surgeon of the Seventy-First Infantry, N. G., S. N. Y., and nine years later was made surgeon-general of the state. His talent for organization came into play here in 1882, when he organized the Medical Department of the Guard on a basis which placed it in a position it still retains, foremost among the medical corps of the organized militia of the United States. In 1895, Brigadier-General Bryant resigned from the guard. During his term of service he passed through many tours of riot duty.

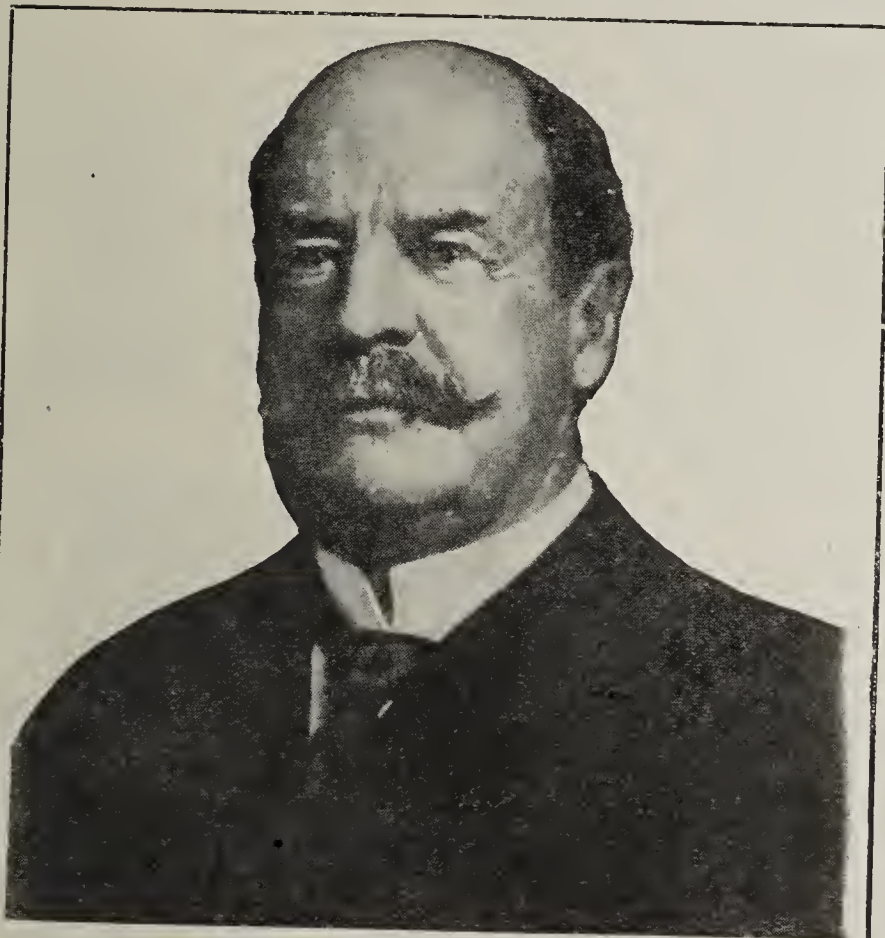
He was an author of note, and his work on *Operative Surgery*, which has passed through four editions, is one of our best text-books. He was co-author with Buek of the eight-volume *American System of Surgery*, and was also a frequent and valuable contributor to surgical literature.

He was the family physician and warm personal friend of President Cleveland, and was his close associate in his many travel and fishing trips.

Dr. Bryant had been ill for a long time with diabetes, but despite his disability, kept up his interest in professional and public affairs to the last.

Theodore E. Courtright, M.D. Starling Medical College, Columbus, Ohio, 1884; a Fellow of the American Medical Association; of Columbus, Ohio; died in St. Clair Hospital in that city, March 25, three days after a surgical operation for disease of the intestine, aged 53.

Charles H. Neal, M.D. Western Reserve University, Cleveland, 1883; a member of the Ohio State Medical Association; died at his home in Cardington, Ohio, February 23, aged 49.



JOSEPH DECATUR BRYANT, 1845-1914

Oliver Kinsey, Jr., M.D. Johns Hopkins University, Baltimore, 1911; of Kinsey, N. C.; resident physician at the Church Home and Infirmary, Baltimore; who had passed the examination for the Medical Corps of the Army, but resigned to take special work in diseases of the skin; was found dead in his room in Baltimore, March 24, from the effects of illuminating gas, believed to have been inhaled with suicidal intent, while despondent on account of ill-health, aged 28.

John Thomas Shepherd, M.D. University of Maryland, Baltimore, 1874; acting assistant surgeon, U. S. P. H. S. at Chattanooga, Tenn., from 1888 to 1911; physician to the Hamilton County Hospital, and formerly president of the Hamilton County Board of Health; a member of the Association of Military Surgeons of the United States; a Confederate veteran; died at his home in Chattanooga, Tenn., March 22, from valvular heart disease, aged 65.

George Parker Williard, M.D. Jefferson Medical College, 1867; a member of the Ohio State Medical Association, and Northwestern Ohio Medical Association; a veteran of the Civil War, in which he served as hospital steward; and the oldest practitioner of Seneca County, Ohio; a member of the board of directors of the Commercial National Bank, Tiffin, Ohio; died at his home, March 20, from pleuropneumonia, aged 68.

James P. Moser, M.D. Cincinnati College of Medicine and Surgery, 1876; secretary of the Tipton (Ind.) County Board of Health; died at his home in Windfall, Ind., March 19, from pneumonia, aged 64.

Patrick Vincent Murray, M.D. Long Island College Hospital, Brooklyn, N. Y., 1870; Bellevue Hospital Medical College, 1875; of Warren, Pa.; died suddenly in New York City, March 13.

Alvin Isaac Miller, M.D. Hahnemann Medical College, Philadelphia, 1872; for more than twenty years a practitioner of Harrisburg, Pa.; died at his home in that city, March 26, aged 64.

A. H. Moore (license, Sixth Judicial District Board, Tex., 1884); formerly of Bonham, Tex.; aged 72; was gored to death by a bull in a pasture near his home in San Angelo, Tex., March 23.

Come Alfred Dugas, M.D. Victoria University, Coburg, Ont., 1887; for twenty years coroner's physician of Montreal; died at his home in that city, January 7, aged 49.

Leander F. Murray, M.D. Louisville (Ky.) Medical College, 1876; a member of the Missouri State Medical Association; and local surgeon at Holden, Mo., for the Missouri-Pacific and Missouri, Kansas and Texas systems; a member of the board of trustees of the Nevada, Mo., State Hospital; died at his home in Holden, Mo., March 21, aged 66.

Thomas James Moher, M.D. Trinity Medical College, Toronto, 1889; formerly medical superintendent of the hospitals for the insane at Orillia and Brockville, Ont.; for the last three years superintendent of the Hospital for the Insane, Coburg, Ont.; died at his home in Coburg, February 25, aged 52.

Daniel Wright Dimock, M.D. Dartmouth Medical School, Hanover, N. H., 1867; formerly of Brockton, Mass., but for several years a resident of Sydney, N. S.; died at the home of his son in that place, January 5, aged 78.

Levi Hall, M.D. Hahnemann Medical College, Chicago, 1882; formerly a clergyman of the Methodist Episcopal Church; died at his home in Minneapolis, Minn., March 22, from cerebral hemorrhage, aged 80.

Oliver Henry Sterner, M.D. Jefferson Medical College, 1889; a practitioner and druggist of Frankford, Philadelphia; died at his home, March 28, from pneumonia, aged 55.

William R. Nash, M.D. Indiana Medical College, Indianapolis, 1877; formerly of Brownsburg, Ind.; died recently at his home in Fairmount, Ill., aged 72.

Charles A. Kreutzer, M.D. Detroit (Mich.) College of Medicine, 1897; a Fellow of the American Medical Association; professor of gynecology in Marquette University, Milwaukee; visiting gynecologist to the Milwaukee County Hospital, the County Hospital for the Insane and St. Joseph's Hospital, Milwaukee; a charter member of the Surgical Society of the State of Wisconsin; died at his home in that city, March 29, aged 42.

Archibald James Sinclair, M.D. Trinity Medical College, Toronto, 1875; for twenty-five years surgeon of the Grand Trunk system at Paris, Ont.; and for several years a member of the medical staff of the Ontario School for the Blind, Brantford; died at his home in Paris, Ont., March 22.

Marvin M. Johnson, M.D. Medical College of Georgia, Augusta, 1902; a Fellow of the American Medical Association; president of the Ware County (Ga.) Medical Society; for several years physician of Ware County; died at his office in Waycross, Ga., March 21, from rheumatic endocarditis, aged 34.

William H. Parker, M.D. University of Buffalo (N. Y.), 1881; a Fellow of the American Medical Association; for seven years health officer of Santa Monica, Cal.; who was run down by an automobile, March 19, died in St. Catherine's Hospital, Santa Monica, from his injuries, March 20, aged 59.

Henry Stephen Smith, M.D. Detroit College of Medicine, 1911; D.V.S., Ontario Veterinary College, 1889; formerly a member of the staff of the state veterinarian of Michigan; a practitioner of Detroit; died in Providence Hospital in that city, March 21, from pneumonia, aged 49.

James N. Long (license, Texas, 1873); a Confederate veteran; for nearly sixty years a practitioner of Bee County, Texas; died at his home in Beeville, March 12, from influenza, aged 83.

John W. Getzendanner (license, Md.); a practitioner since 1870; of Myersville; died at the home of his daughter near Middletown, Md., March 11, from cerebral hemorrhage.

John Douglass West (license, Ohio, 1896); a practitioner since 1861; a member of the Ohio State Medical Association; died at his home in Hopedale, March 15, aged 87.

Thomas J. Dower, M.D. University of Iowa, Iowa City, 1896; a member of the Iowa State Medical Association; of Fonda; died in Excelsior Springs, Mo., March 3, aged 47.

Ernest J. Schenck (license, years of practice, Illinois 1883); a practitioner of Princeton, Ill., since 1858; died at his home March 15, from heart disease, aged 83.

Theodore Rogers Waugh, M.D. Hahnemann Medical College, Philadelphia, 1872; of St. Alban's, Vt.; died in a sanatorium in Burlington, Vt., March 17, aged 67.

Alvin Henri Wright, M.D. University of Vermont, Burlington, 1890; of San Francisco; died in the City and County Hospital in that city, March 13, aged 46.

Francis Marion Carr (license, Ind., 1897); a practitioner since 1855; died at his home in New Market, Ind., March 18, from senile debility, aged 83.

Clinton E. Thompson, M.D. Denver College of Physicians and Surgeons, 1899; died at his home in Denver, March 11, from cerebral hemorrhage, aged 51.

Channing H. Cook, M.D. Cooper Medical College, San Francisco, 1887; died at his home in San Francisco, March 6, from tuberculosis, aged 53.

Charles Hebard, M.D. Bellevue Hospital Medical College, 1865; died at his home in Mondovi, Wis., March 3, from heart disease, aged 76.

James A. Cole, M.D. College of Physicians and Surgeons, Baltimore, Md., 1886; died at his home in Timmons ville, S. C., March 11.

Thomas Lee, M.D. University of Pennsylvania, Philadelphia, 1876; died at his home in Camden, N. J., March 24, aged 72.

Marriages

EARL LINWOOD PARMENTER, M.D., Mineral, Kan., to Miss Hilda Brand of Chicago, at Kansas City, Mo., recently.

EUGENE GORHAM HOITT, M.D., Marlboro, Mass., to Miss Gladys Hoitt of Vancouver, B. C., March 27.

HARRY NICHOLAS SUTHERLAND, M.D., to Miss Doris Knutson, both of Ely, Minn., March 28.

SAMUEL H. MILLER, M.D., to Miss Ella Boyd, both of Joplin, Mo., March 25.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

WINE OF CARDUI

A Pillar of the Church and His "Patent-Medicine" Tipple

Wine of Cardui is one of those preparations that have more or less vogue among women who take their "booze" in the form of "patent medicine" instead of whiskey. It is made and sold by the Chattanooga Medicine Company, this company being owned by John A. Patten and Z. C. Patten, Jr. The Chattanooga Medicine Company previous to 1909 was a corporation, largely owned by the two Pattens. In that year the company gave up its charter of incorporation in order to avoid the tax put on corporations at that time.



Fig. 1.—Photographic reproductions (greatly reduced) of the cartons of Wine of Cardui before and after the passage of the Food and Drugs Act. At the left is the old carton with the fraudulent statement "Nature's Great Emmenagogue" and the equal fraudulent statement "A certain cure for menstrual disturbances." Neither of these statements appear on the present carton, but in place of them is the enlightening information "Contains 20 per cent alcohol."

John A. Patten, who is understood to own the greater part of this "patent medicine" concern, is one of the most prominent laymen in the Methodist Episcopal Church organization. According to the Methodist Year Book for 1914, he holds positions on the following:

Book Committee, chairman.

Freedman's Aid Society, member of the board of laymen.

Board of Education, member of the Board of Managers.

Methodist Brotherhood, representative of General Conference District 6.

Commission on Federation, member.

Executive Committee of Laymen's Associations, member large.

Methodist Men's Convention, member of Committee Policy.

By far the most important of these position is his chairmanship of the Book Committee. According to the Methodist Year Book, the Book Committee "is one of the most important bodies created by the General Conference, being almost a General Conference *ad interim*." This committee:

Fixes the salaries of the bishops, publishing agents and all official editors; has general supervision of the publishing interests of the church; may discontinue any depository or periodical; may order expenses curtailed in any department of the Book Concern; elects the book editor; controls the

THIS MEDICINE will correct all irregularities of the Monthly Periods of women when not caused by constitutional deformity or that do not require surgical treatment. It will do no more nor less than this. It is harmless as water during pregnancy.

THIS MEDICINE is recommended for all menstrual irregularities and uterine and ovarian troubles, when not caused by constitutional deformity, or that do not require surgical treatment. Especially for use during pregnancy, at puberty and at the change of life.

DIRECTIONS IN 6 LANGUAGES INSIDE

Fig. 2.—Photographic reproductions (reduced) of parts of the old (upper) and new (lower) cartons. Notice that the direct falsehoods of the old carton have given place to the inferential falsehoods of the new. Cardui no longer "will correct" all irregularities, but is now "recommended" for these irregularities. The vicious falsehood that Wine of Cardui "is harmless as water" has been deleted.

purchase, sale or exchange of real estate by the Book Concern; may remove from office a publishing agent or editor; declares the amount of the dividend of the Book Concern to be distributed among the conferences.

Before passing to a consideration of the Wine of Cardui itself, it is worth noting that Mr. Patten, as one of the Committee on Policy appointed during the Methodist Men's Convention, reported that the convention committed itself "with heartiness and devotion to the well-known attitude of the church on the subject of temperance. . . ."

CARDUI ADVERTISING

A few years ago the advertising of Wine of Cardui was distinguished by its bold indecency. This, for example, from a two-column advertisement, entitled "Why Women Fear to Grow Old":

"What a husband needs, is a well-SEXED woman—a woman with health, strength, capacity for sharing with him, in a womanly way, life's duties, responsibilities and enjoyments."

"A well-sexed woman wins success, also—in business, literary or social life—where the weak-sexed one fails."

"Are you a victim to any of the many forms of disease peculiar to women, which prevents you from tasting to the full the enjoyment and happiness that is due you?"

Referring to this phase of the Wine of Cardui business, Mr. Samuel Hopkins Adams, in his "Great American Fraud" series, discussing a Cardui advertisement entitled "What Men Like in a Girl," said: "For loathesome and gratuitous indecency, for leering appeal to the basest passions, this advertisement and the others of the Wine of Cardui series sound the depths."

MR. PATTEN DEFENDS THE NOSTRUM BUSINESS

At the time the public was being awakened to the more serious evils of the "patent-medicine" traffic, Mr. Patten, as "fraternal representative from the Proprietary Association of America"—the "patent medicine" organization—spoke before the twentieth annual convention of the Tennessee State Pharmaceutical Association. Mr. Patten defended the "patent medicine" business, and, in common with his kind, protested against the "attacks on the manufacturers of proprietary med-

icines." Mr. Patten's argument was that self-interest alone on the part of "patent medicine" manufacturers insured meritorious and safe remedies!

"However unscrupulous," said Mr. Patten, referring to the "patent medicine" manufacturer, "he may be at heart, common-sense teaches that only as he produces an article that will 'repeat'—which will meet the needs of the people who buy—can he reach success."

This, from a gentleman who was selling to unsuspecting women an alcoholic "tonic" under the claim that it was non-intoxicating! Wine of Cardui is, doubtless, a good "repeater." So is whiskey.

Mr. Patten's address, defending "patent medicines," although long, was widely copied by the newspapers of the country, and some editors went so far as to discuss the matter editorially. Whether this wide dissemination of pro-nostrium matter was the result of purchased news space by the Proprietary Association for the purpose of molding public opinion through advertisements printed as news-matter, or whether the matter was reprinted because the newspapers, as general beneficiaries of the "patent medicine" industry, recognized the *quid pro quo*, it is impossible to say.

THE WOMAN'S TONIC

Wine of Cardui, according to its manufacturers, is "the woman's tonic." It is apparently recommended for practically all the ills that woman is heir to. Before the Food and Drugs Act made lying expensive, instead of merely immoral, the label of Mr. Patten's product bore such outrageous falsehoods as:

"A certain cure for menstrual disturbances of women, such as irregularity, exaggeration, suppression, etc."

"It is harmless as water during pregnancy."

"Nature's Great Emmenagogue."

"Without intoxicating qualities."

"The most astonishing Tonic for Women known to Medical Science."

No such crude lies as these appear now on the carton or label of Wine of Cardui, for Mr. Patten, in common with many other nostrum exploiters, appreciates the value of truthfulness—when it becomes a legal necessity. To-day,

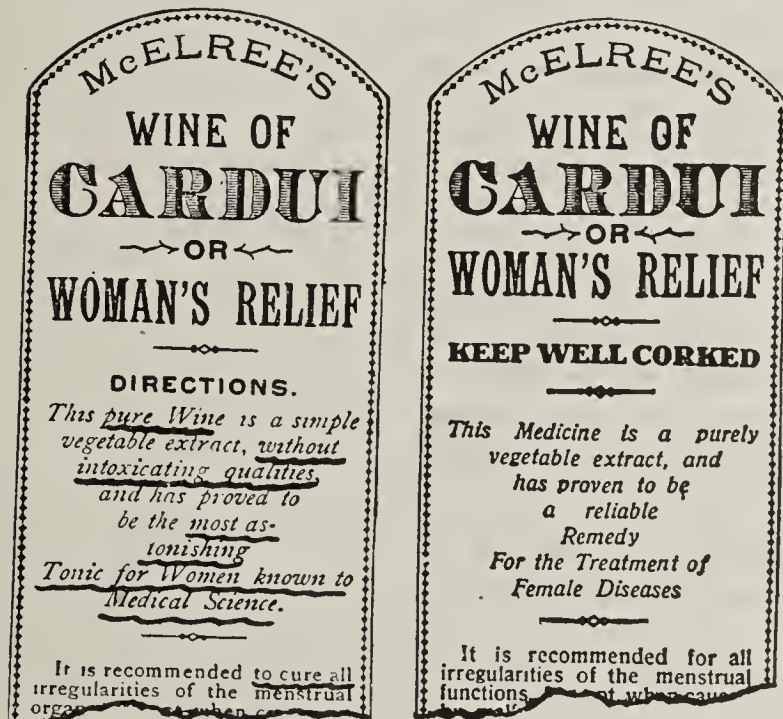


Fig. 3.—Parts of the old (left) and new (right) labels. As Wine of Cardui is not a "pure wine" and as it is not the "most astonishing tonic for women known to medical science" these statements no longer appear on the label. As the bottle has to confess to the presence of 20 per cent. alcohol, the pillar of the Methodist Episcopal Church who manufactures this stuff dares not now claim that his "booze" is "without intoxicating qualities." But the claim was made before there was a penalty attached to lying!

because the law demands it, Mr. Patten's medicine bears the statement: "Contains 20 per cent. alcohol." Yet in 1905 Mr. Patten, in his widely disseminated address, inveighed against the suggestion made by thinking people that the percentage of alcohol in "patent medicine" should be declared. And this "tonic," containing twice as much alcohol as champagne was

sold under the claim that it was "without intoxicating qualities!"

"I claim," said the representative of the Methodist Brotherhood, "to be a sincere advocate of temperance, but you gentlemen know and I know what a base attempt has been made in this direction to play on the prejudices of the ignorant."

THE ADVERTISERS' CLUB OVER LEGISLATORS

During the summer of 1912, *Collier's* called attention to a letter said to have been sent by the advertising counsel of the Chattanooga Medicine Company to a newspaper in New

WRITE US A LETTER

YOUNG AND OLD
are earnestly urged to write us at once for Free Advice. Make us your confidant, describing all your troubles, stating age, and we will send you valuable instructions and advice, in plain, sealed envelope.
Address: Ladies' Advisory Dept., The Chattanooga Medicine Co., Chattanooga, Tenn.

Women in Trouble

of any kind, should bear in mind, that whatever form the trouble may take, if it seems to be due to some irregularity, over or under-development, exhaustion, or derangement, of any of the female functions, a medicine is needed that will refresh, strengthen, build up and stimulate the female organs, and help them to do all the work for which they were intended. The only harmless, specific, scientific, reliable medicine for female disease, is

WINE OF CARDUI

Woman's Best Friend

It is a pure, vegetable, essence, which goes at once to the seat of the trouble, regulates the functions, renews the strength, relieves pain, and restores the vitality.
Cardui is a medicine for girls, young women, middle-aged and old women. It will make you well, if any part of your female organism is wrong.
Try it.
At all druggists in \$1.00 bottles.

**"MY MENSES
HAD STOPPED."**

writes Mrs. I. W. Austin, of Chestnut Ridge, N. C.: "All but the pains, which were terrible. I was in bed condition for months, under treatment of doctors, who did me no good. After taking part of a bottle of Cardui, my menses came back, and for the first time in my life without pains. I advise suffering women to use Cardui."

Fig. 4.—One of the older Wine of Cardui advertisements, greatly reduced.

Mexico. A bill had been introduced in the state legislature of New Mexico. Its aim was to supplement the federal Food and Drugs Act by prohibiting curative claims. According to *Collier's* the letter from the Wine of Cardui concern gave the name of the man introducing the bill with the name of the committee that was to pass on it. Then, in red letters, was this clause:

"This will, of course, stop all advertising of proprietary medicines in New Mexico."

The advertising counsel then asked: "Won't you please take this important matter up at once with your representative?" As *Collier's* said at the time, this piece of correspondence sounded like old times—"the combination between the patent medicine company with its millions to spend on advertising; the newspaper which wants the advertising and the legislator who wants the support of the newspaper."

PRESENT CLAIMS FOR CARDUI

What is claimed for Wine of Cardui to-day? In the booklet sent out by the Chattanooga Medicine Company—but not with the bottle, so that its statements are not subject to the federal Food and Drugs Act—we read:

"This is a pure, vegetable, curative, female tonic. It regulates fitful functions, relieves periodical pain, strengthens the female organs and builds up the female constitution."

And what will this marvelous nostrum not do? Should the breasts exhibit "lack of tone, shown by hanging breasts"—"it is time to take Cardui." In local diseases of the vulva, "frequently caused by want of cleanliness," but even when "caused by gonorrheal infection" "Cardui will exert marked beneficial effect upon this local irritation." "Nine out of every ten female invalids" according to the booklet, "have womb trouble," and Wine of Cardui, we are asked to believe, has "cured" the wombs of "over a million women" and "made them feel well all through." Should the womb be anteflexed, take Wine of Cardui; should it be retroflexed, also take Wine of Cardui; should there be prolapse or inversion, take Wine of Cardui. Have you suppressed menstruation or "flooding"—Cardui will cure it. The girl at puberty "needs care, patient attention, motherly advice and—Cardui."

"Every girl should take Cardui at the time of puberty. It can never do her anything but good." Does the Chairman of the Book Committee of the Methodist Episcopal Church, who is such a strong advocate of temperance, really believe his

disguised "booze" is a good thing to give a young girl at the most impressionable period of her life? Does Mr. Patten really think that an alcoholic nostrum—far more insidiously dangerous than the ordinary form of alcoholic drink—is something that, given to the girl blossoming into womanhood, "can never do her anything but good"?

And to the married woman, Mr. Patten gives this advice:

"All newly married women should take Cardui. It will afford them a gentle, sustaining refreshment, soothe their nerves, tone up their organs and regulate all their functions."

The question has frequently been asked: "What is Wine of Cardui?" To answer it, the chemists of the laboratory of the American Medical Association were asked to analyze it. Here is their report:

CHEMIST'S REPORT

The name Wine of Cardui would indicate that the preparation was made from blessed cardus (*Cnicus benedictus*) a plant variously known as blessed, cursed, spotted or bitter thistle. Wine of Cardui is a dark brownish liquid having a neutral reaction, a peculiar, valerian-like odor and a bitter, mawkish taste. The odor was not wine-like in any particular. The preparation is claimed to be purely vegetable and the presence of 20 per cent. of alcohol is declared. Arsenic, bromids, iodids, the potent alkaloids such as aconitin, morphin and strychnin, or the emodin-bearing drugs such as aloes, cascara and senna, were not found. Potassium bitartrate (cream of tartar) was absent, thus indicating the absence of wine from grapes. Alcohol was determined and 20.36 per cent. of absolute alcohol by volume was found. The volatile matter amounted to about 97 per cent. The non-volatile residue appeared to consist of vegetable extractives. This had a bitter taste and gave very faint reactions for alkaloids. The quantity of alkaloid was too small to possess any appreciable medicinal effect, whatever its potency might be. Small quantities of a nitrate were present. Potassium nitrate is a constituent of a considerable number of plants, among which is blessed thistle. The presence of traces of this salt in Wine of Cardui does not, therefore, prove the presence of blessed thistle extractives in this preparation, although it is confirmatory evidence. A trace of combined ammonia also was present.

It is probable that Wine of Cardui is a weak, hydro-alcoholic extract of blessed thistle, containing a trace of valerian. Blessed thistle has been employed to some extent

FASHION MAGAZINE

YOUNG GIRLS

At a certain time in every young girl's life, she needs the help of a tonic, to carry her through to healthy womanhood.

Mothers! At such times give your daughters CARDUI, the female tonic! It acts gently, is non-intoxicating, purely vegetable, perfectly harmless, and has no bad after-effects.

Cardui is an ideal tonic for young and old. Advise your daughter to

Take CARDUI

Fig. 5.—One of Mr. Patten's advertisements to young girls in which he declares his "booze" is "non-intoxicating" and "perfectly harmless."

in domestic medicine as a simple bitter, but little attention is given to it by discriminating writers in materia medica. It seems probable that whatever medicinal effect Wine of Cardui may possess, is due principally to its alcohol content."

The chemist's report can briefly be summed up in the statement that Wine of Cardui is a "patent medicine" that contains 20 per cent. of alcohol and apparently very little else. In view of the chemist's findings, it would be interesting to know why the Commissioner of Internal Revenue has not

listed Wine of Cardui among those alleged medicinal preparations that are "insufficiently medicated to render them unsuitable for use as a beverage," and thereby limited the selling of this preparation to those who have paid the retail liquor dealers' special tax!

Summed up, Wine of Cardui may be said to belong to what is known as the "bracer" class of nostrums—those that are taken largely for their alcoholic effect. There are few more insidiously dangerous "patent medicines" than those belonging to this class. By what sophistries does Mr. Patten, pillar of the Methodist Episcopal Church, square his religious principles with his business? The thousands of Methodists who are opposed, alike, both to the fraud in the "patent medicine" business itself, and also to the sale of alcoholics under the guise of women's tonics, have a right to demand of their organization an explanation of Mr. Patten's preference. What is the secret of this man's power in their church? Is the Methodist Episcopal Church in need of tainted dollars fraudulently obtained from sickly women who innocently purchase a disguised tippie? So far as we know, not one of the official publications of the Methodist Episcopal Church will carry the advertisements of Wine of Cardui—the business is too dirty, too vicious, too fraudulent for their pages. Why then, does that church bestow on a man who makes his money through such a business, some of its highest honors and dignities?

Association News

PRELIMINARY ANNOUNCEMENT OF RAILROAD RATES FOR THE ATLANTIC CITY SESSION

The Committee on Transportation and Place of Session announces the rates of which it has been advised to date:

The Trunk Line Association has authorized a rate of 2 cents a mile in each direction with a minimum of \$1 for the round trip, going and returning via same route only; tickets to be sold and good, going, June 20 to 22, and returning to reach the original starting-point not later than June 29.

The Western Passenger Association calls attention to the very favorable tourist fares to Atlantic City which will be available to persons desiring to attend the annual session. The general basis of these fares is 2 cents a mile in each direction up to the eastern gateway added to the fares tendered therefrom. These fares are on as liberal a basis as are made by the lines of the Western Passenger Association.

The Grand Trunk Railway System announces that it will have on sale June 1 daily up to and including September 30, round-trip, thirty-day excursion tickets to Atlantic City, also sixty-day circle tour tickets going via New York, returning via Philadelphia, Baltimore and Washington at the following rates:

Chicago to Atlantic City and return, \$29.10, thirty-day limit.

Chicago to New York, returning via Philadelphia, Baltimore and Washington, \$32.40, sixty-day limit.

On the thirty-day tickets, liberal stop-overs are allowed in the United States and all intermediate points in Canada. On the sixty-day tourist tickets, stop-overs are allowed at all intermediate points en route.

The Grand Trunk Railway System operates three solid vestibule trains leaving Chicago daily at 11:05 a. m., 3:30 p. m. and 11:05 p. m., carrying steel underframe coaches, steel Pullmans and dining-cars, electric lighted throughout. It will also have many other interesting summer trips on sale beginning June 1, including circle tours going one way and returning another.

This preliminary notice of fares is of necessity incomplete. Additional rates will be published as they are announced by the several passenger associations. Fellows contemplating attending the annual session should consult the local ticket agent in their home towns for full information regarding rates, time limits, extension and stop-over privileges. In subsequent reports, special trains which may be arranged for from various points will be noted.

HOTELS ANNOUNCED AS HEADQUARTERS

The local Committee on Arrangements for the Atlantic City Session report the following hotels as headquarters:

| | |
|---|----------------------|
| General Headquarters | Marlborough-Blenheim |
| Practice of Medicine..... | Hotel Dennis |
| Surgery | Hotel Chalfonte |
| Obstetrics, Gynecology and Abdominal Surgery... | Haddon Hall |
| Ophthalmology | Hotel Traymore |
| Laryngology, Otology and Rhinology..... | Hotel Brighton |
| Diseases of Children..... | Seaside House |
| Pharmacology and Therapeutics..... | Hotel Dennis |
| Pathology and Physiology..... | Shelburne |
| Stomatology | Alamac |
| Nervous and Mental Diseases..... | Hotel Brighton |
| Dermatology | Seaside House |
| Preventive Medicine and Public Health..... | Shelburne |
| Genito-Urinary Diseases | Alamac |
| Hospitals | Marlborough-Blenheim |
| Orthopedic Surgery..... | Hotel Chalfonte |

Correspondence

Painless Parturition

To the Editor:—In the whole realm of science no other field presents such a crying need for the use of the modern anesthetic as that of parturition. For this class of suffering nitrous oxid is particularly well adapted. The subconscious and unconscious states rapidly follow its inhalation; likewise consciousness returns quickly after its inhalation is discontinued. This permits of its entire discontinuance between "pains" with the patient completely conscious, and its administration only just prior to and during the contractions. Furthermore, and this is a very important difference from the action of ether and chloroform, used in this manner, nitrous oxid does not interfere with the contractions of the uterus; the progress of labor is natural, yet the "pains" are painless.

The pain and suffering of the parturient woman produce exhaustion, that is, shock. Nitrous oxid, in a very large measure and to a much greater extent than the usual anesthetics, protects against shock, so that, with its use, not only is the suffering prevented, but also the physical condition of the patient is decidedly better. With the patient's vitality conserved, the contractions of the uterus are stronger and, therefore, nitrous oxid aids and facilitates the progress of labor.

The parturient and puerperal patient is particularly prone to pathologic processes, as resistance is low. Nitrous oxid conserves the patient's resistance in general (Crile: *The Results of Operations, Especially Abdominal, Performed on the Principle of Anoci-Association*, *THE JOURNAL*, July 13, 1912, p. 114), and against infection specifically (Crile: *An Experimental and Clinical Research into Nitrous Oxid versus Ether Anesthesia*, *South. Med. Jour.*, January, 1910). Besides, in such patients, the disintoxicating and eliminating organs—the thyroid, parathyroids, adrenals, liver and kidneys—are already overtaxed. Nitrous oxid, therefore, is the rational and scientific anesthetic for the obstetrician (Coburn: *The Selection of the Anesthetic on the Basis of its Ultimate Physiology*, *Surg., Gynec. and Obst.*, December, 1913). With its use, not only is parturition painless, but the patient's vitality and resistance are thereby conserved, and much of the onerous burden and danger removed from the parturient chamber.

RAYMOND C. COBURN, M.D., New York.

Hasty Publication.—William Harvey had demonstrated his ideas of the circulation for twelve years before publishing them; between the first draft and final publication of the "Origin of Species," seventeen years were allowed to pass; yet to-day men *rush* into print with ideas that are pigmy-like compared with these magnificent conceptions.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VARIATIONS IN DIFFERENT BRANDS OF ETHER

To the Editor:—1. An anesthetist finds that a certain brand of ether seems to require very much more to produce anesthesia than a brand previously used. What possible difference in two brands of ether may account for this?

2. What chemical differences are to be expected in the standard brands of ether now on the market? W. E. C.

ANSWER.—1. The anesthetic strength of ether might be influenced by the presence of water or alcohol. It is unlikely that any ether sold for anesthetic purposes contains enough of either of these impurities to affect materially its anesthetic activity. The Pharmacopeia gives directions for detecting an undue amount of alcohol or water which can be easily applied. It is probable that any differences in effect observed are due to the mode of administration.

2. There is no reason to expect more than minute differences in the chemical composition of the standard brands of ether on the market. Depending on the method of preparation various impurities may be present, but these are usually removed, so that the standard brands are of good quality.

BOOKS ON FIRST AID

To the Editor:—I have been asked to name some book suitable for laymen, covering the ordinary emergency and first-aid subjects. Can you tell me of such a one?

C. T. CADWELL, M.D., Poughkeepsie, N. Y.

ANSWER.—The following is a list of references to recent publications on this subject:

- Lynch, Charles: American Red Cross Abridged Text-Book on First Aid, Woman's Edition, Railroad Edition, Miner's Edition and Police and Fireman's Edition, Philadelphia, P. Blakiston's Son & Co., 1913, each 30 cents.
Doty, Alvah, H.: A Manual of Instruction in the Principles of Prompt Aid to the Injured, Including a Chapter on Hygiene and Disinfection, Designed for Civil and Military Use, Edition 5, Cloth. Pp. 229, with 85 illustrations. New York, D. Appleton & Co., 1912, \$1.50.
Warwick, F. J.: First Aid to the Injured, New York, W. R. Jenkins Company, \$1.

KINTZING TREATMENT OF TETANUS

To the Editor:—What results have been obtained with Kintzing's prescription for tetanus which is, I understand, intramuscular injection of a solution of pure phenol? It was supposed to have been successfully tried out in nine cases at the Franklin Square Hospital in Baltimore during the past year or two.

F. A. WOODWARD, M.D., Los Angeles.

ANSWER.—No reports on the method of Kintzing have appeared in current medical literature since Kintzing's original article, reporting seven cases with recovery (Kintzing, P.: Tetanus: Seven Cases with Recovery, *New York Med. Jour.*, Dec. 23, 1911; abstr., *THE JOURNAL*, Jan. 6, 1912, p. 64). Foreign literature has contained favorable accounts of Baccelli's treatment, which is essentially the same.

PERCENTAGE AND EXTRACTION OF NICOTIN

To the Editor:—In the note on the sterilization of tobacco (*THE JOURNAL*, Feb. 26, 1914, p. 717), I find the statement that tobacco may contain from 0.6 to 9 per cent. nicotin. Please give the best authority as to the percentage of nicotin, and state how it may be extracted.

M. M. MARTINSON, M.D., Chattanooga, Tenn.

ANSWER.—Owing to the variety of tobacco, climate, seasonal variation, method of curing, moisture content and other factors, the quantity of nicotin in dried tobacco-leaf varies greatly. Experiments by the French department of agriculture (*Compt. rend. Acad. d. sc.*, cli, 23) have shown that the extreme ranges of nicotin content for various tobaccos lay between 0.22 and 10.5 per cent. The *Lancet* laboratory found that the nicotin content of commercial smoking- and chewing-tobaccos lay between 0.6 and 5.3 per cent., based on the dried leaf.

A number of methods have been proposed for the estimation of nicotin in tobacco. One of the most satisfactory is the following:

From 5 to 6 gm. of tobacco in small pieces are weighed and placed in the flask of a reflux apparatus together with 10 gm. of lead oxid and 100 c.c. of benzene. The flask is

immersed in a gently boiling water-bath for one hour. The mixture is cooled and the solvent decanted. The residue is washed several times with small quantities of benzene. The bulked solvent is extracted several times with diluted sulphuric acid in a separator. The acid solutions are bulked and an excess of iodine solution added. After precipitation is complete, the mixture is filtered, the precipitate washed with cold water and suspended in acetone and the iodine determined by titration with tenth-normal sodium thiosulphate.

1 c.c. N/10 $\text{Na}_2\text{S}_2\text{O}_3 = 0.002$ gm. nicotin.

Nicotin may be extracted from tobacco in an impure form by distilling in steam from an alkaline solution and drawing off the nicotin layer from the distillate by means of a separator. The alkaloid may be obtained in greater purity by collecting the distillate in diluted acid, precipitating with iodine, decomposing the precipitate with sodium sulphite and drawing off the nicotin layer by means of a separator.

DIMETHYLAMINO BENZALDEHYD REACTION

To the Editor:—Please give me the method of detection of urobilinogen in the urine by means of dimethylaminobenzaldehyd.

F. H. NEUHAUS, M.D., Houston, Tex.

ANSWER.—Prepare a 2 per cent. solution of p-dimethylaminobenzaldehyd in equal parts of concentrated hydrochloric acid and water. Add a few drops of this solution to 5 c.c. of fresh cold urine and allow to stand for a few minutes. A positive reaction is indicated by the appearance of a cherry-red color, which may be extracted with chloroform or epichlorhydrin. Heating facilitates the reaction, but here normal urine may give a slight reddish coloration. In the cold, normal urine gives a greenish-yellow color.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

NEWSPAPER COMMENTS ON PHYSICIANS

Probably at no time have the activities and efforts of physicians been as freely and widely discussed in the public press as at present. This is both an encouragement and a warning. It is encouraging as showing the increasing recognition of public health as a social problem. It is a warning to the medical profession that our activities and motives in the future will be subject to much more rigid scrutiny than in the past. Both the individual and the organization can profitably consider the criticisms which are brought against it. As the social activities of the medical profession increase, the need of correcting our professional ideas in the light of criticisms from a popular view-point will become more apparent. It is also true that if the public must be educated into scientific and professional ways of thinking the profession must also be educated into social methods of thought.

MEDICAL CONTROL OF MEDICAL PRACTICE

One of the most elaborate criticisms of the medical profession, appeared recently in the Los Angeles Sunday *Examiner*, in the form of a full page editorial, headed by a large cartoon representing Uncle Sam in the clutches of the "three pigmies that rule a giant." The heading of the editorial reads, "One of our nation's big troubles is lawyers, doctors, bankers. We permit these gentlemen to make the rules that govern themselves and govern the whole country." Discussing this proposition, the editor states that this country is governed by doctors, lawyers and bankers. Lawyers make the laws, bankers handle the money, while "we permit doctors to have everything to say about the doctor's business, the hospitals, the public health, and other important matters. We don't permit automobile drivers or automobile manufacturers to control or write the rules of the road. The doctors make their own laws and rule too much for the public good. No matter how wise they may be, or how unselfish, they must

permit the assumption that all of the people are wiser than they are." The editor admits that doctors are painstaking, thorough, scientific and unselfish men. The best of them give their discoveries to the public free, whereas other inventors and discoverers take for themselves the protection and profit that the patent office gives. It would be a sad thing indeed if confidence in good doctors were destroyed, but it is wrong, harmful to the public and harmful to the doctors that the latter, like the lawyers, should rule absolutely their own class. People should see to it that the medical profession is managed very largely not for the curing of disease for pay but to prevent disease. This, condensed from a couple of columns of discussion, is the opinion of the editor, illustrated by specific instances of incompetent and mercenary physicians.

The *Examiner* is perfectly correct in its abstract principles, but mistaken in its facts. The fact is that the only laws for the restriction and regulation of physicians that have been passed in this country have been passed at the insistence of the better half of the medical profession. The fact that there are incompetent and mercenary physicians (which is, of course, true) is a matter for which the public is directly responsible. Poor laws and inefficient enforcement of these laws have produced the low grade, commercial and mercenary medical school which, in turn, has turned out the half trained mercenary physician with low ideals. If the public will establish a high standard for the practice of medicine, and will enforce it on all alike, the medical profession would be delighted to turn this responsibility over to the people. The attitude of the average citizen and especially of the majority of members of legislatures, however, is that all sects, cults and classes, no matter how ignorant their followers or absurd their claims, should be given the same rights and recognition as scientifically educated and competent physicians. Having put up bars in the form of standards which the competent and conscientious student must spend years of study and thousands of dollars to pass in order to gain entrance to his profession, public carelessness and loose legislation then proceed to open the back door and admit to the same privileges, ignorant, untrained and fanatical followers of fads, under the plea of "personal liberty." The position of the medical profession on this subject is that it is willing to be bound by any restrictions or qualifications which public opinion will place on it, but asks that the same standard be applied to all who seek the same privilege. This is not being done in a single state. The fact that there are any standards at all is due solely to the efforts of the medical profession. If the public will relieve us of the responsibility of establishing standards and will apply a high standard with perfect equity to all concerned, the condition of the public and profession will be greatly benefited.

HUMANITARIANISM OF MEDICINE

The Helena, Montana, *Independent*, commenting on the fact that an eminent physician, recognized as an authority in his field, died recently leaving an estate of only \$5,000, says:

"These facts emphasize the humanitarian side of the medical profession. The physician is always the butt of jibes and in many cases, the object of suspicion, yet there is no profession or calling that is more unselfish. Does a physician discover a new antidote, a new antitoxin, a new anesthetic? He gives it to the world. He considers it his duty. It is the ethics, the unwritten law of his profession. He would be disgraced in the eyes of his fellow practitioners should he attempt to exploit his discovery for his own benefit. The greatest discoveries of mankind have been made by physicians, and they have been given to the world for nothing, while some of those who made the research paid for their work with their lives, and still others died in poverty. The world never overpays its benefactors; it will always remain in their debt."

PERSONAL ADVERTISING VS. COOPERATIVE PUBLICITY

The New York *Commercial*, discussing the act of the Medical Society of the County of New York regarding newspaper interviews and professional men, says: "Medical societies which have fulminated against all forms of publicity and advertising

by physicians and surgeons have never yet been able to give any logical reason for their objections. The plain truth of the matter is that a few of the older men of the profession are able to maintain the advantages they have already won by keeping the younger members in the background."

The *Commercial*, in common with most of the newspapers discussing this question, confuses individual advertising with cooperative publicity. For a medical organization, through its proper officers, to supply suitable information to the newspapers regarding disease in general and its prevention, is not only entirely legitimate but is not contrary to the ethics of the medical profession and never has been. For an individual physician, however, to advertise his personal qualifications directly to the public or to use the numerous subterfuges adopted by those lacking the courage to advertise openly has always been regarded as an unprofessional and unworthy act and always will be. There is great need of clear thinking on this subject, not only by the newspapers and the public, but by physicians as well.

"THE WRONG PRESCRIPTION"

Discussing the suggestion that the physicians of Pennsylvania should appoint a legislative agent or prominent committee for lobbying at the state legislature, the Philadelphia *Bulletin* says, "Doctors would do better to get in closer touch with public sentiment and to cultivate an intelligent public opinion. A lobby at Harrisburg is not the right prescription for the emergency which threatens." The *Bulletin* recognizes the fact that protestations of disinterestedness and unselfishness on the part of the medical profession do not harmonize with the use of political methods in securing desired legislation. If the legislation asked for is for the public good, then certainly it ought not to be difficult to convince the public of this fact. If the public cannot be convinced, it should not be forced to protect itself by the enactment of laws through wire pulling, log rolling, political lobbying methods which have of late years been all too frequent in our legislative halls. Public education, and not political activity, is the proper function of medical organizations.

MEDICAL TRADES-UNIONISM

Under the title "Are We to Have a Doctors' Union Presently?" the New Orleans *State Journal* informs us that the very radical members of the profession are anxious to form a regular physicians' union with a set of by-laws and regulations that will bind them as strongly as the labor unions. According to the *Journal*, there hasn't been much talk of forming unions in this country yet, although, continues the editor, "it has been alleged time and again that the American Medical Association is little more than a union." It is a question, in the mind of the discriminating and informed reader, whether the editor means a little more or a little less. However, he admits that the Association "has done a great deal for physicians and incidentally a very great deal for the general public; that it has been at the forefront of the fight against the manufacture of food poisons and the adulteration of drugs as well as the fake patent medicine fights." "But," concludes the editor, and he feels that this is of sufficient importance to put it in capitals, "IT ALSO RULES THE MEDICAL PROFESSION WITH AN IRON HAND." As the Association membership constitutes a large majority of the medical profession, it must be apparent that the profession rules itself with an iron hand, in which case the fears of the Los Angeles *Examiner* quoted above may be somewhat appeased.

STATE COMPENSATION FOR PHYSICIANS

The Boston *Globe* discusses the question of whether physicians should be paid by the state, taking its text from Bernard Shaw's topsyturvy arguments, which have evidently convinced the editor to the point of causing him to wonder if there are any honest doctors at all, in view of the fact that physicians derive their income from the ill health and misfortunes of their fellow men. We should perhaps be satisfied with this faint praise, especially as the *Globe* feels that much credit is due us because we can "oftentimes fight the powerful influences which are constantly trying to drag them (physi-

cians) down." The *Globe* rightly feels that anyone that can release mankind from inefficient and dishonest doctors would be doing a great public service, but its acceptance of Shaw's solution, that the state put a premium on good health rather than on illness, does not argue well for the editor's profound knowledge of present public health discussions. This idea, like most of Shaw's opinions, is not original but very much second hand. When Shaw asks, "Why are not public doctors paid by the state?" he asks what physicians have been asking with increasing emphasis for the last forty years. The answer is evident: because the general public is not as yet intelligent enough to demand protection from disease rather than treatment after disease is acquired, nor far sighted enough to pay a reasonable price for such protection. The *Globe* is perfectly right when it concludes "We should pay doctors to keep us well and not make them dependent on the prevalence of disease." The obstacles in the way of this desired consummation are to be found in public ignorance and indifference, and not in professional greed.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bk. Bldg., Pine Bluff. Homeopathic: Little Rock, May 12. Sec., Dr. I. J. Brooks, 219 East 10th St., Little Rock. Eclectic: Little Rock, May 12. Sec., Dr. C. E. Laws, Ft. Smith.

CANADA: Alberta, April 24. Dr. Cecil E. Race, Registrar of the University of Alberta, Edmonton.

ILLINOIS: Coliseum Annex, Chicago, May 12-14. Sec., Mr. Amos Sawyer, Springfield.

LOUISIANA: New Orleans, May 4. Homeopathic Board, Sec., Dr. Edward Harper, 702 Mahecha Bldg., New Orleans.

NEVADA: Carson City, May 4. Sec., Dr. Simeon L. Lee, Carson.

NEW MEXICO: Santa Fe, April 13. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: May 19-22. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

OKLAHOMA: Oklahoma City, April 14. Sec., Dr. John W. Duke, Guthrie.

TENNESSEE: Memphis, Nashville and Knoxville, first week in May. Sec., Dr. A. B. DeLoach, Memphis.

WEST VIRGINIA: Charleston, April 21. Sec., Dr. S. L. Jepson, 81-12th St., Wheeling.

Washington January Report

Dr. Conrad N. Suttner, secretary of the Washington State Board of Medical Examiners, reports the written examination held at Spokane, Jan. 6-12, 1914. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 39, including 1 osteopath, of whom 38, including 1 osteopath, passed, and 1 failed. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|--|--------|---|-------------------|
| University of Colorado | | (1913) | 75.9 |
| Chicago College of Med. and Surg. | | (1909) | 75.3 |
| Northwestern University | | (1910) 77.3 (1911) | 82.8 |
| University of Illinois | | (1912) 91.6; (1913) | 90 |
| Iowa College of Physicians and Surgeons | | (1900) | 78.3 |
| Baltimore Medical College | | (1900) | 81.9 |
| Johns Hopkins University | | (1911) | 88.7 |
| Harvard Medical School | | (1892) 90.1; (1911) | 86.4 |
| Tufts College Medical School | | (1911) | 80.7 |
| University of Mich., Dept. of M. & S. | | (1890) 79.8; (1909) | 86.4 |
| Minneapolis College of Physicians and Surgeons | | (1908) | 89 |
| Barnes Medical College | | (1907) | 77.7 |
| Missouri Medical College | | (1895) | 81 |
| University Med. Coll., Kansas City | | (1909) 77.3; (1908) | 85.3 |
| Washington University, St. Louis | | (1909) | 83.3 |
| University and Bellevue Hosp. Med. Coll. | | (1906) | 94.3 |
| University of Oregon | | (1905) 81.9; (1910) 97; (1911) 84.5; (1913) | 79.7, 86.8, 87.1. |
| Willamette University | | (1913) | 85.9 |
| Jefferson Medical College | | (1913) | 82.7 |
| University of Pennsylvania | | (1907) 85.6; (1913) | 93.7 |
| University of Pittsburgh | | (1911) | 78.7 |
| University of Nashville | | (1902) | 77.5 |
| Marquette University | | (1912) | 80.3 |
| Trinity Medical College, Toronto | | (1880) | 77.8 |
| University of Toronto, Faculty of Medicine | | (1909) | 76.7 |
| University of Berlin | | (1904) | 91.4 |

FAILED

University of Tennessee (1912)

*No grade given.

Book Notices

ACUTE ABDOMINAL DISEASES, INCLUDING ABDOMINAL INJURIES AND THE COMPLICATIONS OF EXTERNAL HERNIA. By Joseph E. Adams, M.B., M.S., F.R.C.S., Senior Assistant Surgeon, East London Hospital for Children, and Maurice A. Cassidy, M.A., M.D., B.C., Physician with Charge of Outpatients, St. Thomas Hospital. Cloth. Price \$4.50 net. Pp. 571, with 28 illustrations. New York: William Wood & Co., 1913.

In this small volume the authors have attempted to cover a rather wide range of subjects from the anatomy and diseases of the abdomen to diseases which may simulate acute abdominal lesions; hence some of the matter is quite elementary in character. The description of the location of the stomach seems to have been based on findings of the dissecting-room rather than on the findings of modern Roentgen examinations. The English method of operating on patients in their homes rather than in hospitals is advised, and chloroform is given as the anesthetic of choice, notwithstanding the fact that it has yielded to the safer ether and other methods in almost all other countries. One point of considerable importance is well brought out in connection with the etiology of obstruction of the bowel. A careful analysis of 500 cases of obstruction admitted to St. Thomas' Hospital in which a correct anatomic diagnosis was made, either at operation or at necropsy, showed not a single case due to fecal impaction. This fact cannot be too forcefully emphasized, for the practice is still altogether too common for physicians to look on fecal impaction as a very frequent cause of intestinal obstruction, and to work over the patient with physics and enemas until the favorable time for successful operation is passed. In the chapter on diseases which may simulate acute abdominal lesion, a number of interesting conditions are mentioned which have given rise to erroneous diagnoses and at times to the performance of a laparotomy, in the belief that an acute abdominal emergency existed. There are few illustrations. The character of the work is along practical rather than scientific lines.

EARLY PULMONARY TUBERCULOSIS: DIAGNOSIS, PROGNOSIS AND TREATMENT. By John B. Hawes, 2d, M.D., Director Tuberculin Department, Massachusetts General Hospital. Preface by Richard C. Cabot, M.D., Assistant Professor of Medicine, Harvard University. Cloth. Price, \$1.50 net. Pp. 114, with illustrations. New York: William Wood & Co., 1913.

The author states that his aim has been to produce a "short, cheap book which presents the essential points in the diagnosis, treatment and prognosis of early pulmonary tuberculosis. The book is intended for the general practitioner." Without discussion of questions of etiology or pathology, and without going into minutiae as to diagnostic details or confusing complications, he has stated briefly the essentials of diagnosis, prognosis and treatment, emphasizing the importance of the early diagnosis and calling attention to the many sources of error that so often lead to the overlooking of the disease in its stage of curability. The desire for brevity at times forces him to make dogmatic statements with which one might be inclined to disagree, and we are inclined to think that the effort—perhaps unconscious—to be epigrammatic has occasionally enticed him into an assertion that while forceful is too sweeping, and really demands modification. The chapter summaries are good. So also is the advice about leaving the interpretation of a roentgenogram of the chest to an expert. The appendix, showing by descriptive text and by figure how patients may arrange to sleep outdoors, is of extreme value to the general practitioner who plans to treat his patient at home. Dr. Richard Cabot in an appreciative introductory note speaks of this book as "small yet authoritative." This is a just characterization and in accordance with it the book is to be commended.

TIERISCHE IMMUNITÄT. Von Dr. Werner Rosenthal. Paper. Price, 6.50 marks. Pp. 329. Braunschweig: Friedrich Vieweg & Sohn, 1914.

This is a clear presentation along conventional lines of the principal phases of immunology in language that is understood by workers in other branches of science. The author has paid very little attention to American work.

Medicolegal

License Tax on Cows and Herd Inspection Upheld

(*City of Asheville vs. Nettles (N. C.), 80 S. E. R. 236*)

The Supreme Court of North Carolina upholds a license tax assessed at the rate of \$1 per head on each cow in a dairy herd. The court says that there was nothing in the record in this case which would authorize it to hold as a matter of law that such a tax is an unreasonable one. The city is authorized by its charter to prescribe regulations in regard to the sale of milk, in order to safeguard the health of its citizens, and is to be commended for the care which it has shown in so doing. It is also authorized by its charter to levy a license tax to provide for the necessary expenditure in making the inspections and enforcing its regulations.

If the costs of the inspections and of supervision are extravagant, the parties interested should make complaint to the city authorities, and, if not corrected, they can, on proper proceedings, have the fact determined in an action for that purpose, and the court will make appropriate orders to correct the evil. If such defense could be set up for the non-payment of a license fee which is required to be paid in advance, it might seriously interfere with the execution of the regulations of the board of health.

The defendant, on the facts agreed, was engaged in selling milk in the city of Asheville in contemplation of its charter and ordinances. He sold and delivered milk, it was true, to only one customer, a creamery. But this required the same inspection and regulation of the defendant's herd and of its milk as if he had sold to numerous customers. The court finds nothing in the statute which restricts the inspection of such dairy herds and milk to those located within the corporate limits. Probably all the herds are, like this, outside of but near the corporate limits. Where milk is shipped in from other states or distant points, of necessity the inspection is restricted to the milk when put on sale, but not so when the dairy is located in the same county and in the suburbs or near to the city to which the milk is sent. The object of the law is to give the board of health supervision of the sources of milk-supply, its production and sale, so far as is practicable, in order to protect the lives and health of its citizens.

Not Entitled to License to Practice Medicine—Construction of Resolution

(*Board of Medical Examiners of Oklahoma vs. Gulley (Okla.), 136 Pac. R. 1083*)

The Supreme Court of Oklahoma holds that, under the provision of the constitution of that state that "All physicians, . . . now legally registered and practicing in Oklahoma and Indian Territory shall be eligible to registration in the state of Oklahoma without examination or cost." A physician who had been practicing medicine in Oklahoma territory under a territorial license is not entitled, as a matter of right, to registration since statehood without examination, when it is shown that Sept. 12, 1907, the territorial supreme court had affirmed the decision of the district court canceling and annulling the territorial license under which the physician in this case had been practicing, on the grounds of fraud and deceit in procuring it.

Some right was claimed under the concurrent resolution of the legislature, approved April 2, 1908, which reads: "Whereas, it is claimed that by mistake or otherwise, injustice has been done physicians of certain school or schools of medicine, in the administration of the territorial laws governing the admission of such physicians to practice their profession, as well as in the attempt to cancel the license of those previously admitted to practice; Therefore be it resolved by the House of Representatives, the Senate concurring therein, that the State Board of Health or medical examiners be, and is hereby empowered, authorized and directed to correct any such mistake or mistakes and right any injustices that may have been done any applicant of any school of medicine for admis-

sion to practice, and restore to practice any one who, by mistake or otherwise, has been deprived of the right to practice his or her profession, without further cost or examination; that all physicians who have been granted licenses previous to statehood, regardless of school or schools, shall be placed on equal footing with the graduates of the same school, who have been granted license by the State Board of Health or medical examiners."

The court does not deem it necessary to discuss or determine what legal effect the preceding resolution has, for, whether it has the force of law or be merely advisory as expressing the legislative sentiment, it is not believed that it contains anything that can be said to confer on the plaintiff the legal right to registration. It might at first glance be argued that it affords a basis of support to the charge that other graduates of his college had been admitted, and therefore that he had, because of such fact, acquired the right of admission. But this result does not follow. The view the court takes of the resolution is that, where "school of medicine" is mentioned, it refers, not to a particular college or university in which medicine is taught, but to one of the great theories of medicine, such as allopathy, homeopathy, eclectic, etc.

If it were the claim that an injustice had been done the plaintiff in the supreme court decision mentioned, so as to found a claim thereon that he came under the resolution, the facts showing the injustice would have to appear, and then the board would have to determine whether or not the contention were true, if, indeed, the decision of the territorial supreme court could be set aside in such a way. While the board is administrative and executive, and does not exercise judicial functions, yet it has a discretion that it may exercise in the performance of many of its duties.

Damages for Injury to Person in Weakened Condition and Refusing Operation

(*Maroney vs. Minneapolis & St. Louis Railway Co. (Minn.), 144 N. W. R. 149*)

The Supreme Court of Minnesota says that the plaintiff was a passenger on one of the defendant's trains, which was derailed. She testified that she was unconscious of any ailment before the accident, and that afterward she suffered pain and was partly incapacitated. It appeared that she had an internal ailment, which could not have been wholly caused by the accident. There was opinion evidence tending to show that a weakened condition, which had shown no symptoms and of which she had not been conscious, was aggravated by the accident to such an extent as to develop the disability and the painful symptoms she described. If such were the case, she might recover damages. The evidence was sufficient to sustain a verdict for her on that theory, and one for \$1,900 is approved.

It was urged that the plaintiff could be made whole by an operation, which would cost about \$200, and that there was nothing on the record which justified the jury in fixing the damage at nine and one-half times that amount. But the court does not think that the evidence of the cost of a surgical operation had any tendency to measure the plaintiff's damage. Whether she should submit to a major surgical operation for an internal malady was a question for her alone to determine. Such operations involve a known risk which she alone must bear. The defendant was in no position to complain that the plaintiff had seen fit to suffer from her ailment rather than to submit to such an operation. Neither could the court or jury pass on the wisdom of her choice. The chances of the operating-table, in such a case, are too grave to require of the plaintiff that she take this course to lessen her damage, or to permit any consideration of such a prospect as a means of determining what damage she had sustained.

Responsibility.—City authorities are justly chargeable with the lives of all who die of preventable diseases within their jurisdiction, and they should be made responsible before the courts of justice.—Dr. Benjamin Rush.

Miscellany

Competitive Athletics and Mental Development

The effect of competitive athletics on health and efficiency of the individual in after-life has previously been commented on (*THE JOURNAL*, Jan. 6, 1912, p. 40; March 9, 1912, p. 703; Jan. 25, 1913, pp. 131, 300; Feb. 8, 1913, p. 446), particularly in connection with the reports of the Surgeon-General of the Navy, whose findings are averse to this form of athletics. His conclusions were formulated after a study of the records of athletes and non-athletes in the Navy. A committee of the State Medical Society of California conducted a similar inquiry two years ago, devoting themselves chiefly to the ultimate physical effects. H. D'Arcy Power, a member of that committee, made a study of the mental side of the question, and in a subreport and as the result of further independent inquiry as to the effect of this form of athletics on scholarship and life, the capability for intellectual effort, the quality of college work, the effect on memory, concentration, reasoning, will-power and morals in general, reaches some interesting conclusions which appear to be no more favorable than those in regard to the purely physical aspects of the question (*California State Jour. Med.*, October, 1913, p. 392).

Power agrees that there can be no question as to the desirability of a fairly developed muscular system, kept in reasonable activity, for the effect on the organism as a whole and on the brain in particular. In support of this he cites the instance of poorly developed inmates coming from the slum districts of the large cities to the Elmira Reformatory, where efforts are made to give the men the advantages of some education as well as opportunity to learn useful trades. These defective persons appeared at first to possess no capacity or inclination to learn anything, but after a course in physical development were able to profit by mental training. This would not apply to the same degree, however, in the case of the students in high schools and universities, where such muscular deficiency is rare. It would apply still less, of course, to the limited class of men who are selected for the athletic teams of the colleges. It is to this class of men that the inquiry of Power was directed. It is pointed out that the men who take on this form of athletics possess the motor type of mind, and a fluidity of attention. They translate suggestions immediately into action. They are not reflective, and are dominated by habit, which, in athletics, expresses itself in automatic action, and just as actions become automatic they exclude the higher mental activities.

On the physiologic side, it is said that fatigue of one tissue from overuse means fatigue of all tissues, and extreme muscular activity means lessened mental activity. The products of fatigue have a no less deleterious effect on the brain-cells than on the muscles and other organs. Many of the answers to a questionnaire sent out by Power to college and high-school teachers support the conclusion that the members of the athletic teams are not good students, and such general observations are made as that they show "inactivity of all mental power," "seem to be stupid," "do not study, but also they are men who, anyhow, would not study," and that "our athletes do not represent our highest class of students."

It was realized by Power that answers to the points enumerated above as to scholarship, mental powers, morals, etc., would have greater value if arrived at after close psychologic investigation by experts, continued over a long period; but on account of the difficulty of carrying out such investigation, and its doubtful value unless conducted in the most painstaking manner, he believed that a consensus of opinion of the majority of men directly engaged in teaching college students must have a value not easily impugned. Taking the answers to the questionnaire it was found that 60 per cent. of the total replies expressed the belief that the athlete is naturally disinclined to study. The high-school professors to the extent of 75 per cent. held this opinion. Likewise 75 per cent. of the answers received, being in equal proportions from university and high-school professors, were to the effect that men in training show a falling off in scholarship. As to the

influence on the mental faculties, 94 per cent. believe that concentration is weakened or destroyed; 86 per cent. note weakening of memory; 83 per cent. weakening of will-power, and 78 per cent. of power to reason. The high-school teachers again are inclined to record higher percentages. In regard to the effect on morals, 40 per cent. of the replies were neutral, while a very large proportion of the remaining answers referred chiefly to the ethics of the game and the training period and were favorable to a good moral influence, although there were specific replies which were strongly adverse. For instance, one reply stated that "excessive exercise causes in many cases a kind of specialization that makes a student lose sight of his better ideals, and he degenerates to the level of brutehood." An eminent university president believed that the effect of athletics on ideals and power of restraint is "better when moderate, ruinous when overdone." Power had in mind in asking this question, ideals of conduct not confined to the game, but as a continued influence during life, and though the answers were favorable to the good influence of athletics on the morals of the game, he feels that they are not responsive to the question: History shows that periods of artificially enforced restraint are followed by periods of license, and the custom which makes heroes of athletes and inculcates in them a spirit to win at all costs, to act toward their opponents, as has been said, "in a manner that would almost justify homicide," can hardly be the source of improved ideals. Lastly, the necessity for large sums of money to produce winning teams has commercialized athletic contests and has induced the managers to "put on" the kind of sport that pays, with a regrettable lowering of the whole status of athletics. The subject has been summed up as follows: "The whole influence of the student body of prominent athletics is bad, inasmuch as the interests of the students are taken away from what seems to be the proper place for them, withdrawn from the most important part of man's life and placed on something as trivial as a game." This undoubtedly goes direct to the question of ideals and morals, and is opposed to mental concentration and improvement.

The Cost of Vermin

Rats, mice, flies, mosquitoes and the various forms of body parasites have always been held in contempt and disgust and regarded as vermin. Growing knowledge of the important rôle played by these lower forms of animal life in the transmission of disease is ample justification for this feeling. The attention which has been called to parasites and scavengers of the human race has resulted in demonstrating another reason why mankind has always abhorred them. They are an exceedingly expensive luxury. A recent article in the *Farm and Fireside* discusses the amount of damage done in this country by rats, and estimates that there are in the United States at least 300,000,000 of these animals, alike destructive to property and dangerous to health. Rats are said to destroy a hundred million dollars' worth of grain every year in this country, or enough to feed one hen for every man, woman and child in the nation. The annual cost of rats to the nation is estimated at \$360,000,000. In addition, the rat population of the country forms a fertile field for the dissemination of bubonic plague, which only needs a starting-point in any of our seaports to spread throughout the country and cause the loss of thousands of lives. In the same issue of the *Farm and Fireside*, but in a different department, appears an article on the cattle-tick, in which it is estimated that the difference between the market value of an animal free from this parasite and one infected with it is about \$8 per cow, and that the cattle-tick is to-day costing the stockmen of the country a billion dollars each decade, or a hundred million dollars each year. The discovery and development of bacteriology showed that man had been carrying on for centuries an unconscious struggle with the lower forms of vegetable life. Recent additions to our knowledge of the habits and characteristics of vermin show that an equally relentless struggle has been going on between man and the lower forms of animal life.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

- Alabama Medical Association, Montgomery, April 21-24.
Am. Assn. of Genito-Urinary Surgs., Stockbridge, Mass., May 15-16.
American Dermatological Association, Chicago, May 14-16.
American Gynecological Society, Boston, May 19-21.
American Laryngological Association, Atlantic City, May 25-27.
American Medico-Psychological Association, Baltimore, May 26-29.
American Neurological Association, Albany, May 7-9.
American Ophthalmological Society, Hot Springs, Va., May 12-13.
American Otological Association, Atlantic City, May 27-28.
American Pediatric Society, New London, Conn., May 26.
American Society of Tropical Medicine, Boston, May 29-30.
American Therapeutic Society, Albany, May 29-30.
Arizona Medical Association, Tucson, April 21-22.
Arkansas Medical Society, Eldorado, May 19-22.
Association of American Physicians, Atlantic City, May 12-13.
California State Medical Society, Santa Barbara, April 14-16.
Connecticut State Medical Society, New Haven, May 20.
Florida Medical Association, Orlando, May 13-15.
Georgia Medical Association, Atlanta, April 14-16.
Illinois State Medical Society, Decatur, May 19-21.
Iowa State Medical Society, Sioux City, May 13-15.
Kansas Medical Society, Wichita, May 6-7.
Louisiana State Medical Society, New Orleans, April 20-23.
Maryland Medical and Chir. Faculty, Baltimore, April 28-30.
Mississippi State Medical Association, Columbus, April 14-16.
Missouri State Medical Association, Joplin, May 12-14.
Nat. Assn. for Study and Prev. of Tuberculosis, Washington, May 7-9.
National Association for the Study of Epilepsy, Baltimore, May 25.
Nebraska State Medical Association, Lincoln, May 12-14.
New Hampshire Medical Society, Concord, May 13.
New York State Medical Society, New York, April 28-30.
North Dakota State Medical Association, Grand Forks, May 13-14.
Ohio State Medical Association, Columbus, May 5-7.
Oklahoma State Medical Association, Guthrie, May 12-14.
South Carolina Medical Association, Florence, April 14-16.
Texas State Medical Association, Houston, May 12-14.
West Virginia State Medical Association, Bluefield, May 13-15.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

March, XVI, No. 1, pp. 1-126

- 1 Development of Rectum in Human Embryo. F. P. Johnson, Columbia, Mo.
- 2 Interstitial Cells of Mammalian Ovary: *Felis Domestica*. B. F. Kingsbury, Ithaca, N. Y.
- 3 Tract of Lissauer and Substantia Gelatinosa Rolandi. S. W. Randon, Chicago.

Annals of Otology, Rhinology and Laryngology, St. Louis

December, XXII, No. 4, pp. 913-1202

- 4 Histologic Pathology of Accessory Sinuses. J. C. Beck, Chicago.
- 5 Endonasal Route of Attack in Hypophyseal Tumor Cases. W. E. Sauer, St. Louis.
- 6 Cavernous Sinus Thrombosis Due to Organisms of Streptothrix Group. H. Horn, San Francisco.
- 7 Points of Analogy between Otosclerosis and Arthritis Deformans. J. F. O'Malley, London.
- 8 Complications after Submucous Operation for Corrections of Septal Deviations. G. W. Mackenzie, Philadelphia.
- 9 Ulceration of Upper Air Passage in Pulmonary Tuberculosis. J. N. Mackenzie, Baltimore.
- 10 Radical Removal of Facial Tonsil. V. P. Dabney, Washington.
- 11 Removal of Facial Tonsil Followed by Digital Evisceration of Its Capsule. J. A. Ellegood, Wilmington, Del.
- 12 Frontal Mucocele. G. W. McCoy, Los Angeles.
- 13 Follicular Odontoma of the Superior Maxilla. Report of a Case. L. W. Dean, Iowa City, Ia.
- 14 Drainage of Cisterna Magna in Meningitis. N. H. Pierce, Chicago.
- 15 Use of Vaccines after the Mastoid Operations. W. C. Braislin, Brooklyn.
- 16 Septic Thrombosis of Lateral Sinus. H. Friedenwald, Baltimore.
- 17 Bone Conduction in Syphilis. O. Beck, Vienna.
- 18 Nasal Voice with Reference to Its Bearing on Practice of Rhinology. E. L. Kenyon, Chicago.
- 19 Caisson Workers' Deafness. G. W. Boot, Chicago.
- 20 Ménière Symptom Complex. H. Hastings, Los Angeles.
- 21 Malignant Tumors of Nasopharynx. Report of Cases. A. L. Kelsey and J. M. Brown, Los Angeles.
- 22 Inflammation of Lateral Columns of Pharynx Leading to Abscess Formation. Report of Cases. H. L. Swain, New Haven, Conn.

Archives of Internal Medicine, Chicago

March, XIII, No. 3, pp. 349-508

- 23 *Pulmonary Attack Simulating Lobar Pneumonia, Caused by Pulmonary Embolism and Infarction from Latent Venous Thrombosis. L. A. Conner, New York.
- 24 *Comparative Value of Cardiac Remedies. T. C. Janeway, New York.
- 25 Interpretation of Auscultatory Blood-Pressure Sounds. D. R. Hooker and J. D. Southworth, Baltimore.
- 26 *Pathologic Study of Two Cases of Heart-Block with Adams-Stokes' Syndrome. E. B. Krumbhaar, Philadelphia.
- 27 *Coagulation of Normal Human Blood. R. I. Lee and B. Vincent, Boston.
- 28 Uleus Vetriculi; A Review. M. H. Gross and I. W. Held, New York.
- 29 *Skin Reaction Indicative of Immunity Against Typhoid. F. P. Gay and J. N. Force, Berkeley, Cal.
- 30 Influence of Lithium and Atophan on Uric Acid Excretion of Gouty Patient. A. L. Daniels, Columbia, Mo.
- 31 Comparative Study of Phenolsulphonephthalein Elimination and Incoagulable Nitrogen of Blood in Cardioresenal Diseases. J. H. Agnew, Ann Arbor, Mich.
- 32 Comparison of Methods of Obtaining Alveolar Air. W. M. Boothby and F. W. Peabody, Boston.

23. **Pulmonary Attack Simulating Primary Lobar Pneumonia.**—Four patients with acute pulmonary disease supervening in apparently healthy persons, were admitted to the hospital with the diagnosis of acute lobar pneumonia, but the subsequent course of the disease made it evident that the true condition was that of pulmonary embolism and infarction, resulting from a venous thrombosis which, at the time of the onset of the illness, was latent. These cases cited by Conner would almost certainly have passed for instances of atypical pneumonia with a complicating venous thrombosis, had it not been for the fact that at this time Conner was interested in observing the clinical manifestations of thrombophlebitis as it occurs in the course of typhoid, and had been much impressed by the frequency with which pulmonary embolism occurred before any local signs of thrombosis could be detected.

In three of the four cases the sputum consisted chiefly of liquid or clotted blood, and in no case bore any resemblance to the characteristic sputum of pneumonia; in every case the physical signs differed in some respect from those usual in pneumonia—in two cases by the short duration of the signs of consolidation, in one by the absence of frank signs of consolidation, and in one by the anomalous and protracted pleural signs; in all the cases there were indications that the pulmonary lesions were multiple; in none of the cases was there an introductory rigor; in three of the four cases the temperature chart bore little resemblance to the usual chart of pneumonia, and, finally, in three of the four cases there were points in the history to indicate that venous thrombosis existed before the onset of the pulmonary symptoms. No one of these facts alone would be entitled to much weight in the attempt to differentiate these cases from those of primary pneumonia, but taken together they form a mass of evidence sufficient, Conner thinks, to warrant the conclusion that all of these cases were instances of pulmonary embolism and infarction.

24. **Comparative Value of Cardiac Remedies.**—In cases of well-compensated mitral disease, in which auricular fibrillation with great tachycardia sets in acutely, Janeway says, the tachycardia can be controlled by digitalis within forty-eight hours with complete relief of the symptoms, and under long continued digitalis medication such patients may maintain a very fair working ability for several years. It is of importance that treatment be instituted before marked dilatation of the right heart and general venous stasis have ensued. The three elements contributing to the result in these cases are: (1) The existence of a disorder of the rhythm, against which digitalis is absolutely effective. (2) The existence of a valve lesion, the detrimental mechanic effect of which on the circulation are peculiarly heightened by auricular fibrillation. (3) The acute character of the onset of fibrillation in a heart which would have remained well compensated for years, had not the disturbance of rhythm occurred, and which, therefore, must be considered as having had a good right ventricular myocardium.

Next to these acute cases of fibrillation in response to digitalis comes the type picture of gradual cardiac insufficiency, with general venous stasis and edema. The more these cases

conform to the acute type, the more promptly does the control of the tachycardia by digitalis effect a restitution of function. On the other hand, even in rheumatic mitral disease with fibrillation, if the rate be normal or slow, the effect of digitalis treatment may not be evident until it has been administered for a week or more. In some cases, especially with marked tricuspid regurgitation and liver stasis, it may fail entirely. In other cases the drug acts only after the institution of such accessory measures as the extreme fluid and salt restriction of the Karel diet, which Janeway has found of the utmost value.

The choice of a preparation of digitalis is, to Janeway's mind, largely a matter of taste, provided the one used is known to be effective. As to dosage he prefers a moderate dose, equivalent to not over 0.1 gm. ($1\frac{1}{2}$ grains) of the leaves every four hours, which will give definite slowing of the pulse and diuresis in forty-eight hours in rapid fibrillating cases. This dose he continues until the pulse falls to near 60 or becomes bigeminal; failing this, until absorption of edema is complete, or nausea, vomiting, headache or other toxic symptoms ensue.

When any of these evidences of full therapeutic action is obtained, the drug is stopped and not resumed until increasing rate or pulse deficit, or disappearance of coupled beats, show the heart to be escaping from its influence, which usually occurs in from five to ten days. Then one-half or three-quarters of the daily amount given before will control all symptoms. In all fibrillating cases with a tendency to rapid rate, after the original digitalis course, Janeway believes the indications for continued, so-called chronic digitalis treatment are absolute. He is positive that failure to obtain satisfactory results from digitalis therapy in the class of cases just discussed is evidence of an inefficient preparation, insufficient dosage, or an improper mode of administration. Whenever digitalis fails, a second and then a third trial should be made with a drug obtained from another source. Failure to respond to digitalis on the part of a heart the seat of active inflammatory processes, as in subacute and chronic septic endocarditis, can in nowise be expected, even though fibrillation exists.

In hypertensive cases of cardiac insufficiency with normal rhythm when the patient develops the picture of chronic passive congestion of the viscera with edema, digitalis is as clearly indicated as it is in fibrillating mitral hearts. Janeway insists that dangerous increase in blood-pressure from digitalis, as used in human beings, is a superstition without any basis of clinical fact. When digitalis alone does not effect prompt improvement in such patients, the caffein diuretics come in as valuable aids.

In a number of instances Janeway has seen marked and lasting benefit from digitalis in aortic insufficiency, where the clinical picture was that of chronic passive congestion and edema.

26. Pathologic Study of Two Cases of Heart-Block.—In one case cited by Krumbhaar in which there were transient attacks of heart-block, complicated with Adams-Stokes' syndrome during the last eight days of life, there was found a marked cellular infiltration of the auriculoventricular conductive system. Furthermore, the right branch was found completely obliterated, showing that total destruction of one branch is compatible with an at times normal pulse.

In the second case, one of chronic salpingitis in a woman who sought the hospital for relief from a chronic rheumatic endocarditis with failing compensation, the hitherto localized septic process caused, three weeks after admission, a general peritonitis, pleuritis, pericarditis and localized areas of acute myocarditis, especially in His' bundle and Tawara's node. On the day of her death, due presumably to the heart-block thus caused, there occurred four typical attacks of Adams-Stokes' syndrome, the last of which was fatal.

27. Coagulation of Normal Human Blood.—Experimentally Lee and Vincent have been able to demonstrate that the fundamental principles in coagulation as studied by Bordet and Delange in rabbits' blood also hold true for normal human blood. The differences which they found are minor ones. They have found that thrombin requires a longer time

for its formation in human blood than in rabbits' blood, and that the minimum amount of serozyme required to permit coagulation to ensue is larger in human blood than in rabbits' blood.

They have been unable to confirm the work of Bordet and Delange on the use of peptone as cytozyme. This is probably due to differences in the preparation of peptone.

Although their argument is open to possible objections, they have shown that white corpuscles can be used as cytozyme; they are perhaps not as efficacious as blood-platelets or tissue juice. They have not been able to employ as cytozyme the heated muscle juice of non-human animals in their work on human blood. This is somewhat different from the findings of Bordet and Delange, and tends to confirm their suggestion that there is a certain amount of specificity in the action of the various elements of coagulation. Lee and Vincent found that serozyme is intimately associated with the globulins of the blood. They describe a technic of obtaining human blood which has given very satisfactory oxalated plasma.

29. Skin Reaction Indicative of Immunity against Typhoid.—Gay and Force found that a preparation of the typhoid bacillus ("Typhoidin") in all respects similar to Koch's old tuberculin produces a clear-cut cutaneous reaction by the von Pirquet method in 95 per cent. of cases that have recovered from typhoid (20 cases positive out of 21). Two of the cases had suffered from the disease forty-one and thirty-three years before, respectively. The reaction is negative in 85 per cent. of individuals without history of typhoid (41 cases tested). The 9 per cent. of these supposedly control individuals that gave a distinct positive reaction may be suspected of having had a mild and undiagnosed attack of typhoid. Of fifteen individuals vaccinated by the Army method from four and three-quarter years to eight months previously, nine gave a positive skin reaction. Twenty-five individuals vaccinated by the Gay-Claypole sensitized vaccine for from one to eight months previously gave uniformly a positive reaction.

No comparison is made of the efficacy of the two methods, although it is suggested that the skin test may eventually be used for such a determination. It is further suggested that the test is of presumptive value in indicating protection against typhoid whether acquired by recovery from the disease or by artificial immunization against the disease. The test may eventually be used as an indication for revaccination in the individual case.

Arizona Medical Journal, Phoenix

March, II, No. 2, pp. 1-19

- 33 Constipation. F. D. Garrett, El Paso, Texas.
- 34 Acute Anterior Poliomyelitis. F. H. Redewill, Phoenix.

Arkansas State Medical Society Journal, Little Rock

March, X, No. 10, pp. 243-268

- 35 Organization. C. S. Holt, Fort Smith.
- 36 Examination of Eyes and Ears of School Children. R. H. T. Mann, Texarkana.
- 37 Follicular Cysts of Ovary. R. L. Saxon, Little Rock.

Boston Medical and Surgical Journal

March 19, CLXX, No. 12, pp. 405-440

- 38 New Coolidge Roentgen-Ray Tube. H. W. Van Allen, Springfield.
- 39 Tragic Aspects of Whooping-Cough. P. H. Sylvester, Newton.
- 40 Neurological Social Service, Massachusetts General Hospital, M. Ryther, Boston.
- 41 Is Sanatorium Treatment Worth While? G. L. Farmer, Boston.
- March 26, CLXX, No. 13, pp. 441-480
- 42 *Treatment of Syphilitic Diseases of Central Nervous System by Intravenous Injections of Salvarsan. L. H. Spooner, Boston.
- 43 Salvarsanized Serum ("Swift-Ellis Treatment") in Syphilitic Diseases of Central Nervous System. J. B. Ayer, Boston.
- 44 *Epicondylitis (Franke) or Tennis Elbow. W. P. Coues, Boston.

42. Treatment of Syphilitic Diseases by Intravenous Injections of Salvarsan.—The following syphilitic character of the process was proved, with one exception, in all the forty-nine cases on which Spooner's work is based. He claims that it is possible to treat in a satisfactory manner syphilitic diseases of the central nervous system by intravenous salvarsan

in an ambulatory clinic. Small doses of the drug are necessary for this purpose, but such dosage yields results. With the exception of six cases placed subsequently on serum treatment, symptomatic improvement has resulted from thorough treatment in a high percentage of cases of tabes and in all cases of syphilis of the central nervous system. No distinct improvement has resulted from treatment of the few cases of general paresis under observation. Improvement in strength and gain in weight is the rule in those who receive benefit. The relief of lancinating pains in tabes and headache in cerebral syphilis is most striking.

Biologic and cytologic changes (in blood and spinal fluid) indicate that there is an organic basis to this symptomatic improvement. Improvement has been maintained over a long period of time—in many instances for from one to two years. The results of laboratory investigation when obtainable and the amelioration of symptoms correspond. Whereas the failures have been in old-standing cases, it is impossible to show any constant relationship between the degree of improvement and the duration of the nervous lesion.

Spooner emphasizes that the most striking improvement follows the first or second injection. Treatment must be persistent and prolonged and should be continued even if all symptoms and laboratory findings have long disappeared. Reactions are infrequent with small doses of the drug. Accidents are rare. The most pronounced successes are in those who show evidence in blood or spinal fluid of intense syphilitic infection. The failures have occurred in those showing feeble reactions. This treatment is advised by Spooner in all cases of syphilitic disease of the central nervous system and abandoned for the serum treatment when conscientious effort in this simple and safe procedure has failed.

44. Epicondylitis (Franke) or Tennis Elbow.—From a study of the trouble based on those cases in the literature and of personal ones Coues concludes that two lesions might be causing the symptom complex known as tennis-elbow or epicondylitis. First, a partial tearing of some of the muscular attachments from the external epicondyle, giving rise to the separation of the bony spicules with the possibility of a periostitis from such tearing, which need not necessarily be marked enough to show a radiograph. Second, injury to the radiohumeral joint capsule from antagonistic muscular contraction of the supinator brevis and supinator longus, as believed by Preiser.

Bulletin of the Medical and Chirurgical Faculty of Maryland, Baltimore

March, VI, No. 9, pp. 137-154

45 Baltimore's Facilities for Handling Contagious Diseases. W. Smith, Baltimore.

46 Library Advantages for County Members. M. C. Noyes, Baltimore.

Colorado Medicine, Denver

March, XI, No. 3, pp. 69-114

47 Induced Pneumothorax; Its Use and Abuse. A. S. Taussig and W. N. Beggs, Denver.

48 Technic of Artificial Pneumothorax. H. Schwatt, Edgewater.

49 Cleft Palate. T. E. Carmody, Denver.

Indiana State Medical Association Journal, Fort Wayne

March 15, VII, No. 3, pp. 93-140

50 Laboratory Efficiency. L. B. Wilson, Rochester, Minn.

51 Blood-Pressure and Significance in Hypertension Cases. J. R. Young, Terre Haute.

52 Surgical Treatment for Intraocular Pressure. C. C. Rogers, Chicago.

53 Inexpensive and Simple Ether Vaporizer. P. B. Coble, Indianapolis.

54 Minor Point in Mounting Eye Specimens. W. N. Sharp, Indianapolis.

55 Simple Method of Operating in Cicatrices of Orbit. F. A. Morrison, Indianapolis.

Journal of Medical Research, Boston

March, XXX, No. 1, pp. 1-85

56 *Diphtheroid Bacillus from Leprosy Lesions. S. B. Wolbach and J. A. Honeij, Boston.

57 Cultivation of Free Living Filterable Spirochete (*Spirocheta Elusa*; New Species from Water.) S. B. Wolbach and C. A. L. Binger, Boston.

58 Filterable Spirochete from Fresh Water. *Spirocheta Bifeza* (New Species). S. B. Wolbach and C. A. L. Binger, Boston.

59 Filterability of *Spirocheta Duttoni*. J. L. Todd, Montreal, and S. B. Wolbach, Boston.

60 Distribution and Morphology of *Spirocheta Duttoni* and *Spirocheta Kochi* in Experimentally Infected Ticks. S. B. Wolbach, Boston.

61 *Degeneration of Islands of Langerhans Associated with Experimental Diabetes in Cat. J. Homans, Boston.

62 Study of Market Butter of Boston. M. J. Rosenau, W. D. Frost and R. Bryant, Boston.

56. Diphtheroid Bacillus from Leprosy Lesions.—The authors describe a culture of diphtheroid bacilli which they have isolated from a case of leprosy. This culture corresponds in all respects to the majority of diphtheroids isolated from leprosy in various parts of the world. The case was that of a Portuguese male with the tubercular type of leprosy; age 47; an inmate of the Massachusetts State Institution for Lepers on Penikese Island. The patient is known to have had the disease for sixteen years. The material obtained was an epitrochlear lymph-node.

The following mediums were inoculated, the selection being made because of reported successful cultivations of the leprosy bacillus by various authors: Ascitic fluid dextrose agar; ascitic fluid agar; ascitic fluid glycerin agar; Ficker's brain agar; Dorsett's egg medium; glycerin agar and placenta extract agar prepared according to the methods of Kedrowski and Duval. Two sets of tubes were inoculated; one each for incubation under aerobic and anaerobic conditions. Immediately after the operation, two guinea-pigs were inoculated intraperitoneally and subcutaneously with a heavy suspension of the gland tissue. Preparations stained for leprosy bacilli show acid-fast bacilli in enormous numbers. The guinea-pigs were kept under observation for nine months and developed no lesions.

Ten days after inoculation a growth was seen in a single aerobic tube of ascitic fluid dextrose agar in the form of a translucent whitish band around the piece of gland tissue. The peculiarities of the growth were evident on first examination, and its similarity to diphtheroids isolated by other observers was at once apparent, and for that reason transfers were made to various mediums. When first isolated, the growth was poor in bouillon, with or without glycerin, and on plain agar, dextrose agar and glycerin agar. After several months' cultivation the bacillus grew readily on these mediums. No growth has been obtained on potato, with or without the addition of 0.5 per cent. to 1 per cent. of sodium carbonate. Glycerin does not favor the growth of this bacillus.

The most striking thing about the morphology of this bacillus is its extreme pleomorphism. The morphology varies considerably with the medium employed, and with the age of the culture. A characteristic feature of all cultures is the presence of acid-resisting granules and segments. The bacilli are not motile. They are strongly Gram-positive. They stain by the ordinary aniline dyes, though less intensely than most other bacteria, and markedly less than the diphtheria bacillus. After staining with carbol fuchsin, they resist decolorization to the extent that portions of the bacilli remain a bright red, after treatment with decolorizing agents. No lesions have been obtained in Japanese waltzing mice, guinea-pigs, rabbits and white rats.

61. Degeneration of Islands of Langerhans.—Homans concludes that the islands of Langerhans must be deeply concerned with experimental pancreatic diabetes, for (a) the removal of more than three-quarters of the pancreas of the cat, leaving the main duct *in situ*, usually leads to a disappearance of secretory granules in the islands of Langerhans, with suggestive evidence of overactivity, without the production of diabetes, and (b) the same procedure occasionally causes a degeneration of the islands of Langerhans accompanied by fatal diabetes without disturbance of the remaining acinous tissue.

Journal of Nervous and Mental Diseases, Lancaster, Pa.

March, XLI, No. 3, pp. 137-207

63 Case of Subcortical or Pure Motor Aphasia (Dejerine) or Anarthria (Marie). F. X. Dereum, Philadelphia.

64 *Histopathologic Changes in Spinal Cord Due to Impact. An Experimental Study. A. R. Allen, Philadelphia.

65 Case of Dystonia Musculorum Deformans. C. C. Bellug, Newark, N. J.

- 66 *Albumen Content of Spinal Fluid, Its Relation to Disease Syndromes. A. Myerson, Taunton, Mass.
 67 *Contralateral Periosteal Reflexes of the Arm. A. Myerson, Taunton, Mass.
 68 Contralateral Oppenheim and Gordon Reflexes. A. Gordon, Philadelphia.

64. **Histopathologic Changes in Spinal Cord.**—Three cases of fracture dislocation of the spinal cord in the human subject in which the median longitudinal incision was used are cited by Allen. The first case was a man of 50 years of age who had fallen thirty feet from a scaffolding, landing on his back and head. There was complete motor paralysis and anesthesia for all forms of sensation of the lower limbs. The Roentgen ray discovered a lateral displacement of the sixth on the seventh thoracic vertebra. The diagnosis of fracture dislocation of the spinal column complicated by fracture of the base of the skull was subsequently confirmed at necropsy. Allen saw this patient ten hours after the injury by which time the limit of anesthesia had ascended about fifteen centimeters and his condition was desperate. The median longitudinal incision was made and there was discharged at once from the cord wound considerable blood. The next day the limit of anesthesia had begun to fall and in forty-eight hours had fallen to the original level. Unfortunately the cranial condition began to give trouble about five days after the injury and ten days after the accident he died.

The second case was that of a man about 40 years of age who had been struck just below the vertebra prominens by the end of the pole of a rapidly moving wagon. There was a transverse lesion of the first thoracic segment of the cord presenting the symptom complex of complete solution of continuity. The area of anesthesia ascending slowly and the conditions justifying exploratory laminectomy, Dr. Edward Martin operated about seven hours after the injury. The course of this case subsequent to operation gave every reason to hope for a favorable termination. In two days the limit of anesthesia had fallen to the original level and in four days there was a moderate return of deep pressure sense and sense of position in the lower extremities.

From the first there were indications that only most careful nursing would prevent the formation of bed-sores. His general condition became progressively better and all signs were favorable when, ten days after the operation, his wife insisted on taking him home. He died several days after, his entire sacral region being the site of an enormous bed-sore.

The third case was one of fracture dislocation in the upper thoracic region in a young boy of about 17 years. Dr. C. H. Frazier operated four hours after the injury. When the cord was incised the blood spurted out as if under great pressure. It is now over a year since this patient was operated on. Function though not restored is improving gradually.

66. **Albumin Content of Spinal Fluid.**—In the full-fledged general paresis, Myerson found that the relationship of albumin, globulin, cells and Wassermann is quite constantly one of parallelism but that in the remissions the Wassermann reaction disappears first, the cell count and globulin increase diminish next, and the albumin most constantly remains at a high level of increase. This points toward a conclusion which is merely a forward deduction—namely, that in the pre-paretic stage the albumin increase is probably the first sign of disease. In Korsakoff's disease, in certain cases of tumor, and in other organic diseases there is a dissociation of albumin and globulin in this sense, that there is either marked increase of albumin without globulin or that a marked increase of albumin, say 3+, is accompanied by a globulin increase of say, only 1+.

These two series of facts lead Myerson to the conclusion that the increase of albumin is a primitive reaction of the nervous system and is the first as well as the most constant of the present known chemical and biologic changes to appear in the spinal fluid. He urges that tests to ascertain its presence should be part of the routine spinal fluid examination. Its exact measurement and significance constitute a task worthy of neurologic research.

67. **Periosteal Reflexes of the Arm.**—With the patient lying flat on his back and his arms in an easy, relaxed attitude,

usually with slight flexion at elbow and moderate internal rotation, Myerson taps the middle of the clavicle with a reflex hammer. When present, the response elicited is a contraction of the biceps and pectoralis major of the other arm. Usually when the contralateral response is elicited, there is at the same time a homolateral response of the corresponding muscles, but on several occasions in his experience, the contralateral response only has been present.

This contralateral arm response is elicited only, with hyperactivity of the arm reflexes generally. Nevertheless, certain cases giving very lively homolateral reflexes from the percussion of the ordinary points (radial styloid, humerus, ulnar styloid) have failed to give the contralateral response from the clavicle. At the same time the cases giving only moderately increased arm responses have shown very lively contralateral clavicular response. This is mostly in such organic diseases whose effect is to increase reflexes, notably general paresis, hemiplegia, multiple sclerosis, tumor of the brain and meningitis. It may be stated that the response is present in only a minority of patients presenting these diseases, and usually in such cases the other responses are very active.

It is present, occasionally only, in certain abnormal mental conditions not at present understood to be organic. In a few cases of dementia praecox, manie-depressive insanity and hysteria, the response was elicitable, despite the fact that organic disease could be ruled out chemically by negative Wassermann in serum, by negative Wassermann, cell count, globulin and albumin in spinal fluid, by the absence of kidney changes and by negative fundus examination. In such cases the emotional content was usually of an intense kind, either of fear or anxiety. The response is absent under normal conditions, therefore Myerson claims for this sign that its presence indicates an abnormal condition, not necessarily one associated with organic disease, although this is the more usual association.

Kansas Medical Society Journal, Kansas City

March, XIV, No. 3, pp. 89-130

- 69 Gastric and Duodenal Ulcer. E. T. Shelly, Atchison.
 70 Gastric and Duodenal Ulcers. Report of Cases. G. M. Gray, Kansas City.
 71 Physicians and Druggists Co-Workers, not Competitors. F. G. Fowler, Independence.

Lancet-Clinic, Cincinnati

March 21, CXI, No. 12, pp. 329-356

- 72 Progress of Serology in Psychiatry. B. Holmes, Chicago.
 73 Proper Interpretation of Wassermann Reaction in Diagnosis, Its Value as Guide to Treatment. N. D. Goodhue, Dayton.
 74 After-Treatment of Abdominal Section. C. L. Bonifield, Cincinnati.

Medical Record, New York

March 21, LXXXV, No. 12, pp. 507-552

- 75 *Method for Estimating Functional Capacity of Kidneys by Forced Elimination of Preformed Urea. G. W. McCaskay, Fort Wayne, Ind.
 76 Use of Pineal Gland in Treatment of Certain Classes of Defective Children. W. N. Berkeley, New York.
 77 Syphilis. W. P. Cunningham, New York.
 78 Passing of Stomach Tube. J. Meyers, Albany.
 79 Etiology and Surgical Treatment of Gastric and Duodenal Ulcer. J. S. Brown, Montclair, N. J.
 80 Surgical Ionization and Other Physical Forces in Treatment of Cancer. G. B. Massey, Philadelphia.
 81 *Skin Varnish and Substitute for Rubber Gloves. E. McDonald, New York.
 82 Pituitary Preparations in Post-Operative Conditions. T. W. Harvey, Orange, N. J.
 March 28, LXXXV, No. 13, pp. 553-598
 83 Mental Infantilism in the Neurosis. L. P. Clark, New York.
 84 Determination of Blood-Pressure as Aid to Diagnosis and Prognosis in Certain Diseases. A. Woldert, Tyler, Tex.
 85 Nerve Injuries. C. G. Levison, San Francisco.
 86 *Case of Syphilis Cured Apparently by Accident. J. B. Clark, New York.
 87 Streptococcal Infection of Cervix Uteri. E. A. Peterson, Mobile, Ala.

75. Abstracted in THE JOURNAL, Sept. 20, 1913, p. 994.

81. **Skin Varnish and Substitute for Rubber Gloves.**—The skin coating devised by McDonald, which is said to be impervious, easily applied and sterile, is composed of a base of pyroxylin (soluble cotton of commerce) dissolved in amyl acetate and acetone, with the addition of propyl and ethyl alcohol and saponifiable ester. It contains 1 per cent. of

strong oil—soluble germicide. The varnish is a golden yellow liquid, having the consistency of maple syrup.

This solution is said to have the following advantages: It is readily applied and removed; it is insoluble in all water solutions and not affected by the heat of the body; it adheres strongly to the hand and penetrates all the crevices of the skin, fixing the bacteria; it goes readily under the nails, where the most organisms reside; it cannot be scraped off the skin with a knife, the superficial layers of the skin itself coming away along with the varnish if pressure is exerted.

After the hands are sterilized, and reasonably dry, a small quantity is poured in the palm of one hand and then rubbed over all surfaces of both hands, as if it were vaseline or other grease. Care should be taken to coat every part; as soon as stickiness begins, the hands are held quiet or waved in the air for a minute or so until the varnish dries. If the room is hot, or it is summer, a slight stickiness or "tacky" feeling may persist; but this may be immediately removed by plunging the hands into sterile water. The varnish then is smooth, firm and elastic, and may be removed only by acetone or other solvent of collodion. The best solvent for removal is equal parts of acetone and denatured alcohol. Removal is best done by a piece of absorbent cotton and a saucer of the alcohol-acetone solution. An orange stick is useful to work under the nails.

86. Case of Syphilis Cured Apparently by Accident.—By mistake Clark's patient used 2 ounces of unguentum hydrargyri in the space of four rubbings, and rubbed it in over the entire body. After six days there was a decided diminution of the macular rash, and as he showed no toxic effects, he was again started on injections, and made to understand how to proportion the amount used at each rubbing and told to use it this time but every other day.

This treatment was continued until May 3, which was a period of just one month's duration. The patient at that time left the city. Just six years afterward he returned. During that period he had no treatment or care of any kind; he felt perfectly well and had seen no signs of the disease. The Wassermann reaction proved to be entirely negative. Clark asks, is not the amount of mercury which the body can endure, barring the corrosive salts, very much greater than is commonly supposed? Is it not within the province of reasonable speculation that we may come as near to a therapeutic sterilans magna with mercury as with an arsenical preparation?

Missouri State Medical Association Journal, St. Louis

March, X, No. 9, pp. 305-354

- 88 Causation and Prevention of Infantile Paralysis. E. W. Saunders, St. Louis, R. Meisenbach, Buffalo, and W. E. Wisdom, De Queen, Ark.
- 89 Nailing of Joint Fractures, Report of Cases. E. F. Robinson, Kansas City.
- 90 Intussusception in Infants. F. C. Nifong, Columbia.
- 91 Luke the Greek Physician. (Concluded.) G. Homan, St. Louis.
- 92 Relation of Atmospheric Air to Tuberculosis. H. Lee, St. Joseph.
- 93 Advantages of Organization in Medical Profession. T. O. Klingner, Springfield.

New Jersey Medical Society Journal, Orange

March, XI, No. 3, pp. 109-162

- 94 Nature, Cause and Relief of Nephritis. M. H. Fischer, Cincinnati.
- 95 Wounds and Their Treatment. G. K. Dickinson, Jersey City.
- 96 How Can We Lower Mortality in Abdominal Surgery? J. W. Kennedy, Philadelphia.
- 97 Contract Practice. J. S. Yates, Paterson.

New York Medical Journal

March 21, XCIX, No. 12, pp. 561-612

- 98 Fairy Tales as Determinant of Dreams and Neurotic Symptoms. A. A. Brill, New York.
- 99 Abderhalden Reaction in Psychiatry. B. Holmes, Chicago.
- 100 Scarletiform Eruptions in Septic States. R. N. Willson, Philadelphia.
- 101 Relaxed Ear Drums. H. Hays, New York.
- 102 Etiology and Treatment of Infantile Wasting. H. Lowenburg, Philadelphia.
- 103 Gynecic Examination. C. M. Stimson, Philadelphia.
- 104 Acute Lymphocythemia. E. E. Cornwall, New York.
- 105 Trachoma and Allied Conjunctival Affections. H. W. Wootton, New York.
- 106 Graduate Nurse. R. Hertzberg, Stamford, Conn.

March 28, XCIX, No. 13, pp. 613-660

- 107 Treatment of Chronic Nephritis. J. Tyson, Philadelphia.
- 108 Conservation of Functions of Ear, Nose and Throat. W. S. Bryant, New York.
- 109 Obstructions in Lower Ureter. L. Buerger, New York.
- 110 Teaching Classification for Terata and Hemiterata. R. A. Kellty, Philadelphia.
- 111 *Common Colds. N. P. Stauffer, Philadelphia.
- 112 Technic of Oil-Ether Colonic Anesthesia. J. T. Gwathmey, New York.
- 113 Organic and Psychogenic Delirium. H. L. Levin, Ogdensburg.
- 114 Dose of Hexamethylenamin. F. D. Austin, Charlotte, N. C.
- 115 Salvarsan in Rhinoscleroma. L. G. Kaemperer, New York.

111. Common Colds.—Stauffer divides rhinitis into three stages: (1) Dryness or prickling of nose and throat accompanied by chilliness. The mucosae are quite hyperemic, dry and free from secretions; headache with fulness between the eyes. The temperature ranges from 99 to 104 F. Treatment comprises hot baths, purges (calomel and salts; salts especially to deplete the system of water); rest in bed; icebag to forehead; hot water bag to feet; internally 10-grain Dover's powder and hot lemonade to promote sweating; in the nose, locally, epinephrin 1:5,000. (2) Profuse watery discharge, throat sore, headache less. Treatment: Atropin internally until dryness of nose and throat develops; hot alkaline nasal douches; hydrochlorid of cocain daily, 1 per cent. solution applied. (Caution.—Never prescribe cocain for a patient to use at home). When using cocain always have aromatic spirits of ammonia handy. (3) Mucopurulent discharge, a lowered temperature, pulse less bounding, headache diminishing unless sinuses are involved, whereupon headache and pressure symptoms increase, accompanied by dizziness. Treatment: Hot alkaline nasal douches, hydrochlorid of cocain to nares, oil sprays, strychnin sulphate, $\frac{1}{400}$ grain three times a day, egg and milk, increased exercise, alcohol rubs twice daily; hexamethylenamin 5 grains, internally three times a day. This deals with the common cold up to the involvement of the sinuses, whether of the nose, ear or mastoid.

New York State Journal of Medicine

March, XIV, No. 3, pp. 119-174

- 116 Head and Trunk Position in Treatment of Surgical Lesions of Abdomen. R. S. Fowler, Brooklyn.
- 117 Chronic Stenosis of Larynx. T. J. Harris, New York.
- 118 *Intravenous Use of Paraldehyd. G. K. Collier, Sonoma.
- 119 Past and Present Relations between Public and Medical Profession. E. B. Kaple, Elbridge.
- 120 Certified Milk of Medical Society of County of Westchester. B. F. Drake, New Rochelle.
- 121 Phases of Treatment of Strangulated Hernia. F. Flaherty, Syracuse.
- 122 Ileus Due to Bands and Adhesions. G. F. Comstock, Saratoga Springs.
- 123 Differential Diagnosis of Paralysis Occurring in Early Life. H. A. Gribbon, Poughkeepsie.
- 124 Tumor of Hypophysis Cerebri. L. H. Finch, Amsterdam.
- 125 Treatment of Fracture of Neck of Femur. J. B. Conant, Amsterdam.
- 126 Diagnosis and Treatment of Iritis. R. L. Crockett, Oneida.
- 127 Streptococcic Throat Disease. H. J. Ball, Cortland.
- 128 Non-Medical Anesthetists. L. Irwell, Buffalo.
- 129 Roentgen Stereography in Diagnosis of Urinary Calculi. E. W. Caldwell and H. M. Imboden, New York.
- 130 Backache. C. E. Coon, Syracuse.

118. Intravenous Use of Paraldehyd.—Collier endeavored to find if this plan of administration would be of any great value in the treatment of the acute confused states met with in epilepsy and other nervous and mental disorders. He thought that if he could administer paraldehyd intravenously prior to any hydrotherapeutic or other measures instead of using chloral or hyoscin or other powerful depressants it would be a great step in advance in dealing with these mental states. He used paraldehyd intravenously in such cases as became mentally confused following seizures, status epilepticus, epileptic furor and for minor surgical operations. In none of the cases has it been necessary to resort to other methods of medication or treatment to produce the desired result.

Collier's method of administering paraldehyd is as follows: A definite amount of paraldehyd, varying from 7 to 22 c.c. of paraldehyd, was first mixed with an equal amount of ether and this solution then diluted with 150 c.c. of cool sterile water or a cool 1 per cent. sodium chlorid solution. Care was

always taken to see that this solution was kept cool, the flask being surrounded with ice while preparations were being made. It was found in this way that the paraldehyd was better held in solution. The flask containing the solution was briskly shaken and through the cork two glass tubes passed. To one of these was attached a rubber tube, at the distal end of which was a fine needle for puncture of the vein. The second tube is curved on itself, the external limb extending below the bottom of the flask to permit of the entrance of air. Short pieces of glass tubing are placed in the rubber tube so that the solution can be inspected and in order to prevent the injection of air into the vein. The flask being inverted, a constant flow of the paraldehyd solution is obtained, which is regulated by the aid of a screw stop-cork. Puncture was made into the median basilic vein, and in only two cases was it necessary to expose the vein for puncture, the needle being inserted into the vein through the skin without any difficulty. Seven cases are cited to show how effective this treatment was.

Vermont Medical Monthly, Burlington

March, XX, No. 3, pp. 53-78

- 131 Treatment of Nephritis. J. McCrae, Montreal.
- 132 Epidemiologic Aspects of Travel. H. D. King, New Orleans.
- 133 Infant Mortality. H. L. K. Shaw, Albany, N. Y.
- 134 Modern Anesthesia. E. I. Hall, Rutland.
- 135 Eyes of Schoolchildren. L. W. Flanders, Dover, N. H.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

March, XI, No. 123, pp. 97-144

- 1 *Unusual Manifestations of Poliomyelitis. F. E. Batten.
- 2 Addison's Disease in a Boy, with Calcification of Adrenals. H. D. Rolleston and E. J. Boyd.
- 3 *Tongue-Chewing. B. Myers.
- 4 Nervous Diseases of Elementary Schoolchildren, Boys and Girls. J. Priestley.

1. **Unusual Manifestations of Poliomyelitis.**—The conditions noted by Batten were: (1) Athetosis of left arm and left side of face, flaccid paralysis of left leg, and some flaccid paralysis of right leg. (2) Poliomyelitis with rigid extension of the legs at the hips. (3) Poliomyelitis with flaccid palsy of the right arm and left leg, with rigidity of the right leg in the flexed position. (4) Poliomyelitis of the right arm and left leg occurring during intra-uterine life. (5) Poliomyelitis and ataxia; probably due to involvement of the cerebellum. (6) Poliomyelitis and toxic neuritis.

3. **Tongue-Chewing.**—The condition described by Myers consisted of chewing of one side of the tongue by the teeth after practically the identical manner in which children chew chewing-gum. In the process the premolars and molars of the particular side of the jaw moved inward over the tongue for about a quarter of an inch, and then glided over and off it until the upper and lower molars were in apposition again; then the movement was repeated. The rate was about ninety per minute. The chewing movement was kept up for a few seconds, minutes, or half an hour. It was performed once or twice daily, or intermittently at various intervals. The repetition of the habit made part of that side of the tongue distinctly red and occasionally inflamed and indented. Myers has never seen a child chew both sides of the tongue, and the side chewed is apparently never varied.

Tongue-chewing is first noticed about the second year of life and persists until middle age, or, perhaps, throughout life. It tends to be less noticeable with advancing years. Either sex may suffer from it. It occurs, apparently, in healthy families, in which certain members suffer from habit spasms. Several members of one family may suffer from it. The habit is inherited, as far as one can see, and not copied. The same side of the tongue is always chewed in the same individual. The mental condition is quite normal and the general health is not interfered with in any way. Bromids stop the tongue-chewing but in time, after leaving off the drug, the habit recommences.

British Medical Journal, London

March 14, I, No. 2776, pp. 573-632

- 5 Diagnosis of Tabes Dorsalis. G. Holmes.
- 6 Treatment of Syphilis of Nervous System by Intrathecal Injections. H. Campbell.
- 7 Problems in Treatment of Venereal Disease. A. L. McIlroy.
- 8 Arseno-Therapy in Syphilis with "Galyt." J. J. Abraham.
- 9 Diagnosis and Treatment of Chronic Gonorrhea and Its Local Complications. H. W. Bayly.
- 10 Case of Otitic Meningitis and Cerebellar Abscess, Recovery. A. E. Barnes and W. S. Kerr.
- 11 Hygienic Aspect of Coal Mining Industry in United Kingdom. F. Shufflebotham.

Edinburgh Medical Journal

March, XII, No. 3, pp. 193-288

- 12 Injuries of Eye. W. G. Sym.
- 13 Diet in Development of Dental Caries and Dyspepsia in Childhood. J. D. Fordyce and J. H. Gibbs.
- 14 Isolation of Scarlet Fever. W. Robertson.
- 15 Intestinal Toxemia. D. C. Watson.
- 16 Place of Gynecology in Medical Curriculum and General Practice. A. H. F. Barbour.
- 17 Three Cases of Beriberi. R. A. Fleming.

Journal of Obstetrics and Gynecology of British Empire, London

January, XXV, No. 1, pp. 1-52

- 18 *Rhabdomyosarcoma of Uterus. Report of Two Cases. E. Glynn and W. B. Bell.
- 19 *Syphilis in Relation to Uterine Disease. B. Whitehouse.
- 20 Case of Adeno-Chondrosarcoma of the Uterus. H. Murray and R. M. Littler.
- 21 *Case of Peritoneal Implantation of an Ovum. M. H. Phillips.
- 22 Fatal Case of Puerperal Infection with *Bacillus Aerogenes* Capsulatus. D. Dougal.
- 23 Excessive Separation of Recti Muscles and Hernia of Abdominal Contents in Woman Suffering from Myxedema. J. N. Stark.
- 24 Lipomatosis of Fibromyoma of Corpus Uteri. G. Ley.
- 25 Endothelioma of Cervix. A. Donald.
- 26 Endothelioma of Vulva. D. G. Newton.
- 27 Concealed Accidental Hemorrhage Accompanied by Intraperitoneal Hemorrhage. H. Clifford.

18. **Rhabdomyosarcoma of Uterus.**—Rhabdomyosarcoma appears to be a very rare neoplasm in the uterus or else it has been overlooked in Great Britain, for, apart from a brief report of one of their own, the authors were unable to find any previously recorded case in Great Britain. Cases have been described by German writers; one by Colomiatti in Italy, and one in America by Robertson, who gave a table of fourteen cases collected from the literature. Three of them, however, were not certainly rhabdomyosarcomata. Glynn and Bell have collected fifteen undoubted cases and three probable ones, and have added two recent cases of their own.

19. **Syphilis and Uterine Disease.**—Whitehouse emphasizes the importance of recognizing a form of fibrosis of the uterus produced by the virus of syphilis; in other words, the existence of a true syphilitic fibrosis; the necessity of testing by the Wassermann reaction all patients who present the clinical picture of chronic metritis and fibrosis, since this may provide the only evidence of the syphilitic nature of the affection; the exact proportion which cases of syphilitic fibrosis bears to similar gross changes produced by other factors must at present remain undetermined, until a longer series of cases has been investigated. Whitehouse suggests that it is possible that so-called cases of non-malignant pyometra are also of syphilitic origin, and if no obvious signs of syphilis are present such patients should be tested by the Wassermann reaction. He also suggests that the menstrual blood be examined for the *Spirochaeta pallida*, especially during the secondary stage of syphilis, since the intracellular bodies described by Ross and McDonagh have been demonstrated. He cites seven cases.

21. **Peritoneal Implantation of an Ovum.**—Phillips describes a case in which an early ovum was found implanted in the subperitoneal connective tissue on the side wall of the true pelvis. Abdominal section had been performed for profuse intraperitoneal bleeding. As blood was oozing from among the fimbriae of the left fallopian tube, this tube was removed. Later on careful examination of the tube showed that the bleeding was due to the presence of small areas of trophoblast and early chorionic villi situated at the bases of two of the fimbriae, but there was no complete implantation sac. On the other hand, a hemorrhagic nodule, with a peritoneal covering, which was excised from the lateral pelvic wall, had been found to contain an early ovum completely embedded in the extra-peritoneal connective tissue.

Lancet, London

March 14, 1, No. 4724, pp. 731-802

- 28 Changes in Blood in Causation of Surgical Shock. A. R. Short.
29 Agglutination of *M. Melitensis* by Normal Cow's Milk. P. W. Bassett-Smith.
30 *Case of Transgastric Excision of Gastro-Jejunal Ulcer. B. G. A. Moynihan and E. T. Tatlow.
31 Technic of Wasserman Reaction. C. H. Browning.
32 Two Cases of Popliteal Aneurysm. H. B. Robinson.
33 "Ambulant" Treatment of Fractures with Plaster of Paris and Fracture Clamps. Haackenbruch.
34 Recurrent Intussusception. H. T. Gray.

30. **Gastrojejunal Ulcer.**—The patient, a male aged 47, whose clinical history forms the basis of Moynihan and Tatlow's paper, had a history of abdominal trouble extending over seven years. At the commencement his only symptom was epigastric pain on kneeling, on leaning forward, in fact, after any movement which caused contraction of his recti abdominis. Gradually this pain became more severe, occurring at almost regular intervals, independently of movement, and accompanied by flatulence and hyperacidity. The pain was of the variety known as "hunger pain," commencing from two to three hours after meals, and being relieved by lying down or taking food. There was never any vomiting. The site of the pain was above and to the right of the umbilicus. At first this pain was only felt at intervals; gradually, however, the intervals became shorter and the periods of pain longer. After three and a half years of this the patient had a sudden attack of severe abdominal pain in the right hypochondrium, which was diagnosed as a subacute perforation; from this attack he recovered without operation. In January, 1912, a posterior gastro-enterostomy was performed by another surgeon. The patient recovered from this operation, and his symptoms subsided only to return about eight months later. The pain after this was lower in the abdomen and more to the left than previously, and was really the only symptom he had; but this pain was severe in character, and for the last few weeks almost constant in duration.

The abdomen was reopened. The scar of the previous operation was excised. The transverse colon, which presented in the wound, was markedly hypertrophied and distended and also kinked in a very curious fashion—its middle portion being adherent to the under surface of the left lobe of the liver and to the diaphragm. Before the stomach could be examined it was necessary to separate the adhesions fixing the colon in this unusual position. This separation was exceedingly difficult, owing to the inaccessibility of the parts. The stomach itself was normal in outline, but there was a scar of an old ulcer on the anterior surface of the first stage of the duodenum. The anastomosis which had been performed was a posterior, vertical, no-loop gastro-enterostomy. The stoma was of adequate size and in the correct position. On feeling the stoma with the finger a hard nodule the size of a shilling, with a dimple in its center, could be detected. This nodule, which was thought to be a gastrojejunal ulcer, could be clearly palpated through the anterior wall of the stomach. In view of the technical perfectness of the original operation and the consequent difficulty of a local resection (posterior), it was decided that a transgastric excision of the ulcer would be a safer operation than an excision of the entire anastomosis. Accordingly, while the assistant passed two fingers, one on either side of the jejunal loop so as to grip the ulcer, a longitudinal incision was made through the anterior wall of the stomach parallel to the curvatures and midway between them. On opening the stomach the posterior wall was everted through the incision, thus bringing the gastrojejunal ulcer into view. The ulcer was almost entirely gastric, being just on the edge of the stoma. On opening the stomach a piece of silk (? or linen thread) was found hanging loose from the region of the ulcer. Excision was performed with scissors, and the opening made in the posterior wall of the stomach closed with through-and-through sutures passed from the mucosa. The anterior incision was then closed, leaving only room for a No. 14 rubber catheter, which was passed into the stomach and along the different jejunal loop. After the closure of the anterior incision a few interrupted Lembert sutures were passed posteriorly in the region of the original anastomosis to make things quite snug; the abdomen was then closed, leaving the catheter *in*

situ. The patient was given 4 ounces of peptonized milk through the gastrostomy tube before leaving the table.

The patient made an uneventful recovery from this operation. On the twenty-first day the gastrostomy (or gastro-jejunosotomy) tube was removed and feeding by the mouth commenced. Ten days later the patient left in excellent health and enjoying a light white meat diet.

Practitioner, London

March, XCII, No. 3, pp. 301-456

- 35 Chronic Intestinal Stasis. W. A. Lane.
36 Radiations and New-Growths. W. S. Lazarus-Farlow.
37 *Sprains and Strains of Knee-Joint. G. L. Cheatle.
38 Treatment of Fractures by Direct Extension of Fragments. C. Woodward.
39 *Brachial Neuritis. C. M. H. Howell.
40 Diagnosis of an Acute Abdomen. A. Carless.
41 Subacute Infective Endocarditis. T. G. Moorhead.
42 Recent Advances in Clinical Pathology. W. D. Emery.
43 Work on Vaccine Therapy. A. Fleming.
44 "Myalgia," or Muscular Rheumatism. W. H. Kesteven.
45 *Attempt to Evaluate, on a Physiologic Basis, Some Current Methods of Treating Acute Pneumonia. E. Curtin.
46 Morphomania. W. K. Anderson.
47 *Thermoprecipitin Reaction in Diagnosis of Pulmonary Tuberculosis. E. T. Fraser.
48 Relation of Time of Day to Mortality. E. Billing.
49 Case of Rat-Bite Fever Treated with Intravenous Injection of Neosalvarsan. A. K. Dalal.

37. **Sprains and Strains of Knee-Joint.**—In the acute case, where a severe sprain has occurred for the first time, and in which no rupture of the ligamentum patellae has occurred, Cheatle says the limb must be rested for about twenty-four hours, not necessarily in a splint—a thick layer of cotton wool and a bandage is often quite sufficient. If it is seen within the first five minutes, cold might arrest the hemorrhage. After the first half hour, it is best to apply to the articulation hot and frequent fomentations. At the end of twenty-four hours gentle massage can be applied to the thigh muscles and the articulation and passive movements can be begun. In performing passive movements, it is essential that the patient should help the surgeon in every movement. The patient's muscles will then be acting with and not against the surgeon, and there will be no fear of excessive movement.

In a very severe sprain, this treatment should be continued for three or four days, when the patient can begin to walk. At the end of a week massage of the muscles and joint can be continued, and he should perform regular muscular exercises, in one of three ways—by the method of resisted exercises, by means of a weight and pulley attached to a wall, or with the use of Cheatle's dumb-bell. He should begin to exercise his knee-joint and thigh muscles. The exercises may make the joint a little painful and even make it swell a little more, but he should go on with them and apply hot fomentations when these complications arise.

In the chronic case, in which sprains of the knee are of frequent occurrence and easily induced seen for the first time, the muscles will be found atrophied, to a marked degree, and any attempt on the part of the patient to use his joint will cause constant recurrence of fluid and pain, until, under proper treatment, his muscles regain their normal size and tonicity.

At this stage splints and bandages are useless. The patient must put no weight on the limb, except for ordinary necessities of life, for three weeks, and must perform regular specified exercises with a weight and pulley, or the foot dumb-bell. These exercises are more useful than massage of joint and muscles, but it may be continued. Unless regularly performed, the specified exercises are useless. After three weeks' work, the patient may take gentle walking and running exercises. After six weeks he can, as a rule, begin to do extra work, such as tennis, riding or golf, all in easy stages, and to stop on this side of fatigue, but the regular exercises must be continued for at least a year. The exercises are devoted mainly to the improvement of the flexors and extensors of the knee.

39. **Brachial Neuritis.**—For pain, especially that associated with rheumatic or gouty cases, the following mixture is recommended by Howell: R Antipyrin, gr. v-x; sodium salicylate, gr. x; caffein citrate, gr. v; aromatic spirits of ammonia, 3 ss; chloroform water, ad 3 ss. For the arteriosclerotic cases a mixture containing nux vomica and potassium iodid is often

very effective. Aceto-salicylic acid, gr. xv, is often very useful in the milder cases.

Kataphoresis Howell has found of the very greatest use in relieving pain and shortening the attack in cases of rheumatic or gouty origin. The drugs introduced are either 2 per cent. sodium salicylate or iodine. For the former the cathode is used, for the latter the anode. It is preferable to have the arm treated by hot air or hot compresses before ionization is begun; the object of this is to get the skin thoroughly moist, thus enabling large currents to be used painlessly, whereby the entrance of the iodine or salicylic acid ions is facilitated. The limbs should be kept warm by being wrapped in wool and the weight of the arm supported by a sling.

Should muscular weakness and wasting occur, it is of the utmost importance that the paralyzed muscles should not be stretched either by the weight of the limb or by contraction of their antagonists. This is prevented by putting the limb in a light splint, one made of celluloid being quite suitable for the purpose. The nutrition of the muscles must be maintained by massage and the use of the electric current, in the form of galvanism or faradism, according to the response obtained from the muscles on testing with one or the other.

45. Treating Acute Pneumonia.—The formation of fibrin, in Curtin's opinion, enhances the danger and should, if possible, be controlled or limited. With this end in view the salts of potash and ammonia are indicated early in the disease. The citrates and iodides of potash are especially useful, owing to their action in reducing the apoplasmic state of the blood. They also promote diuresis by abstracting water from the tissues into the blood-stream, thereby tending to diminish edema by draining off any excess of water from the tissues.

47. Thermoprecipitin Reaction in Diagnosis of Pulmonary Tuberculosis.—Eighty-six sputa were examined by Fraser; 42 were definitely tuberculous and 39 were non-tuberculous (clinically and bacteriologically); 5 were of doubtful diagnosis. Of the 42 tuberculous sputa, 36 gave a positive reaction, that is, 86 per cent. Of the 39 non-tuberculous sputa, 27 gave a negative reaction, that is, 69 per cent.; 1 gave a doubtful reaction. Of the 5 cases of doubtful diagnosis, 4 gave a positive and 1 a negative reaction. In 5 cases which were definitely tuberculous, but where no tubercle bacilli could be found in the sputum, a positive reaction was obtained. Fraser believes that the reaction appears to have some clinical value; a negative result speaks strongly against a diagnosis of tuberculosis.

Annales de Gynécologie et d'Obstétrique, Paris

February, XLI, No. 2, pp. 65-128

- 50 Hysterectomy without Opening the Uterus to Deliver Living Child. R. Casalis and R. Lecocq.
- 51 Changes in the Blood in Anemia from Obstetric Hemorrhage. V. Wallich and P. Abrami.
- 52 *Trendelenburg Position to Arrest Obstetric Hemorrhage. G. Fieux.
- 53 *Fate of Grafted Ovaries. (Etude anatomique de quatre greffes ovariennes chez la femme.) T. Tuffier and Vignes.
- 54 Inflammation as Factor in Cystic Disease of the Breast. (Histogénèse de la maladie kystique du sein.) P. Masson.
- 55 Early Embryonal Development of Hypogastric Plexus and Its Ganglion. Villandre.

52. Trendelenburg Position to Arrest Threatening Obstetric Hemorrhage.—Fieux applied this measure to combat symptoms of ischemia of the brain in a case of profuse obstetric hemorrhage, and found that it not only improved the circulation in the brain, but arrested at once and permanently the tendency to hemorrhage. Since then he has applied it systematically in four other cases, improvising a support for the purpose by working a chair, face down, under the mattress, the back of the chair under the patient's back. He gives a diagram to show the mechanical effect of the change to this position. The blood which has accumulated in the uterus and vagina falls back by its own weight when the pelvis and thighs are thus abruptly elevated, and this heavy column of blood acts as a tampon to plug the bleeding surface, the source of the hemorrhage, while its sudden impact is liable to start up normal uterine contractions. Even when the uterus develops atony again, the hemorrhage does not start up anew, as it is usually a vein that is bleeding, and in this position the pressure in the veins is reduced to zero even in the vena cava.

53. Engrafted Ovaries.—Tuffier and coworkers describe the histologic findings in four ovaries that had been transplanted years before and were removed at another operation or after death. Of the twenty women treated by transplanting of ovaries, nineteen menstruated thereafter for a few months, some for three or five years. The clinical course in these cases confirms the assumption that the disturbances of the menopause are not due to the loss of the internal secretion of the ovaries, but to the suppression of menstruation, that is to say, to the loss of the concerted action of the genital gland and the uterine mucosa. They state that since 1906, 141 women have been treated by ovary grafting with or without removal of all or part of the uterus, but they do not go into further details.

Annales de Médecine, Paris

February, I, No. 2, pp. 129-252

- 56 Experimental Superinfection with Tuberculosis in the Guinea-Pig. (Etude des phénomènes allergiques cutané et pulmonaire.) F. Bezançon and H. de Serbonnes.
- 57 *Classification of Diabetes Mellitus. M. Labbé.
- 58 Meningeal Hemorrhage in Purpura. G. Guillaud.
- 59 Primary Splenomegaly with Cirrhosis of the Liver. (Maladie de Banti et anémie splénique.) M. L. Kindberg.
- 60 Tubercle Bacilli in the Blood of No Importance for Diagnosis, Prognosis or Prophylaxis. L. Bernard and Others.

57. Classification of Cases of Diabetes.—Labbé says that the old distinction of "fat" and "thin" diabetes, although not strictly scientific, yet harmonizes better with the clinical phenomena than anything else he knows. The diabetes may be accompanied by insufficient assimilation of nitrogen, in which case the glycosuria is both alimentary and organic and the sugar is derived from carbohydrates, albumin and fat. When the assimilation is normal, the glycosuria is derived from the carbohydrates, while in the cases between these extremes, the denutrition is moderate and can be compensated for in the food. He gives the details of several cases of these three types of diabetes without and with denutrition and the intermediate cases, tabulating the metabolic findings with all the particulars. They confirm anew his contention that diabetics not only lose an abnormal proportion of nitrogen, but that the metabolism of nitrogen is abnormal. Diabetic coma is the direct result, he says, of this *trouble du métabolisme azoté*.

The majority of diabetics remain in the stage of abnormal sugar regulation alone, while others pass rapidly into the stage of nitrogen denutrition. The danger in the former is from accumulation of sugar in the organism, with hyperglycemia and its symptomatic train of evils. The danger in the other is from progressive debility from the nitrogen denutrition, in addition to the danger from the hyperglycemia, and the resulting acidosis. All that is necessary in the first type is to combat the hyperglycemia by reducing intake of carbohydrates and the ration in general. In the other type, the nitrogen denutrition must be combated with abundant food, warding off acidosis by substituting vegetable albumin for animal albumin. The danger from impending acidosis is so much greater than that from the hyperglycemia, that the latter has to be disregarded in this stage.

Annales de Médecine et Chirurgie Infantiles, Paris

March, XVIII, No. 5, pp. 141-172

- 61 Sugar Aids Digestion of Raw Milk. (Influence du sucre pour l'utilisation physiologique du lait cru par le nourrisson.) G. Variot and L. Monod.
- 62 Coal Tar in Treatment of Eczema. G. Thibierge.

Archives des Maladies du Cœur, etc., Paris

March, VII, No. 3, pp. 161-224

- 63 Nervous Phenomena with Extrasystoles. (Accidents vertigineux ou syncopaux liés à l'extrasystolie auriculaire.) L. Gallavardin.
- 64 Audible Signs of Heart Block. (Contractions auriculaires perceptibles à l'oreille dans le block total. Leur signification comme galop du block.) L. Gallavardin.
- 64 Bigeminal Pulse from Atropin in Atrial Fibrillation from Extrasystoles. (Rythme couplé provoqué par l'atropine.) D. Danielopolu.
- 66 Bigeminal Pulse from Sodium Salicylate. D. Danielopolu.

Archives Générales de Chirurgie, Paris

February, VIII, No. 2, pp. 129-256

- 67 Rupture of Tendon in Connection with Joint Disease without Effusion. (Rupture intracapsulaire du tendon du long biceps brachial.) J. Flévez.

- 68 *Pus in Double Uterus or Vagina. (Pyométrie et pyocolpos dans les cas de duplicité du canal génital.) C. Moreau.
69 *Primary Curvature of the Spine in the Neck Not Due to Trauma or Tuberculosis. P. Manclaire.

68. **Suppuration in Double Uterus or Vagina.**—Moreau calls attention to the puzzling cases of retention of blood, secretions or pus in a walled-off part of the uterus or vagina owing to biseptus, arcuatus, bicornate, bipartitus or other unsuspected deformity of the uterus or vagina. He reports the case of a woman who had had an extremely fetid vaginal discharge for six years, ever since her marriage. There were occasional periods of pain, and during these spasms the discharge was less profuse. The pain was sometimes so severe that morphin was required, and it always localized in the lower abdomen, toward the right side. The discharge amounted at times to a glassful of pus during the day. The pus did not come from the uterine cervix, but oozed from a crevice in the depths of the vaginal culdesac on the right. No relief had been obtained from two previous vaginal operations, but a laparotomy revealed the cause of the trouble to be suppuration in the smaller part of a double uterus, the other half being sound. The minute crevice seen in the vagina from which the pus oozed must have been the only communication between this portion of the bifid uterus and the vagina. He adds from the literature the brief details of sixteen similar cases of pyometra or pyocolpos in a duplex organ, all the patients being cured by a more or less complete hysterectomy or other operative measures as indicated.

69. **Non-Traumatic and Non-Tuberculous Curvature of the Spine in the Neck.**—Manclaire has encountered two of these cases, one in a boy of 17. The curvature developed in the course of a month, without pain or tenderness; the spine seemed to be twisted on itself and there were signs of paraplegia. The diagnosis by exclusion was deforming rheumatism limited to this portion of the spine, which was also the presumptive diagnosis in the second case. This patient was a man of 45 without pathologic past. No benefit was derived in this case from plaster casts, and the condition has persisted about the same for two years. In the younger patient a plaster cast with neckpiece prevented further curvature and gradually the condition improved, the symptoms of paralysis subsiding. It is important, of course, that these orthopedic appliances should be applied at the earliest possible moment in such cases.

Archives Générales de Médecine, Paris

February, XCIII, No. 2, pp. 101-192

- 70 Industrial Dust as Factor in Bronchopulmonary Disease. F. Helm and E. A. Lafont.
71 Nascent Iodin in Ear and Throat Work. (L'enfumage iodé en oto-rhino-laryngologie.) A. Maurice.

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

February, III, No. 2, pp. 161-256

- 72 *Autografts of Human Ovaries. de Rouville.
73 Causes of Abnormal Embedding of Ovum. (Etiologie des grossesses tubaires.) L. Schil.
74 Obstetrics in Northwest Europe in Eighteenth Century. (Mathias Saxtorph et ses contemporains.) E. Ingerslev.

72. **Transplanted Ovaries.**—De Rouville summarizes nine cases of various gynecologic affections which he treated by transplanting one or both ovaries into the abdominal wall; he tabulates the details finally for comparison. Actual benefit seems to have been realized only in one case, dubious in another, and good but briefly transient in a third. All the grafts became atrophied sooner or later. Notwithstanding these meager results he is confident that the principle is a good one and that perfected technic will improve the results. He noted in some cases that the engrafted ovary became swollen, tender and painful at the periods corresponding to the dates of the menses, these changes commencing as a rule from five to twelve days before the appearance of the menses. In six cases menstruation returned, but it was very irregular in some and ceased completely after a single menstruation in one case thirteen months after the ovary had been transplanted and after five months in another. Symptoms of the artificial menopause were apparent in all, but very mild, and milder in those whose menstruation continued.

Bulletin de l'Académie de Médecine, Paris

February 24, LXXVIII, No. 8, pp. 271-295

- 75 Gunshot Injuries of Vessels and Nerves. (Les anévrysmes et les blessures des nerfs en chirurgie de guerre.) Laurent and E. Delorme.
76 Experimental Surgery of the Heart Valves. T. Tuffier.

Bulletins de la Société de Pédiatrie, Paris

February, XVI, No. 2, pp. 73-116

- 77 Vaccine Therapy of Typhoid. J. Comby.
78 Scapular Tic. N. Wilbouchewitch.
79 Sugar Aids Digestion by Infants of Raw Milk. G. Variot and L. Monod.

Journal de Chirurgie, Paris

February, XII, No. 2, pp. 145-280

- 80 Operation on Costal Cartilage to Mobilize Chest Wall. (Chondrectomie mobilisatrice dans les déformations thoraciques accompagnées de troubles respiratoires.) C. Lenormant.
81 *Tuberculosis of Costal Cartilages. S. Mercadé.

81. **Tuberculosis of Costal Cartilages.**—Mercadé reports six cases of a cold tuberculous abscess in a costal cartilage, and gives an illustrated description of the technic with which he successfully removed the part affected. The patients were men between 35 and 60 and one woman of 25. The abscess did not develop downward, but worked forward through the interstices between the muscle fibers. When the tuberculous process assumes the form of a diffuse infiltration, differentiation is difficult; in one such case the trouble had been diagnosed as a diaphragmatic pleurisy. After the operation the patient must be examined carefully every second day to learn whether there is not an accumulation of serous fluid and blood if the operation required cutting into bone tissue. The lips of the U flap can be separated a trifle and the fluid squeezed out and then resutured. This is seldom required more than once or twice at most.

Journal de Médecine de Bordeaux

March, LXXXV, No. 9, pp. 141-152

- 82 Sarcoma of the Thyroid. Chavannaz and Loubat.
83 Arrest of Traumatic Glaucoma in Girl of 12 by Trephining Eyeball. (Buphtalmie secondaire traitée par la trépanation d'Elliot.) H. Fromaget.

Lyon Chirurgical

March, XI, No. 3, pp. 221-312

- 84 More Frequent Use of Gastrectomy Recommended for Gastric Ulcer. X. Delore and P. Santy.
85 *Resection of the Auriculotemporal Nerve to Inhibit Parotid Secretion. G. Aigrot.
86 *Surgical Aspects of Aerophagy. R. Leriche.

85-86. **Aerophagy: Dangers and Treatment.**—Leriche regards the swallowing of air as a frequent cause of acute postoperative dilatation of the stomach and therefore important from a surgical standpoint. It may also cause chronic dilatation of the stomach and lead to a mistaken diagnosis of gastric ulcer. It has always been regarded as a tic or a form of hysteria, but he believes it is often due to excessive salivation, and is therefore susceptible of surgical treatment. If the secretory fibers supplying the parotid in the auriculotemporal nerve are cut, the hypersalivation and with it the swallowing of air are ended. He describes a case in which he successfully performed this operation. In the preceding article Aigrot also describes a successful operation of the same sort for the same reason.

Lyon Médical, Lyons

March 1, XLVI, No. 9, pp. 453-520

- 87 Müller's Method of Determining the Degree of Hypertrophy of the Right Heart in Chronic Pulmonary Disease. J. Bret.
88 *Ether Dressings in Gynecology. R. Condamin.

88. **Ether Dressings.**—Condamin recommends the application to the abdomen in inflammatory edema of the pelvis, subacute phlegmon, and similar conditions, of cotton pads saturated with ether and covered with more cotton and oiled silk. These ether dressings have a sedative action, reduce pain and the absorption of edema is promoted. An ether tampon may also be applied inside the vagina, but this is somewhat painful. He has been using for several years these ether-soaked compresses over a large area, and with constantly increasing satisfaction. The ether has to be continuously applied and in no small dosage.

Revue Pratique d'Obstétrique et de Gynécologie, Paris

February, XXII, No. 2, pp. 33-60

- 89 Pelvic Neuralgia of Genital Origin in Women and Treatment by Mineral Waters. M. de Lépinay. Concluded in No. 3.
90 Ovarian Tumors Interfering with Delivery. P. Pucel and J. Vanverts.
91 Phenomena of Shock after Normal Delivery. Fabre and Bourret.

Presse Médicale, Paris

XXII, Nos. 17-19, pp. 161-192

- 92 Influence on Heart Action of Pressure on the Eyeball, of Nitrite and Atropin. (Diagnostic des bradycardies totales d'origine nerveuse. L'automatisme ventriculaire provoqué par la compression oculaire et l'atropine dans les bradycardies totales.) M. Ketzetakis.
93 Operations on Heart Valves. (Etude anatomo-pathologique et expérimentale sur la chirurgie des orifices du cœur.) A. Carrel and T. Tuffier.
94 Protozoa in Human Pathology. L. Lagane.
95 Gastric Cancer of Intestinal Type. R. Grégoire and P. Masson.
96 Subperitoneal Nephrectomy through Transverse Incision in Front. L. Bazy.

Semaine Médicale, Paris

March 4, XXXIV, No. 9, pp. 97-108

- 97 Hysterectomy Sparing the Ovaries. R. de Bovis.

March 11, No. 10, pp. 109-120

- 98 *Large Syphilitic Tumors of the Liver. F. Lejars.

98. Large Syphilitic Tumors in the Liver.—Lejars relates from his own experience and that of others a long series of cases in which the symptoms indicated gall-bladder or stomach or duodenum disease or cancer in the liver, but which proved to be merely an isolated syphilitic lesion. Even when syphilis is known, there is, of course, the possibility that any of the above may be associated with it, so that an exploratory operation is often justified. This is especially necessary as tentative specific treatment might be directly injurious with gastric malignant disease. Another argument in favor of an exploratory operation is that it may be possible to break up adhesions, etc., causing functional disturbance. Syphilitic tumors in the liver may interfere with the functioning of the whole biliary apparatus and may induce inflammation in adjoining tissues. If the syphilitic tumor is found pedunculated and easily removable, and not much benefit has been derived from specific treatment, it is well to consider the advisability of removing it, but unless conditions are exceptionally favorable this had better not be attempted. In the cases in which it has been done the gumma generally had been mistaken for a cancer.

The syphilitic tumor is liable to project downward or backward, and in several of the cases related the operation was done from the rear for a supposed wandering and painful kidney. In one case even when the liver was opened up, the trouble was taken for gastric cancer spreading to involve the liver. The bright side to all these mistakes in diagnosis is the almost invariable complete recovery under specific treatment. Some of the patients improved under the influence of the operation alone. This improvement refuted the presumptive diagnosis of inoperable cancer, and a supplementary course of treatment for syphilis speedily completed the cure. In some of the cases the Wassermann reaction was negative but the patients recovered under specific treatment as effectually as those giving a positive response.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXX, No. 1, pp. 1-226. Last indexed March 21, p. 972

- 99 *The Leukocytes and the Viscosity of the Blood. A. Gullbring.
100 *Pleural Eclampsia. (Zur Pathogenese der pleuralen Eklampsie bei Anglegung eines künstlichen Pneumothorax.) W. Orłowski and L. L. Fofanow.
101 *Albumin in the Sputum. (Die quantitative Eiweissbestimmung im Sputum.) O. Melikjanz.
102 Comparison of Different Tuberculins. Holten and V. Kollert.
103 *Tuberculous Pericarditis. W. Wolff.
104 *Study of Tuberculosis Death-Rate. (Vergleichende Untersuchung über Tuberkuloseverbreitung in zwei verschiedenen Bezirken Badens.) K. Dörner.
105 Serodiagnosis of Tuberculosis. (Erfahrungen mit dem Abderhaldenschen Dialysierverfahren bei der Tuberkulose.) F. Gumpertz.
106 Inunctions of Attenuated Tuberculin for Wholesale Treatment and Prophylaxis for Tuberculosis. (Ueber eine Vereinfachung der spezifischen Therapie für die spezifische Tuberkulose-Bekämpfung in grösserem Stil.) Petruschky.

99. The Leukocytes Bear Some Relation to the Viscosity of the Blood.—Gullbring reports extensive research the results of which show that there is a regular ratio between the number of the polymorphonuclear leukocytes and the viscosity of the blood, the latter increasing as the number of these cells grows larger. Sixty-six pages are devoted to the details of his tests in 201 patients, tabulated under various headings, as also the findings in ten cases after injections of sodium cinnamate and thirteen others after injection of other drugs, also in eleven syphilitics, and in some patients with nephritis, exophthalmic goiter, leukemia or pernicious anemia, and after injection of gelatin and on different diets. Gullbring compares his findings with those of other investigators, and concludes with a bibliography of eighty-five titles.

100. Threatening Disturbances During Artificial Pneumothorax.—This communication from Kasan relates that during injection of the gas to make an artificial pneumothorax in a woman of 26 a train of symptoms developed such as have been described in the literature as reflex pleural eclampsia. They included convulsions, unconsciousness, repeated vomiting, dilatation of the pupils and disturbances in respiration and circulation and paresis of certain groups of muscles. These phenomena indicate a sudden increase in the pressure on the brain with traumatic injury of certain nerve terminals, so the trouble undoubtedly must be due to some organic disturbance in the brain. Only embolism of the cerebral vessels can explain it, and he thinks that the embolism was probably of the gas. The woman recovered, but two months later there was still some paresis. It is possible that abortive forms of such phenomena may be of a reflex nature, especially those with laryngospasm, slowing of the pulse, vertigo, pallor, etc., but when there is even transient paresis, gas embolism with minute amounts of gas seems the more probable explanation.

101. Albumin in the Sputum.—Melikjanz calls attention to the diagnostic importance of quantitative estimation of the albumin in the sputum, applying the Heller test and watching the interval before the albumin ring appears. He gives the technic for this quantitative method and the findings in fifty patients repeatedly examined. It shows active pulmonary tuberculosis even in the incipient stage, and the fluctuation in the amount of albumin runs parallel to the healing process or the aggravation of the disease. The specific gravity of the sputum is independent of the amount of albumin and character of the pulmonary disease.

103. Tuberculous Pericarditis.—Wolff gives the details of 21 cases with necropsy in all but 5; 8 patients were over 60, and the tuberculous pericarditis was not accompanied by any other tuberculous affection or merely by signs of old healed processes in the apices. The patients under 60 all had other tuberculous affections. In 5 cases the pericarditis had caused no symptoms during life. The necropsy findings are liable to be misunderstood by those without much experience in this line. A tuberculous origin should be suspected in all cases of fibrinous pericarditis in the elderly not to be explained in other ways. The prognosis is not absolutely bad; it may heal by the growing together of the sheets of the pericardium with the eventual calcification of the synechia.

104. Comparative Death-Rate from Tuberculosis in Two Baden Districts.—Dörner has been studying conditions before and after the industrial development of two large districts with a population of about 20,000 each. The data are presented in a dozen tables; all testify anew to the way in which tuberculosis is fostered by unfavorable environments, and that women feel the effect of this more than men. Also that the campaign against tuberculosis in children is the most important means to reduce the general death-rate among them.

Berliner klinische Wochenschrift

March 2, LI, No. 9, pp. 385-432

- 107 Experimental Research on Small-Pox Virus. (Mitteilungen über experimentelle Vaccine.) H. A. Gins.
108 Doughy Infiltration of Mucosa of Urethra and Bladder as Symptom of Thyroid Insufficiency. (Zur Diagnose der Hypothyreose.) H. Stern (N. Y.).
109 The Blood in Diabetes. (Morphologische Eigenschaften des Blutes bei Diabetes mellitus.) M. Halpern.

- 110 *Technic for Feeding Children Unusually Large Numbers of Calories. (Mastkuren im Kindesalter.) S. Engel.
111 Serum Sickness. C. R. Schulz. Commenced in No. 8.
112 Cotton Dressings. (Moderne Verbandwatte.) W. Zänker and K. Schnabel.

110. **Extra Nourishing Food for Children.**—Engel places great reliance on cream in the forced feeding of children, as this supplies large amounts of calories in a concentrated form. He estimates that half a liter of 15 per cent. cream represents 800 to 900 calories. The secret is to have the daily ration of cream taken all at one time. During the day the child is fed as usual, but two or three hours after supper, when the child is already in bed, he drinks the glass of cream, and takes it with relish. A boy of 10, for example, requiring about 1,250 calories, can take half of them in this form. Repose is an indispensable factor in assimilation and utilization of the maximum proportion of nourishment but this is too often neglected in the forced feeding of children. They should recline all the time or at least three or four hours, all preferably out of doors. Nervous, restless children can be kept in a darkened quiet room; if this alone does not suffice, he does not hesitate to give some mild sedative during the first day or so.

Correspondenz-Blatt für Schweizer Aerzte, Basel

February 28, XLIV, No. 9, pp. 257-288

- 113 Fertilization and Embedding of Human Ovum. (Einiges über Befruchtung und Einbettung des menschlichen Eies.) H. Mayer-Ruegg.
March 7, No. 10, pp. 289-320
114 Recent Progress in Our Knowledge of Infections. (Erforschung der Infektions-Krankheiten.) W. Silbersemidt.
115 Chronic Malaria. F. Schwyzer.

Deutsche medizinische Wochenschrift, Berlin

February 26, XL, No. 9, pp. 417-472

- 116 *Treatment of Hemoptysis. (Lungenblutung.) Grober.
117 Eugenics and Gynecology. J. Veit.
118 Successful Removal of Tumor in the Pancreas. W. Körte.
119 Ferments in the Blood. (Blutfermente des gesunden und kranken Organismus und ihre Bedeutung für die Physiologie und Pathologie.) L. Pineussohn.
120 Reply to Article Asserting Serodiagnosis of Pregnancy is Neither Specific nor Reliable. E. Abderhalden and L. Michaelis.
121 Diphtheria in the School. A. Gottstein.
122 Specific Potassium-Gold Cyanid Reaction in Serum in Syphilis and Cancer. E. Wiener and A. v. Torday.
123 *Simple Quantitative Test for Urea in Urin. A. Hahn and J. Saphra.
124 *Compound Splintered Fracture of the Skull. (Zur Behandlung komplizierter Splitterbrüche des Schädeldaches.) E. Görs.
125 Prostatectomy by Wilms' Technic. D. Kulenkampff.
126 *Syphilis an Internal Disease. K. Stern. Commenced in No. 8.
March 5, No. 10, pp. 473-520
127 Treatment of Cholera Infantum. (Behandlung des akuten Brechdurchfalls der Säuglinge.) Tobler.
128 Etiology of Catarrhal Enteritis in Infants. (Säuglingsdarmkatarrh.) K. Baerthlein and W. Huwald.
129 *Internal Disinfection. R. Roosen.
130 *Detection of Metals in Organs. (Methode zum Nachweis feinsten Metallablagerungen in den Organen.) J. Voigt.
131 Biologic Research with Colloidal Silver. J. Voigt.
132 *Deviation of Complement with Chemicals. K. Hara.
133 Bile in Culture Medium. (Zusatz von Rindergalle zum Löfflersehen Diphtherienährboden.) E. Büsing.
134 Biologic Research on Tuberculin. (Experimentelle Untersuchungen über Tuberkulin und Tuberkulose.) H. Aronson.
135 Tubercle Bacilli in the Blood. C. Moewes and E. Rautenberg.
136 Improved Technic for Bang's Test for Sugar in the Blood. N. Roth.
137 Paratyphoid Epidemic Traced to Flour. H. Langer and Thoman.
138 Care after Operation for Pyloric or Duodenal Ulcer. F. Ehrlich.
139 *Death in Consequence of Administration of Friedmann's Remedy for Tuberculosis. (Ein Todesfall infolge von Anwendung des Friedmannschen Tuberkulosemittels.) O. Vulpius and C. Laubenheimer.

116. **Hemorrhage from the Lungs.**—Grober says that the mere aspect of the blood will generally reveal where it comes from; if from the gums, there is no coagulation and it is diluted with saliva, and if from the nose or throat, mucus comes with it. Blood from the lungs is usually thoroughly mixed with the sputum and is bright red and foamy. When this is swallowed and then vomited, fresh foamy blood generally comes with it, showing that it is not true hematemesis. To keep the body absolutely and constantly still is the first and main indication, and he insists that the patient should be kept in bed for a week or ten days after actual hemoptysis,

even if there are no other symptoms. Provision must be made for the escape of the blood to ward off danger of suffocation; he lost two patients from this cause, children of 9 and 12. This danger is imminent when the patient is asleep or unconscious, and this should be remembered when giving sedatives.

The patient often imagines the amount of blood lost as far above what it really is; he must be tranquilized at all costs, and all persons that cannot be relied on must be excluded from the room whether the hemorrhage was slight or severe.

The family can be reassured that with tuberculosis hemoptysis is extremely rarely directly fatal. The patient should not speak, but use pencil and pad; sign language is liable to be misunderstood and excite him still more. Strapping the chest and sand bags may do more harm than good, but an ice bag or its equivalent soothes and steadies. It should be suspended to relieve the chest of its main weight. Inspection of the skin of the chest and the local sensations may reveal the site of the bleeding. The patient should not be disturbed for a thorough examination. The food should not require chewing, and if even swallowing is dangerous, a scrap of ice can be placed in his mouth, possibly dropping a little lemon juice on it. The water from the melting ice can run out of the mouth. Milk and sweetened water and the blood that may have been swallowed help to nourish the patient. Stimulants, alcohol, coffee, tea, should be scrupulously avoided and for some time afterward. Heart tonics tone up the circulation and thus may start up the hemorrhage. He has had this occur twice under digitalis. Some coughing is indispensable to expel the blood from the bronchi even although it brings the danger of starting up the hemorrhage anew. Ergot, hydrastis and atropin have each rendered him good service, and he knows of three cases in which a tablespoonful of salt dissolved in a little water arrested pulmonary hemorrhage, twice in one case, but he has never given it himself. He has also witnessed a similar effect from intravenous injection of 5 and 10 c.c. of a 5 or 10 per cent. solution of salt. No means is known to act directly on the bleeding spot, but a subcutaneous injection of reliably sterilized gelatin seems the nearest approach to this at our disposal, and there is more general confidence in this than in any other styptic.

123. **Test for Urea in the Urine.**—Hahn and Saphra found extremely reliable Marshall's simple method to determine the proportion of urea in the urine. The alkalinity of the urine is first ascertained; then a certain ferment is added and the alkalinity is determined anew after a certain interval. The difference between the two figures is the index. The ferment is derived from the soy bean.

124. **Splintered Fracture of the Skull.**—Görs reports seven cases in which the skull had been extensively fractured; in six he patched the defect by reimplanting the pieces of bone, and they healed in place without inflammation. All the patients regained their former earning capacity and there were no epileptiform seizures in any instance. Two patients were boys of 12 and 16; the others men of 20, 28 and 42 to 71. The injury could be treated at once and there was no infection except in one case in which serious meningitis had already developed, to which the patient succumbed after removal of the foreign body and drainage. The gaps in the skull ranged from the size of a silver quarter to that of the palm of a man's hand. The frontal bone was involved in four, the vertex in three. Brachial monoplegia had already developed in two of the latter group.

126. **Long Latent Stage in Syphilis.**—According to Stern's experience, in fully 50 per cent. of all cases of syphilis, the disease develops without any secondary manifestations; that is, the syphilis runs its course exclusively as an internal disease after the primary lesion. This is equivalent to saying that less than 50 per cent. make any attempt to get proper treatment, as it is generally the skin and mucosa affections which drive syphilitics to the doctor. The absence of external manifestations may therefore be regarded as a misfortune, especially if we regard them as protective reactions. No history of secondary manifestations can be found in a large

proportion of the cases of tabes and paralysis. The fact that the syphilis gives no signs of its presence during long years after the primary chancre is by no means a sign that the syphilis has been "cured."

129. Internal Disinfection.—Roosen relates encouraging results in series of mouse tumors which melted away, as it were, under the influence of subcutaneous or intravenous injection of methylene blue, followed forty-eight hours later by a subcutaneous injection of calomel. In his latest series, sarcomas and carcinomas as large as a bean or nut subsided completely in sixteen of the seventy mice. The tumor softened up more or less in all the animals. The aim is to give the mercury only when the methylene blue which has not entered into combination with the tissues has been expelled from the body. The tint of the urine will show when it is being cast off.

130. Determination of Finest Particles of Metal in Tissues.—Voigt says that important information in regard to the presence of metals in organs can be obtained with the ultra-microscope applied to sections. The particles catch the light in a different way and show up distinctly.

132. Chemicals for Antigens in Biologic Tests.—Hara obtained positive responses with the deviation of complement test in 48 of 56 cancer cases using phenolphthalein for the antigen. In 86 cases with positive Wassermann reaction the tests with this chemical and also with maltose were constantly negative. The tests with these two substances were also applied to 385 patients with various other affections and only 4 positive responses were obtained with maltose and 8 with phenolphthalein. Maltose is not quite as specific as the latter, but either may serve as a useful control in applying the biologic test. Other chemicals were tried but none showed such efficacy as these two.

139. Fatality Following Use of Friedmann's Remedy for Tuberculosis.—This communication from Professor Vulpius and Privat-Dozent Laubenheimer, both of Heidelberg, reports a fatality following application of Friedmann's remedy for tuberculosis, and states further that in only two out of thirteen ampules of the remedy examined was the turtle bacillus found in a pure culture. All the other ampules were contaminated with bacilli of different kinds, including a *Staphylococcus aureus* which proved very virulent on inoculation of animals. Forty-six patients had been given the treatment, the remedy obtained directly from the manufacturers, thirty-one by intramuscular injection; fifteen by both intramuscular and intravenous injection, all strictly according to Friedmann's directions. There was a febrile reaction in all except in one patient. In some the fever was high and the general phenomena were pronounced. One of the patients died and another was saved only by the greatest efforts and good fortune. This latter patient was a girl of 18 with a tuberculous process in the knee. After a pronounced reaction with fever, chills, headache and palpitations, severe collapse developed the third day but the patient gradually recovered.

In the fatal case the patient was a man of 31 with a tuberculous focus in the epididymis and ribs. The night after the *Simultan-Injektion* he had chills and fever to 41.2 C.—over 106 F.—and pulse of 140. Coma and death followed in less than forty-eight hours. The clinical course suggested acute sepsis with paralysis of the heart. In eight of the thirty-one patients given intramuscular injections, infiltration followed sooner or later, with a fistula which lasted for several weeks in a number of cases.

Vulpius began to apply this method of treatment last November, and states that the period of observation is still too short for a decisive judgment, but to date he has not witnessed in a single instance any change for the better which he can ascribe to the new remedy. The toxic phenomena in his cases and the high fever with the intramuscular plus intravenous injections are amply explained, he says, by the bacteriologic findings mentioned above. They warn of the necessity for extreme caution with the remedy. These findings, he adds, will deter him from ever injecting the remedy directly into the circulation again, or at least not until it is officially standardized.

Deutsche Zeitschrift für Chirurgie, Leipsic

February, CXXVI, Nos. 5-6, pp. 429-634

- 140 *Intracranial Injections of Alcohol in Trigeminal Neuralgia. F. Härtel.
141 *Family Tendency to Polypos in the Intestines. W. Thorbecke.
142 Invagination of the Intestine and Spastic Ileus. A. Fromme.

140. Alcohol Injections for Neuralgia.—Härtel's report of his experiences fills 123 pages, setting forth the details of twenty-five cases of severe chronic trigeminal neuralgia in which he injected alcohol to block the nerve just before it pierced the skull. He found it far more effectual than any procedure outside the skull, but states that while the results are on a par with those of gasserectomy, it is free from the dangers of the latter, although it shares with the latter the liability to consecutive inflammation of the cornea. This can be warded off, however, he says, by careful after-treatment. He adds that it is necessary to make the injection in such a way as to block the whole ganglion. Anatomic conditions interfered to prevent introducing the needle into the oval foramen in six of the eighty-two cases in which he has applied this technic for this purpose or for local surgical anesthesia or for diagnostic puncture of the base of the brain with meningitis or for intracranial injection of anti-tetanus serum. Care afterward to ward off keratitis should be particularly scrupulous with diabetics.

141. Familial Polyposis.—Thorbecke has encountered 3 cases and has compiled 19 from the literature since 1908. This brings to 78 the number of cases of intestinal polyposis on record; 53 of the patients died, including 32 with cancer. The outcome is not known in 7 cases; 5 patients are known to be living. Treatment can generally be only palliative on account of the large number of polyps, as a rule. In the 10 cases in which the accessible polyps were cut off, 3 of the patients died; 2 had recurrence with malignant features four or six years later; 3 others were benefited, but only 1 patient seemed to be permanently cured. An artificial anus to relieve the gut below from irritation was made in 8 cases but 3 patients died and only slight and transient benefit was realized in the other cases. Injection of astringents gives but slight and transient relief if any.

Medizinische Klinik, Berlin

March 1, X, No. 9, pp. 357-400

- 143 *Calcium Given with Iodids and Bromids Wards Off By-Effects. E. Frey.
144 Duodenal Ulcer. C. Hart.
145 Roentgenoscopy in Gastro-Intestinal Disease. (Röntgendiagnostik der Verdauungskrankheiten in klinischer Bewertung.) A. Albu.
146 Thermopenetration. A. Laqueur.

143. Prevention of Iodism and Bromism.—Frey relates experiences which confirm the antagonistic action between calcium and the iodids and bromids. It can be instructively studied on muscle fibers, the latter drugs causing contractions in muscle fiber immersed in them while the contractions cease when calcium is added to the fluid. It seems wise, therefore, he says, to give the preference in therapeutics to calcium iodid and bromid.

Münchener medizinische Wochenschrift

March 3, LXI, No. 9, pp. 457-512

- 147 *Color Test for Uric Acid in Blood and Urine. (Ueber kolorimetrische Bestimmungsmethoden.) Autenrieth and Funk.
148 *Peptolytic Ferments in Cells and in the Blood. M. Mandelbaum.
149 *Specificity of the Protective Ferments. (Serologische Untersuchungen mit Hilfe des Abderhaldenschen Dialysierverfahrens bei Gesunden und Kranken. E. Lampé.
150 Sources of Possible Error in Abderhalden's Serodiagnosis. (Ninhydrinreaktion.) H. Deetjen and E. Fränkel.
151 *Serodiagnosis of Pregnancy. L. Flatow.
152 *Abderhalden's Dialysis Procedure. H. Kämmerer, M. Clausz and K. Dieterich.
153 Paratyphoid Epidemic from Eel Meat. (Fischfleischvergiftung durch Bakterien der Paratyphus-Enteritisgruppe.) R. Müller.
154 Amebic Cystitis. W. Fischer.
155 *Dysentery Epidemic in Children. E. Keuper.
156 *Treatment of Dysentery. W. Lutsch.
157 Local Anesthesia for the Eye. (Ueber lokale Anästhesie in der Augenheilkunde mit Novokain-Kalium Sulfuricum.) H. Gebb.
158 Therapeutic Application of Electricity to Entire Limb; Bergonié's Method. A. Veith.
159 Technic for Diazo Reaction. Welwart.

147. **Colorimetric Determination of Uric Acid in Blood and Urine.**—The simple points necessary to bear in mind in examining blood and urine for uric acid are emphasized, especially with the iodic acid and phosphotungstic acid methods. The former is the simpler technic and is better for the urine but only for the blood when there is over 4 mg. of uric acid in 100 c.c. of blood, which is usually the case in gout. According to the research of the writers, normal blood contains from 1 to 3 mg. of uric acid, and the blood of bees and swine has about the same proportion, but in gout the proportion ran up to 5 mg. in one case.

148. **Peptolytic Ferments in the Cells and Blood.**—Mandelbaum's experiments and research have demonstrated, he says, that the cells retain the peptolytic ferments with extreme tenacity and only when the cell dies suddenly does the ferment escape into the blood. He asserts therefore that the glycyl-tryptophan-splitting ferment is thus merely a death reaction.

149. **Specificity of the Protective Ferments.**—Lampé reports extensive research which corroborates the specific nature of the protective ferments in various affections of different organs. He expatiates on the importance of the information that can thus be derived in distinguishing between thyroid intoxication and hysteria or tuberculosis, or between epilepsy and hysteria, etc. Far and above all in practical importance, he adds, is the serodiagnosis thus rendered possible in malignant disease and pregnancy.

151-152. **Unreliability of Serodiagnosis of Pregnancy.**—Flatow says that the dialyzing shells are frequently imperfect and hence the results of the Abderhalden method are liable to be incorrect. In addition to this, he states that conclusions based on the unknown proportion of the specific substance which dialyzes through the membrane of the thimble is a very vague and unscientific method of performing the test. By coagulating out this substance it can be obtained in its entirety, not merely the fraction which dialyzes out. He has coagulated out the substance with acetic acid and potassium oxalate while Michaelis and Lagermarck used colloidal iron for the same purpose. The coagulum was then dissolved with sodium bicarbonate and then the ninhydrin test was applied. With the specific substance thus obtained in its entirety, he continues, the serum from men as well as from pregnant women gave a positive response to placenta tissue. The proteolytic ferments of normal blood serum digest placenta tissue irrespective of whether the serum comes from men or women, pregnant or non-pregnant.

Kämmerer and his coworkers are from the same clinic (Munich) and cite Fried, Oeller, Stephan, Plaut and others who are unable to accept the specific nature of the protective ferments. They give the particulars of their own latest series of applications of the test, which confirm anew, they assert, the unreliable nature of the findings. When contradictory results are obtained with the dialyzing technic the assumption that they are all due to defective technic cannot be accepted when the technic has been so thoroughly mastered as is the case at the Munich clinic. It is certainly remarkable, they say, that a procedure based on such a simple theoretical principle gives satisfactory results only in the hands of a certain few. (Compare Baeslack's article in *THE JOURNAL*, March 28, 1914, p. 1002.)

155. **Dysentery in Small Children.**—Keuper reports the discovery of Kruse's pseudodysentery bacillus in nearly every one of the twenty infants and small children in the epidemic described at Frankfurt a.M. The period of incubation seems to be about four or five days, and the children may have the bacilli in the stools occasionally for months after all symptoms have disappeared. Strict and prolonged isolation is thus necessary to prevent infection of others. The symptoms simulated those of ordinary follicular enteritis. Two of the children who had apparently recovered from the affection and whose stools were found sterile on two examinations were returned to the ward after their isolation, but their isolation had not been long enough and they proved a source of infection for the other children. There was recurrence in five cases. A change of food seemed beneficial; pos-

sibly it modified the medium for the bacilli. Various drugs were used but none displayed any marked or constant efficacy, including emetin.

156. **Salicylic Enemas in Dysentery.**—Lutsch writes from Africa to extol Eichhorst's method of treating dysentery by rectal enemas of a 2 per cent. solution of sodium salicylate. The dose for an adult is 13 gm. sodium salicylate in 650 gm. water. The prompt relief of pain and tenesmus is remarkable, and Lutsch says that he feels now that he has dysentery entirely under his control. He gives 0.3 gm. calomel or a trifle more and allows nothing but barley water the first day and later a little boiled milk. Six hours or more afterward he gives the salicylate injection and repeats it the second and fourth or third and fifth days. After he became convinced of the benefit from the salicylate injections he applied them also in ordinary diarrheas and catarrhal bowel affections and with striking success. The enema must be of body temperature and retained for half an hour. For a child a year old he uses only 90 gm. of the salicylate solution. Eichhorst recommended ice water for the vehicle and ice bags, but Lutsch has always found body temperature and application of heat far preferable to cold for diarrhea of any kind.

Therapie der Gegenwart, Berlin

March, LV, No. 3, pp. 97-44

160 *Active Immunization Against Diphtheria. E. Schreiber.

161 *Treatment of Cystinuria. G. Klemperer and M. Jacoby.

162 *Radium Therapy of Cancer of Esophagus and Cardia. C.

Lewin.

163 Cure of Rat Sarcomas with Autolysates. F. Blumenthal and C. Lewin.

164 *Prevention of Flat-Foot. (Zur Verhütung des Plattfusses in gewissen Berufen.) K. Gerson.

160. **Vaccination Against Diphtheria.**—Schreiber states that he has applied Behring's method of vaccination against diphtheria to more than 700 schoolchildren and Kissling to 300 children in the hospital. The intracutaneous seems the best route for the injection. The vaccine is a mixture of toxin and antitoxin, and thus it contains only traces of albumin so that there seems to be no danger of anaphylaxis from its use. No untoward by-effects were noted in any instance except a local reaction to the injection at times. Young children and babies give less of a reaction than older children and adults. The amount of antibodies produced in consequence of the injection seems to parallel the resisting powers and decline as the latter run out. Some respond to the vaccine with remarkable production of antibodies; in a few there seemed to be no response. Schreiber says that all the evidence to date sustains the assumption that a goodly production of antibodies protects against diphtheria infection. Persons who have much to do with diphtheria, physicians and nurses, gradually become insensibly immunized as their blood is found exceptionally rich in antibodies. As the antibodies develop only in response to actual diphtheric infection, the physicians and nurses must have acquired repeated mild infections to have developed antibodies to such an extent. The Behring system of two or three vaccinations aims to accomplish the same thing.

161. **Treatment of Cystinuria.**—Klemperer and Jacoby report the case of a woman of 27 who for years had suffered from paroxysmal pain in the kidneys. She had consulted numerous physicians and specialists on account of these kidney colics. After thorough examination, including the cystoscopic and roentgenoscopic, they had unanimously diagnosed the trouble as nervous pains until finally one discovered crystals in the sediment and recognized the shiny hexagonal flakes as cystin crystals. They dissolved readily in ammonia and could be precipitated out again by acetic acid. On a test diet it was found that the proportion of cystin in the urine became much reduced when the patient refrained from albumin in her food. The amount also dropped remarkably when she took an alkali. Not only the amount of sediment but the proportion of cystin present declined to traces and then to zero under the influence of from 6 to 10 gm. daily of sodium bicarbonate. This is the first time on record, Klemperer says, that by simply modifying the reaction, the intermediary metabolism has been

influenced at will. This experience shows that when the ordinary reaction of the blood does not permit the complete splitting of the cystin, this can be accomplished by merely rendering it a little more alkaline.

162. Radium Therapy of Cancer of the Esophagus.—Lewin summarizes twenty-five cases from his experience at Berlin and describes the technic which he has found most effectual. The results of the radium therapy with cancer from the results achieved with uterine cancer, but the great improvement was realized in a number of cases and one patient, a woman of 54, seems to have been actually cured by fifteen exposures from one to four hours long to 100 milligrams of the radium in the course of four weeks. Roentgenograms before and after treatment showed finally the lumen of the esophagus of more normal width throughout; at first the cancer had encroached on it leaving less than a fifth permeable.

164. Prevention of Flat-Foot.—Gerson thinks that persons whose occupation compels them to stand much should take special pains to ward off flat-foot, and a simple and effectual means for this is to throw the weight of the foot more on the outer side of the foot. This relieves the tendons, ligaments and bones of the inner side so that they retain their shape and elasticity although the person may have to be on his feet all the time. This excessive use of the feet makes them perspire besides, and shoes or sandals should be worn which permit circulation of air. To keep the feet in slight supination he has an insole worn which is three quarters of a centimeter high on the inner side, from the toes to the heel, and it slopes gradually toward the outside, where it is only an eighth of a centimeter. This slope answers the purpose, sparing the complicated mechanism of the arch of the foot and throwing the weight on the stout outer edge. The insoles cause no annoyance, but he advises to wear them only while at work and take them off at other times. They have been found a great help by clerks, bakers, waiters; porters, women in laundries, and hospital and other nurses, in short, for all obliged to be much on their feet. An actual support for the arch does harm rather than good when the foot is normal. It is merely a question of preventing overstraining of the arch.

Wiener klinische Wochenschrift, Vienna

February 19, XXVII, No. 8, pp. 169-196

- 165 *Congenital Asthenia in Children. (Das schwache Kind.) B. Sperrk.
166 Frequency of Apical Tuberculosis in Children. E. Sluka.
167 *Technic for Artificial Respiration. (Neue Methode der künstlichen Atmung.) G. E. Weinländer.

165. Congenital Asthenia in Children.—Sperrk always tests for the facialis phenomenon in examining a child, regarding it as a reliable sign of neurasthenia. Children who present it usually have other signs of congenital universal asthenia and the manifestations of this are often incorrectly interpreted by physicians. The pallor, weakness and scant appetite are ascribed to tuberculosis, stomach or heart disease, etc., when the trouble is in fact a general constitutional inferiority, both physical and psychic. The nervous threshold is abnormally low, and the functional weakness of the digestive system prevents proper nutrition. The internal secretions are involved also in the congenital asthenia, but its chief features are the asthenia, the low tonicity of the muscles, the false anemia, the low nervous threshold and abnormal readiness to fatigue, and the lack of or very slow response to therapeutic measures. The practical importance of recognizing this tendency lies in the necessity it imposes for general measures. It is useless to treat scoliosis in such a child until the general condition has been improved as a basis to work on. Orthopedists, Sperrk remarks, are too apt to look at the spine alone and overlook the rest of the child. Pediatricists do not pay enough attention to developing deformity, he adds; probably because anatomy is studied on the cadaver instead of the living body. School life may affect children with this congenital asthenia as a constant psychic trauma, and the vacations are too short for them to recover from the effects of this. Such children should be guarded against overexertion. The proper application of massage, repose, relaxation, func-

tional gymnastics, air and sunlight and a simple diet are all the means at our disposal, and success depends on utilizing them wisely.

167. Simple Method of Artificial Respiration.—Weinländer worked out this method of artificial respiration as a last resort in striving to save a child of 13 who had stopped breathing and lay in stupor from the effects of apoplexy after a severe attack of uremia in acute nephritis. (The case was mentioned in these columns, January 17, p. 248, abstract 163.) Artificial respiration aroused the child and the uremia subsided, but every time the artificial respiration was suspended, the intense cyanosis returned and there was not a trace of spontaneous respiration, but the pulse rose to 110 under the artificial respiration and the child's normal color returned each time. By this means it proved possible to keep the child alive for almost seventeen hours as the artificial respiration was kept up until the heart gave out completely. The method of artificial respiration he worked out is readily seen from the illustration, which shows the extreme expansion of the chest, beyond anything attainable with any other technic, he says, while the chest spontaneously springs back by its own elasticity so that there is no need to compress the chest to promote expiration. Another



Weinländer's method for artificial respiration.

advantage of the method is that the tongue falls forward out of the way and saliva and mucus drain down on the palate where they can be readily wiped out. The hyperemia of the brain may be a stimulant to the respiration center. No assistance is required, and the person applying the procedure does not become fatigued as his task is merely to grasp the arms and push them toward the external occipital protuberance, pushing downward and inward. This exerts extremely strong traction on the pectoral muscles which in turn drag on the ribs, lifting them up and thus inducing a powerful inspiration. After the arms have thus been pressed against the back of the head as it hangs over the edge of the table, the grasp of the arms is released and the arms swing of themselves down into the position shown in the illustration, at a right angle to the plane of the face and about half a yard from the median line. The muscles have to be entirely relaxed to do this, and consequently this technic is applicable only when the patient is unconscious.

Zentralblatt für Chirurgie, Leipsic

March 7, XLI, No. 10, pp. 417-464

- 168 Prevention of Pain after Local Anesthesia. O. Klauber.
169 Traumatic Hernia. G. Schwalbach.
170 Exclusion of the Pylorus. (Zur Frage der Pylorusausschaltung.) E. Polya.

Zentralblatt für Gynäkologie, Leipsic

March 7, XXXVIII, No. 10, pp. 361-392

- 171 *Extraperitoneal Cesarean Section; Indications and Technic. O. Küstner.

171. Extraperitoneal Cesarean Section.—Küstner has performed this operation on 103 women and all recovered after being safely delivered except two; one of whom died from the effect of the anesthetic and the other from tetanus; none from puerperal infection. The method is applied in all cases requiring artificial delivery by cesarean section, regardless of whether there is suspicion of infection or not. Fifty-three of the women were already infected or infection was regarded as highly probable, but only about thirty-three of the women had a febrile recovery. In these cases the membranes had ruptured from two to five days before the operation. Never in any instance was there a suspicion of inflammation of the peritoneum which had been pushed up out of the way before

the uterus was opened, and never was there any sign of a tendency to meteorism. Since this technic has been introduced into the university maternity in his charge (Breslau), only one pubiotomy has been done and only a few supravaginal amputations on account of cancer, while no living child has had to be sacrificed.

He works through an incision 3 or 5 cm. to the left of the linea alba, and parallel to it, working up from the pelvis up but stopping considerably short of the umbilicus, cutting down to the fascia but working beyond this with blunt dissection, rubber-gloved fingers being used to prevent from injuring the peritoneum. Others make the incision in the flank or on the median line, but Küstner has been using this technic since 1908 and states that it renders the bladder more readily accessible while it permits the incision in the cervix more conveniently than through the other incisions. When the peritoneum is exposed the entire length of the incision, it is separated from the bladder by blunt dissection toward the median line and it is then worked up from the deeper regions until the uterus muscle is exposed bare of peritoneum. It is easy to mistake the bladder for the peritoneal fold and the peritoneum must be worked loose until the bare cervix lies unmistakably exposed. When this is once accomplished, it is a simple matter to push the bladder farther over toward the median line and the fold of the peritoneum upward without such extreme care as hitherto required.

As soon as enough of the cervix muscle is exposed to permit an adequate incision it is cut and the child's face is brought up into the opening. A subcutaneous injection of ergot is given before extracting the child, and then he waits. After a few good contractions of the uterus he applies the Credé if the placenta is not spontaneously expelled. The uterus is then sutured in two tiers and the abdominal wall, leaving a gauze wick in the lower corner in every case. As we never can tell beforehand whether the germs already in the cervix are virulent or not, it is safer to manage the case as if they were known to be highly virulent. None of the children died in consequence of the operation. It is always done with the bladder emptied after it has first been filled to locate it. This organ was injured in seven cases, but healed without disturbance in all; the injury occurred from mistaking the bladder for the vesico-uterine pouch. Küstner adds that this method of cesarean section is now applied without discrimination when there is reason to suppose that the child cannot be delivered by the natural route; the question is not raised as to whether the case is an infectious one or not.

Gazzetta degli Ospedali e delle Cliniche, Milan

XXXV, Nos. 25-29, pp. 257-312

- 72 Stenosis of Uterine Cervix and Nervous Phenomena. (Sul trattamento della stenosi del collo uterino col metodo Pozzi e sui rapporti che intercedono fra le malattie utero-ovariche e le nevrosi.) R. Casali.
- 73 The Cerebrospinal Fluid in Tuberculous Meningitis. G. D. Lago.
- 74 Polymorphous Erythema. I. Civalleri.
- 75 Phosphocarnic Acid in Blood of Animals after Removal of Thyroid and Parathyroids. A. Nizzoli.

Policlinico, Rome

March 1, XXI, No. 9, pp. 297-332

- 76 *Determination of Indican in the Urine. A. Rossi.
- March 8, No. 10, pp. 333-372
- 77 *Anaphylaxis from Drugs. T. Silvestri.

176. Test for Indican in the Urine.—Rossi says that the greenish tint assumed by the urine when it is heated after having been treated with Obermeyer's reagent is a good index of the proportion of indican in it, even before the chloroform has been added. The addition of 2 c.c. of a 10 per cent. alcoholic solution of thymol to the chloroform hastens the response to the test, so that the whole is complete in a few seconds.

177. Anaphylaxis from Drugs.—Silvestri states that he has encountered a number of cases in which the disturbances after taking a certain drug can be explained only on the assumption of anaphylaxis. His list includes a case of threat-

ening symptoms after taking atropin (woman of 30); after taking iodine, the idiosyncrasy in this case being inherited by the man's three children; after local contact with iodoform or phenol even in the minutest amounts; after pyramidon and after morphin or after both; after strychnin in one case, and after local application of mercury in one case. The symptoms merely indicate that the drug has acted like a poison in these cases. The peculiarity consists in the rapidity and intensity of the symptoms of poisoning, altogether out of proportion to the dose of the drug. He thinks that true anaphylaxis and an idiosyncrasy to a drug are of the same nature. In each the substance finds already present in the body some substance with which it unites to form a virulent and promptly acting toxin. Both should be warded off and treated on the same principles.

Riforma Medica, Naples

February 28, XXX, No. 9, pp. 225-252

- 178 Radium Therapy. G. Rummo.
- 179 *Glycosuria of Renal Origin. (Contributo sperimentale sul significato delle glucosurie dette renali.) A. Ferrannini.
- 180 Hydroiodic Acid for Sterilization of the Skin. R. Lettieri.

179. The So-Called Renal Glycosuria.—Ferrannini has been studying the biologic mechanism of the disturbance in the kidney in this condition, especially from the influence of phlorizin. The glycosuria evidently is the result of qualitative abnormal conditions in the tubular epithelium but the general condition of the organism as a whole is a more potent factor than has hitherto been appreciated. Consequently too much credence must not be placed on the phlorizin test of kidney functioning alone.

Tumori, Rome

February, III, No. 4, pp. 441-568

- 181 Antigens for Melostagmin Test for Cancer. G. Izar, C. Patanè and G. di Quattro.
- 182 Tumor in Hypophysis Region. B. Lunghetti.
- 183 *Conception and Histogenesis of Endotheliomas. G. Bilancioni and L. T. Cipollone.

183. Endothelioma.—A number of colored plates accompany this report of research on the histogenesis of endothelioma as studied in fourteen cases. It closes with ten pages of alphabetically arranged titles of articles on endotheliomas.

Brazil-Medico, Rio de Janeiro

February, XXVIII, No. 7, pp. 61-70

- 184 *Idiopathic Paroxysmal Hemoglobinuria. U. Paranhos.

184. Paroxysmal Hemoglobinuria.—Paranhos relates the case of a boy of 18 whose mother had died of eclampsia and whose one sister has liver disease. Beyond the ordinary children's diseases he had no pathologic past except for slight albuminuria for several years; no malaria. In 1903 he developed hemoglobinuria in consequence of a chilling and again up to six times during following winters. The phenomena observed confirm the assumption that this curious affection is the result of disturbances in the ductless glands, involving the spleen, liver and kidney. The urine during the attacks did not seem to contain blood-cells but merely dissolved hemoglobin; no signs of parasites were found at any time.

Semana Medica, Buenos Aires

January 29, XXI, No. 5, pp. 241-296

- 185 *Serodiagnosis of Pregnancy. (La suero-reaccion del embarazo Abderhalden.) J. A. Gabastou.
- 186 Physicians' Remuneration. (Honorarios medicos.) P. B. Aquino.

February 5, No. 6, pp. 297-356

- 187 Influence of Atropin on Milk-Increasing Action of Hypophysis Extract. B. A. Houssay and C. Maag.
- 188 Prophylaxis of Industrial Diseases. (Reglamentaciones industriales.) J. M. Obarrio.
- 189 Demonstration of Identity of Two Finger Prints. H. Welsch and A. Lecha-Marzo.
- 190 Tuberculosis in Bolivia. N. M. Villazon.

February 12, No. 7, pp. 357-412

- 191 Vaccine Against Typhoid. (Nueva vacuna contra la fiebre tifoidea.) S. Dessy, F. L. Grapiolo and V. Fossati.
- 192 Echinococcus Abdominal Disease. (Hidatidosis y bacilosis peritoneal.) A. Viton.
- 193 Work in Treatment of Mental Disease. F. Gorriti.
- 194 Artificial Creation of Tissues. (Notas de plasmogenia: Preparación de radiolarios; Calceita silicea preparada con sílice coloidal a 40 por ciento.) A. L. Herrera.

185. **Serodiagnosis of Pregnancy.**—Gabastou applied Abderhalden's dialysis technic in 133 cases and obtained a positive response constantly in the 101 pregnant women, but the response was likewise positive in a few non-pregnant persons. He remarks resignedly that the technic was probably to blame in these cases and he urges zealous work to simplify the technic so that it will be less complicated and thus better adapted for general practice.

St. Petersburger medizinische Zeitschrift

February 14, XXXIX, No. 3, pp. 29-44

195 *Tuberculous Lymph-Nodes in the Chest. (Endothorakale Drüsentuberkulose und Lymphozytose.) O. Moritz and P. Mende.

February 28, No. 4, pp. 45-60

196 Intravenous Injection of Phenol in Treatment of Tetanus. M. Joffe.

197 Progress in Military Surgery. (Kriegschirurgie.) O. Holbeck.

198 Fatigue in Light of Research on Immunity. (Die Ermüdung im Lichte der Immunitätsforschung.) W. v. Holst.

195. **Lymphocytosis as Index of Tuberculous Thoracic Lymph-Nodes.**—Moritz confirms Schultz' statement that lymphocytosis seems to be a constant accompaniment of tuberculous processes in the lymph-nodes in the chest and hilus and that it can be increased by injection of a minute dose of tuberculin, but he does not regard this fact as pathognomonic. He has found that the lymphocyte count at different times during a single day may vary up and down to a total range of 12 per cent. even without injection of tuberculin. In his six cases of hilus tuberculosis there was a positive lymphocytosis only in three. He has also had healthy individuals under observation for periods up to ten years who presented more or less pronounced and constant lymphocytosis. Schulz' communication on the subject was summarized in THE JOURNAL, Nov. 25, 1911, lvii, p. 1806. In thirty-two cases of lymph-node or hilus tuberculosis the lymphocytosis increased by 6 up to 24 per cent. after a minute injection of tuberculin. There was only one negative response in the clinically certain cases, and the negative responses when the patients were reexamined several months later, testified to the importance of the lymphocytosis as a sign of an active process.

Russky Vrach, St. Petersburg

January 25, XIII, No. 4, pp. 109-144

199 Modified Technic for Abderhalden's Serodiagnosis. B. Kabanoff.

200 The Influence of Animal Food on the Aorta and Internal Organs of Rabbits. V. K. Varischcheff.

201 Plague. A. D. Pavlovsky. Commenced in No. 2.

202 *Repeated Withdrawal of Small Amounts of Blood in Treatment of Grave Anemic States. A. K. Pedenko. Commenced in No. 3.

203 Etiology and Treatment of Keratoconus. I. I. Tamamsheff.

202. **Repeated Withdrawal of Small Amounts of Blood in Treatment of Grave Anemic States.**—Pedenko reports good results from treatment of pernicious anemia with repeated blood-letting. This method is recommended by him as the last resort, and must be considered together with the rest of the numerous methods as merely symptomatic treatment because the etiology of pernicious anemia is not known. The blood was taken from a vein at the elbow, 50 or 120 c.c.; in some cases the venesection was repeated six times at intervals of ten to seventeen days. He used this method on three patients with the idiopathic form of pernicious anemia; two were temporarily and one permanently improved. The beneficial action of the repeated blood-letting can be explained by its stimulating effect on the blood-making organs, especially the bone-marrow, which then produces an increased amount of blood elements. This opinion is borne out by the fact that in two of Pedenko's patients the spleen became enlarged after repeated blood-letting. The venesections may be of benefit also through removal of the toxins present in great quantities in the blood in pernicious anemia. Pedenko's patients showed marked toxemia, and even one blood-letting led to immediate improvement and subsidence of the manifestations of the toxemia.

Hospitalstidende, Copenhagen

March 4, LVII, No. 9, pp. 257-288

204 Progressive Wasting Away of Fat Tissue. (Lipodystrofia progressiva.) V. Christiansen. Commenced in No. 8.

Hygiea, Stockholm

March, LXXVI, No. 4, pp. 193-255

205 *Dependence of Dentition and Development of the Hair on the Glands with an Internal Secretion. (Dentition, hårtutveckling och inre sekretion.) A. Josefson.

205. **Dentition and Growth of Hair under Control of Internal Secretions.**—Josefson presents evidence, clinical and roentgenoscopic, which reaffirms anew the correctness of Woods Hutchinson's recent paraphrase, "We are such stuff as ductless glands are made of, and our little life is rounded by a sheep." Josefson advocates systematic organ therapy during pregnancy in families which manifest a familial tendency to abnormal dentition and growth of hair. Tardy dentition should be regarded as a warning that the development of the body is not progressing as it should, and that the work of the glands with an internal secretion will have to be artificially supplemented to tide the patient along until normal conditions become installed. He does not attribute the trouble to any one gland but to some disturbance in the functional balance of the whole ductless-gland system. Dentition was hastened and regulated by thyroid treatment in a boy of 14 backward in intelligence and physical growth. Numerous anomalies and delayed development were found in the teeth of a woman of 27 with myxedema since puberty. Three children in one family have numerous anomalies in dentition and growth of hair and similar anomalies had been recorded in two preceding generations on the mother's side. Thyroid treatment of one of the children apparently had an important influence in stimulating and regulating the further growth of teeth, genitals and hair.

Norsk Magazin for Lægevidenskaben, Christiania

March, LXXV, No. 3, pp. 241-368

206 Color of Hair and Eyes in Norway. (Øinenes og haarets farve i Norge.) A. Daae.

207 Surgery and Surgeons, Past and Present. P. Bull.

208 *The Blood Picture in the Scrofulous-Tuberculous. J. C. Trumpy.

208. **The Blood Picture in the Scrofulous-Tuberculous.**—Trumpy devotes twenty-five pages to tabulation of the details of the blood picture in 36 children examined from two to ten times; 23 were over 12, 30 over 8 and 32 over 5. He found as a rule that children who have recovered from a tuberculous affection have a morning leukocyte curve under 7,000 with relative lymphocytosis. In those with a recent but still closed tuberculous process with or without a fistula, but without fever, the leukocytes range from 7,000 to 10,000; if there is fever the eosinophils drop off. When there is a fistula accompanied by fever, there is pronounced leukocytosis while the number of eosinophils is very small or there may be none.

Ugeskrift for Læger, Copenhagen

February, 26, LXXVI, No. 9, pp. 377-404

209 *Gonorrhea in the Female. (Gonorrhoiske Lidelser i de kvindelige Genitalia.) E. Pontoppidan.

210 Typhoid Epidemic Traced to Milk. L. Villadsen.

209. **Gonorrhea in the Female Genital Organs.**—Pontoppidan compares the length of treatment and the outcome in 303 cases of gonorrheal endometritis and fifty-five of mischief in tubes or ovaries. Salpingitis developed in 17.2 per cent. of 157 women with endometritis given intra-uterine treatment, and in 19.18 per cent. of 156 cases in which no local measures were applied to the uterus. The length of treatment was about the same in each group. The intra-uterine measures evidently were not instrumental in spreading the disease to the adnexa; blood-borne involvement seems the general rule. Considerably better results were obtained with hydrochloric acid than with any other local measures. He used a 0.5 per cent. solution of absolute hydrochloric alcohol (1/2 pCt. Saltsyreopløsning) and found it simple and convenient of application so that it is now the main reliance in local treatment of gonorrhea in women, even applying it in the urethra also.

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CONSTRICTIONS OF THE DUODENUM

DUE TO ABNORMAL FOLDS OF THE ANTERIOR
MESOGASTRIUM

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I desire to call attention to a condition which, so far as I have been able to learn, has hitherto been undescribed. The condition to which I refer is a constriction of the duodenum at the second portion giving rise to quite distinct, if not characteristic, symptoms, and due to the remains of a definite embryologic structure. Strictures of the duodenum due to cicatricial contraction, inflammatory adhesions, etc., of course, are well-recognized conditions, but the condition to which reference is here made is of an entirely different origin. In the first case of constriction of the duodenum of this kind which came under my observation, the condition was thought to be of inflammatory origin; but more careful study of subsequent cases has shown that the condition is due to the abnormal remains of a perfectly normal embryologic structure. I have operated in six of these cases now and their histories will be related briefly.

CASE 1.—Miss N. C., aged 25, had diphtheria when 9 years old, but no other serious illness. For the past few years she had suffered from irregular and at first somewhat indefinite disturbances of the stomach. About two years before she came to me the appendix was removed under the impression that the trouble was due to a chronic appendicitis. No relief from the symptoms followed the operation. A short time thereafter she felt as if she had a small lump in the right side, just below the costal arch. She complained at times of shooting pains across the epigastric region into the right side. She had a sense of fulness of the stomach with some distress at variable intervals after eating, and occasionally a pain extending under the costal arch. Some of the attacks of pain were quite severe. The distress in the stomach after eating seemed to be quite constant, although it varied in degree; but the attacks of severe pain in the right side came on at irregular intervals. There was no history of jaundice and no vomiting during any of the attacks. A diagnosis of chronic cholecystitis was made, and as the patient's condition was interfering considerably with her work, an operation was advised.

At the operation the gall-bladder was found to be normal and free from gall-stones and adhesions. There were no evidences of present or past ulcers of the stomach or duodenum, but a distinct band of peritoneum was found, extending from the left border of the second portion of the duodenum across the duodenum on to the proximal end of the gall-bladder. The band produced a decided constriction of the duodenum at this point, and it was perfectly easy to see that any movement or distention of the duodenum would produce a drawing on the gall-bladder. While the band was not free, but was in

the shape of a tense fold of peritoneum, it was thought at the time to be of inflammatory origin, and it was divided so that it could not constrict the bowel or draw on the gall-bladder. The patient made a good recovery and obtained permanent relief from her trouble.

CASE 2.—Mrs. O. B., aged 32, married, had had measles, chicken-pox and whooping-cough, and was subject to frequent attacks of tonsillitis. Menstruation was always irregular, but never painful. The patient had never been pregnant. For the past ten years she has had distress after eating with bloating and belching, and was subject to severe headaches and so-called "bilious spells." About five years ago she says she passed about 5 feet of tapeworm, after which she felt better for a time but was not free from distress after eating. About two years ago she had a sudden attack of very severe pain in the right hypochondriac region, accompanied by vomiting and followed by jaundice. Since then her attacks of distress have been more frequent. She bloats and belches a great deal, and the upper abdomen becomes distended and sore. For the past month her distress has been almost constant. She thinks that she is usually slightly jaundiced, but says that the jaundice clears up temporarily after catharsis. The pain was thought not to be severe enough for the usual gall-stone attacks, and the real significance of the distress for so many years after eating was not properly appreciated; hence the diagnosis of chronic cholecystitis, probably with adhesions, was made. The bismuth meal and the Roentgen-ray unfortunately were not used in this case.

At the operation the gall-bladder was found to be normal and free from gall-stones. A distinct fold of peritoneum was found extending from the gall-bladder across the duodenum, where it became lost in the upper layer of the transverse mesocolon. This fold constricted the duodenum at the second portion. When the gases of the stomach were forced into the duodenum, the first portion would become greatly distended, showing very clearly the constricting effect of the band or fold. The fold was divided so as to free the duodenum from constriction. The appendix was examined and was found to be free from any evidences of disease. The patient made a good recovery and has remained well.

CASE 3.—Mrs. L. R., aged 56, married, with five children, had scarlet fever at the age of 18. Ten years ago she had some operation on the uterus, probably trachelorrhaphy. For the past thirty years she has had stomach-trouble, consisting of a pain or a distress in the epigastric region after eating. The trouble has not been severe all the time, but she says that she has never been entirely free from some distress after eating, during all these years. During the past few years her trouble has increased and at times she has had attacks of quite severe pain in the right hypochondriac region, which has extended into the back, and at these times the upper abdomen has been quite tender and sore. She would have a feeling of nausea at times, but would not vomit. She has never been jaundiced. Her appetite is good but the bowels are constipated.

Examination shows a soft lax abdomen, with distinct tenderness in the region of the gall-bladder. A series of roentgenograms taken after the usual bismuth meal showed the stomach a little lower than normal in the upright position, but normal in size and outline. Peristaltic waves were normal

and there was no evidence of obstruction at the pylorus. The stomach emptied itself within the normal time-limit. The caput, or bulb, however, was quite large in circumference and much elongated, and the right end of it seemed to be fixed or drawn upward and to the right, and the right end did not move with the left end and stomach on changing from the recumbent to the upright position (Figs. 1 and 2). A diagnosis of gall-stones was made, and on account of the long, large caput with the fixed right end, a constriction of the duodenum, probably from adhesions to the gall-bladder, was suggested.

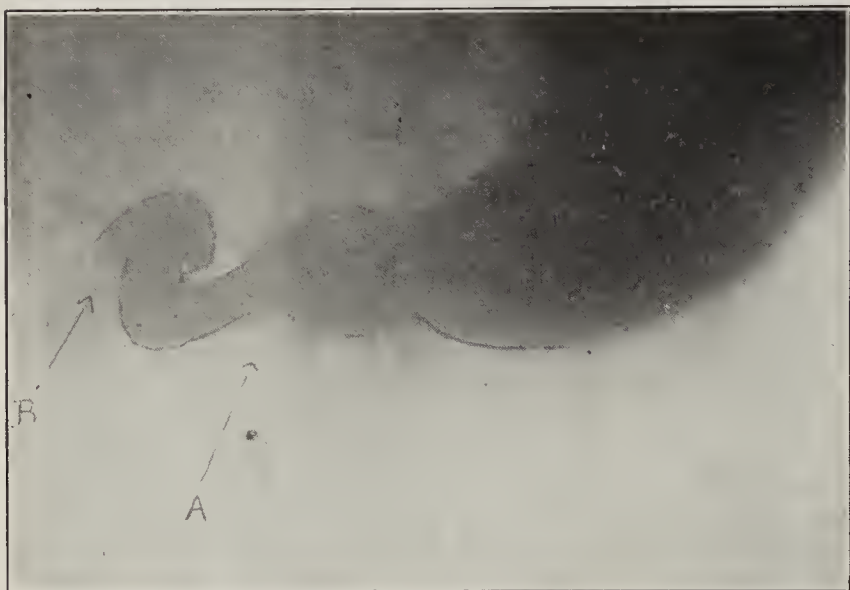


Fig. 1 (Case 1).—Patient recumbent; A, pylorus; B, fixed and constricted portion of duodenum. (In this and the following roentgenograms some of the outlines have been reenforced.)

Operation was performed Dec. 30, 1912. A median incision was made on account of the probable trouble with the duodenum. A well-defined fold or duplicature of the peritoneum was found extending from the junction of the gall-bladder with the cystic duct across the duodenum at its second portion, becoming lost in the upper layer of the transverse mesocolon. This fold was so short that it caused a well-marked constriction of the duodenum. The duodenum could be moved under the fold, showing that the fold was not really in the wall of the bowel or adherent to it. The first portion of the duodenum could be distended by pressing the gases of the stomach into it, and it was considerably enlarged. When the fold was divided, the constriction was immediately relieved. The gall-bladder was practically normal in appearance, and there were no pathologic adhesions present. There were a few gall-stones in the gall-bladder, so a small buttonhole was made through which the gall-bladder was drawn and emptied and drained, and the median incision closed. The recovery was uneventful and three months later the patient reported that she was free from all of her former pain.

CASE 4.—Mr. C. E. A., aged 51, married, with good family history, had measles at 12 and a little later what he called "bilious fever." He smokes occasionally but does not drink. Several years ago he was kicked in the abdomen by a horse. This knocked the breath out of him temporarily, but did not lay him up. His present trouble, which he refers chiefly to his stomach, he has had for many years, but he thinks that it was made worse by the kick. His chief complaint is a dull pain or a distress in the upper part of the abdomen. The distress comes on after eating, not at once, but at irregular intervals. The distress is relieved by taking some light food into the stomach. During the past six months the distress has grown worse, and at times it has increased to actual pain. He has nausea but does not vomit. When he has the pain he is quite tender in the right epigastric region. His appetite is good and his bowels regular. He has not lost much weight, but does not feel so strong as he did.

Examination showed the general physical condition to be good. The blood showed 4,520,000 reds and 9,800 whites, 68 per cent of which were polymorphonuclears, 26 per cent small mononuclears, 4 per cent large mononuclears and 2 per

cent. eosinophils. The urine showed nothing abnormal. Stomach analysis showed good motility. The contents, removed after the usual test-meal, showed digestion well advanced. Total acidity was 75, free hydrochloric acid 41, combined hydrochloric acid 34, no blood. Following the usual bismuth-meal several roentgenograms were made with the patient in the standing as well as in the recumbent position. These plates all showed the stomach rather low when filled and the patient standing. The peristaltic waves were regular and well-marked. No irregularities or filling defects were discoverable. The caput was irregular, longer than usual, and bulged below and to the right (Fig. 3). From the long duration of the symptoms malignancy was improbable, and the findings spoke against the stomach as the seat of the trouble.

A diagnosis of constriction of the duodenum was made, and the patient was operated on, April 13, 1913. A median incision was made under nerve-blocking with novocain. The stomach was found to be normal and there were no gall-stones in the gall-bladder. There were no evidences of past or present ulcers in the stomach or duodenum. A distinct fold of peritoneum was found extending from the under surface of the liver and about the gall-bladder across the second portion of the duodenum, constricting it considerably. In addition, the tip of the gall-bladder was found attached closely to the duodenum and drawn to the left. The peritoneal fold was divided, the gall-bladder freed from the duodenum and the raw surfaces covered with peritoneum. The patient made a good recovery and was relieved from his symptoms.

CASE 5.—Mr. A. O. B., aged 43, married, manufacturer, had pleural pneumonia eleven years ago. With this exception he has enjoyed good health up to the beginning of his present trouble, which he dates back several years. During these several years he has had what he calls "indigestion"; his chief complaint has been of a dull ache or distressed feeling with a sensation of pressure in the epigastric and right hypochondriac region. The distress comes on two or three hours after eating, and it is usually relieved by eating. He has never had severe acute pain, nor does he vomit; but he is occasionally nauseated. He has sour eructations and is constantly troubled with a chronic pharyngitis. While he has remissions when he is not so bad, the general tendency has been for the condition to grow gradually worse. He is thin and spare, and under weight.



Fig. 2 (Case 1).—Same as Figure 1, with patient upright; A, pylorus; B, fixed and constricted portion of duodenum.

Examination shows the general physical condition good. Chest, extremities and nervous system are negative. There is tenderness in the epigastric region extending to the right. The stomach is not dilated, and the motility is good. Forty-five minutes after a test meal only a small amount of liquid could be recovered. Examination of the stomach contents showed a total acidity of 102, free hydrochloric acid 75, and no blood in the stomach contents. No occult blood was found in the stools. Several roentgenograms were made at different times after the usual bismuth meal. These showed a prac-

tically normal stomach with a large elongated caput, which seemed fixed at its right end (Fig. 4). A blood-count showed 4,520,000 reds, 7,200 whites, 68 per cent. polymorphonuclears, 26 per cent. small mononuclears and 6 per cent. large mononuclears. The urine was clear, amber and acid, and there were no albumin or sugar and only a trace of indican. Microscopic examination was negative. A diagnosis of constriction of the duodenum at the second portion with dilatation of the first portion was made.

Operation was performed May 1, 1913, when the abdomen was opened the stomach was found to be normal. There were

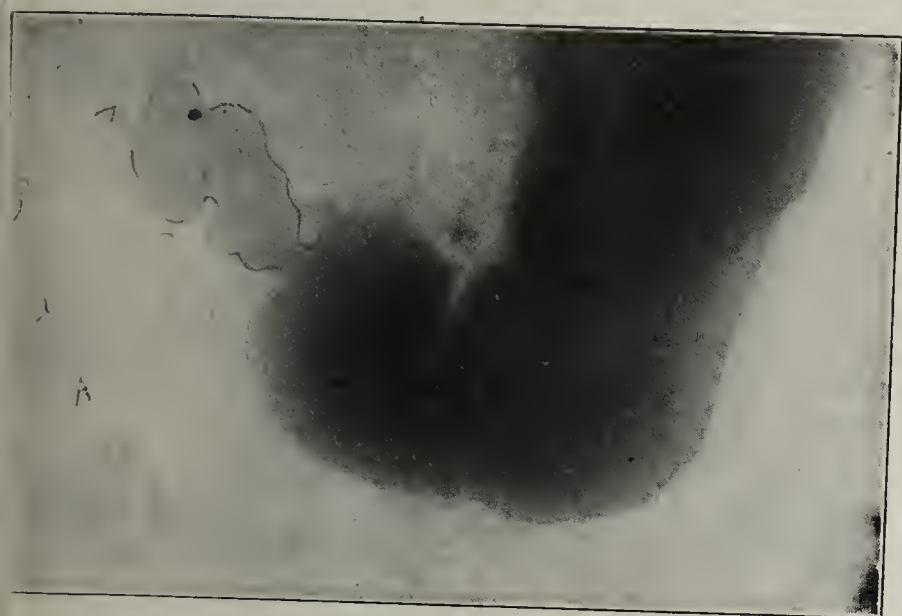


Fig. 3 (Case 4).—A, pylorus; B, constriction; D, peristaltic contraction of duodenum.

no signs of present or past ulcers, in either the stomach or the duodenum. The first portion of the duodenum was enlarged and could be easily ballooned up by pressing the gases of the stomach into it. A distinct, well-marked constriction of the second portion of the duodenum was found, due to a firm peritoneal band or fold, extending from below and to the left obliquely upward and to the right across the duodenum to the cystic duct, to the proximal portion of the gall-bladder and to the under surface of the liver (Fig. 5). The duodenum was so indented on the lower and left side that the opposed bulging surfaces had become adherent for from 2 to 3 cm. The duodenum was quite firmly fixed at this point, high up under the liver, and could not be drawn down. The constricting band was divided, and this freed the whole duodenum considerably. The adherent surfaces were separated and the denuded areas covered with peritoneum. The appendix was examined and found to be normal; hence it was not removed. The gall-bladder was normal and contained no gall-stones. As no other abnormal conditions were found, the abdomen was closed. The patient made a good recovery and was entirely relieved from his symptoms. By the end of two months he had gained 20 pounds in weight, and when last seen, eight months after the operation, he was perfectly well and had had no recurrence of his trouble.

In studying these cases we find not only a great similarity of symptoms, but also a similarity of findings at the operation. In all of them we find a disturbance of digestion, as evidenced by more or less distress in the epigastric region, coming on some time after eating, usually from two to three hours. The distress as a rule does not amount to a pain, although some of the patients did have at times attacks of quite sharp pain in the right epigastric or hypochondriac region. Sometimes the distress was described as a sensation of pressure in the stomach. The information was usually volunteered that the distress was relieved by the taking of food. Nausea was occasionally mentioned, but vomiting seldom occurred. Tenderness in the epigastric region was present in some degree in all of the cases. Chronicity as a distinct characteristic, the trouble often dating

from early life. While the symptoms showed more or less defined intermissions during the early history, they became practically continuous after they were well established. Hyperchlorhydria was always present whenever examined for, and in Case 5 was of a very high degree. No occult blood was found in the stools.

The symptoms just described suggest very strongly duodenal ulcer, yet in none of the cases were any evidences found at the operation of present or past ulcers either in the stomach or in the duodenum. The sharp attacks of pain in the right hypochondriac region, with slight jaundice in two cases, suggested the possibility of gall-stones. Whether or not it will be possible to differentiate constrictions of the duodenum of this variety from ulcers of the duodenum by the clinical history alone remains for a wider experience to determine; but an analysis of these cases seems to show that there is an absence of the marked intermissions with bad relapses which are so common in ulcer cases. This might be expected from the permanency of the condition causing the trouble. The absence of occult blood in the stools would indicate this condition rather than ulcer.

The use of the Roentgen ray with the bismuth meal is a very valuable aid in the diagnosis. The long, large caput, showing a dilated first, and perhaps a part of the second portion of the duodenum, with a fixed point at the right of the constriction, in connection with the symptoms above mentioned, should lead one to at least strongly suspect the condition described. The difficulty in differentiating from gall-bladder trouble is shown by the symptoms which were present in two of the cases. When the constriction is well-established, the distinct continuity of the symptoms would be an important factor in the diagnosis.

In all of these cases the peritoneal fold, or duplication, was well-marked and was undoubtedly the cause of the constriction. As the fold is certainly not of inflammatory origin, we must look to embryology for an

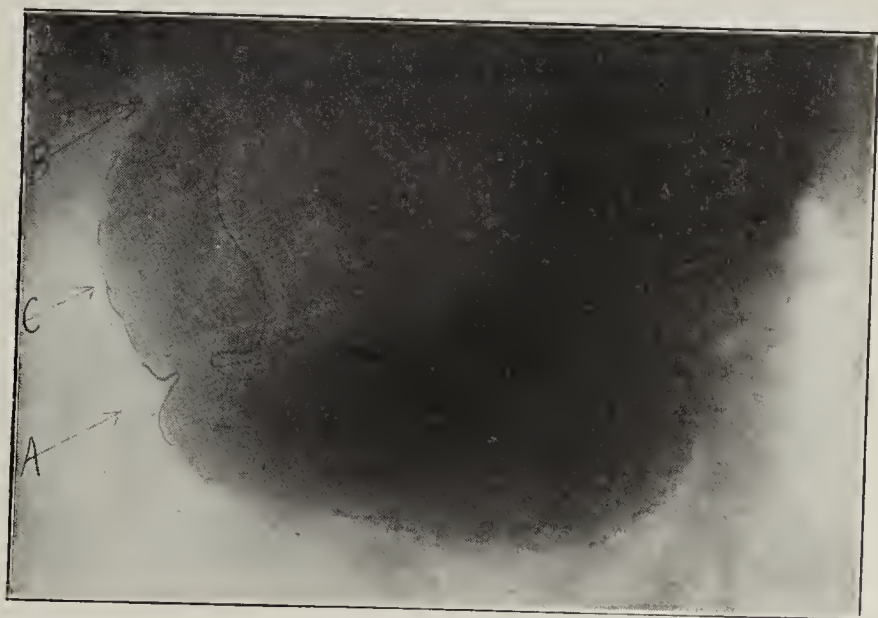


Fig. 4 (Case 5).—A, pylorus; B, point of constriction; C, dilated first portion of duodenum.

explanation of its presence. At an early period of embryonic life, when the intestinal tract is little more than a straight tube, there is an anterior as well as a posterior mesentery; but whereas the posterior mesentery extends throughout the entire length of the intestinal canal, the anterior extends caudad only so far as the proximal third of the duodenum. In that portion of the anterior mesentery which is to lie cephalad of the diaphragm are developed the heart and some of the great

blood-vessels, and is therefore called the mesocardium. That portion of the anterior mesentery which is to lie caudad of the diaphragm is called the anterior gastroduodenal mesentery, or the ventral mesogastrium. In this mesogastrium the liver is developed as an outgrowth from the ventral wall of the duodenum, as shown diagrammatically in Figure 6. The caudal edge of the ventral

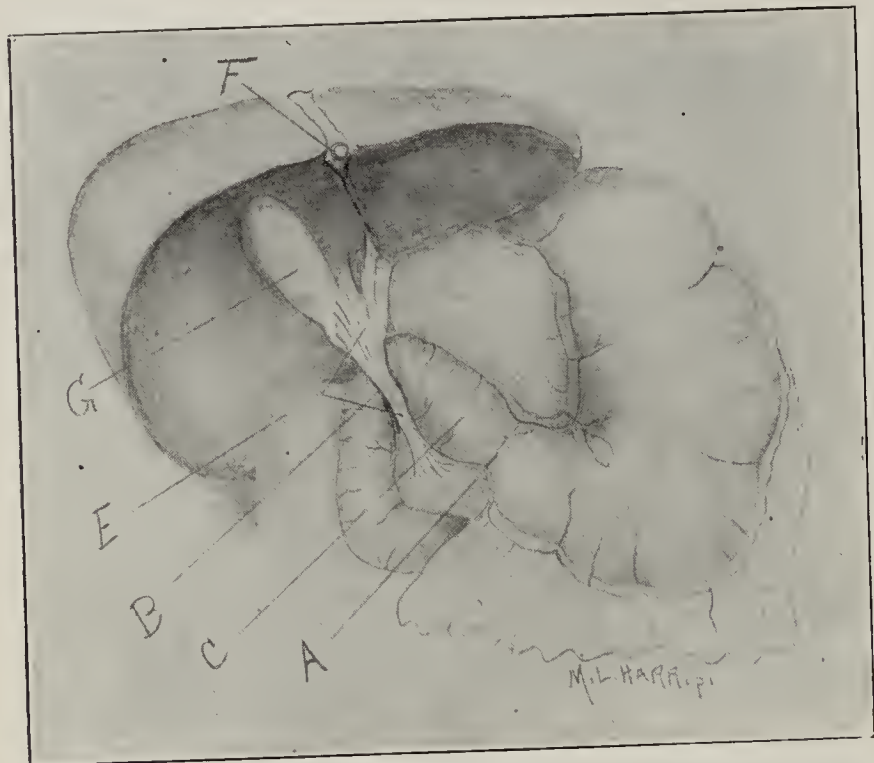


Fig. 5 (Case 5).—A, pylorus; B, point of constriction; C, dilated first portion of duodenum; E, constricting band or fold; F, round ligament; G, gall-bladder.

mesogastrium extends in an arch direction from the cephalic third of the duodenum to the umbilicus. As the liver develops, it spreads out the two layers of the mesogastrium, which eventually form the peritoneal covering of the liver, while the small remaining part which is attached to the ventral wall and to the diaphragm becomes the suspensory ligament of the liver. The umbilical vein passes from the umbilicus to the liver along the caudal edge of the ventral portion of the mesogastrium, and after fetal life these structures become the ligamentum teres.

We are interested more particularly in that portion of the mesogastrium which extends from the duodenum to the liver after this organ has become developed, and now is given the name of the hepatoduodenal ligament (Fig. 7). In this so-called ligament, which really consists of little else than the two layers of peritoneum forming the mesogastrium, there necessarily pass the hepatic, cystic and common gall-ducts, the portal vein and the hepatic artery. As the stomach rotates to the left and the liver becomes crowded to the right, the hepatoduodenal ligament draws the duodenum upward and to the right, forming the hepatic flexure, and the turning of the duodenum to the right brings the right layer of the dorsal mesentery of the duodenum in contact with the posterior parietal peritoneum. Agglutination takes place with eventual disappearance of the two layers of peritoneum in contact, and this process begins at the duodenojejunal junction and extends cephalad as far as the hepatic flexure of the duodenum or the caudal edge of the anterior mesogastrium, where the process ceases. The result of this is that that portion of the duodenum which lies caudad of the hepatoduodenal ligament is practically retroperitoneal, while the portion which corresponds to the anterior mesogastrium remains surrounded by peritoneum.

Normally, after fetal life the caudal edge of the anterior mesogastrium at its junction with the duodenum fades out and becomes imperceptibly lost in the peritoneum covering this portion of the bowel. Occasionally the transverse colon, as it crosses the duodenum in its evolution, becomes attached to the caudal edge of the mesocolon and draws it out in a fold more or less distinct, which persists and forms what is called the hepatocolic ligament. This consists of a peritoneal fold containing at times a small amount of fat between its layers, and extends, when present, usually from the gall-bladder or the cystic duct across to the transverse colon or the transverse mesocolon. Occasionally we find what was originally the left layer, but what now becomes the ventral layer of the caudal edge of the anterior mesogastrium persisting or existing as a distinct fold, extending across the ventral surface of the duodenum at the hepatic flexure and becoming lost in the peritoneum over the pancreas or in the cephalic layer of the transverse mesocolon. It was the presence of such an abnormal fold of the left (ventral) layer of the caudal edge of the anterior mesogastrium that caused the constriction of the duodenum in the cases here described.

Some of these peritoneal folds have been recognized and described, particularly by Ancel and Sencert,¹ who describe them under the name of accessory ligaments of the liver. Of these accessory ligaments, they say:

The most important are a ligamentum cysticoduodeno-epiploicum and an anterior and posterior hepatorenale. The

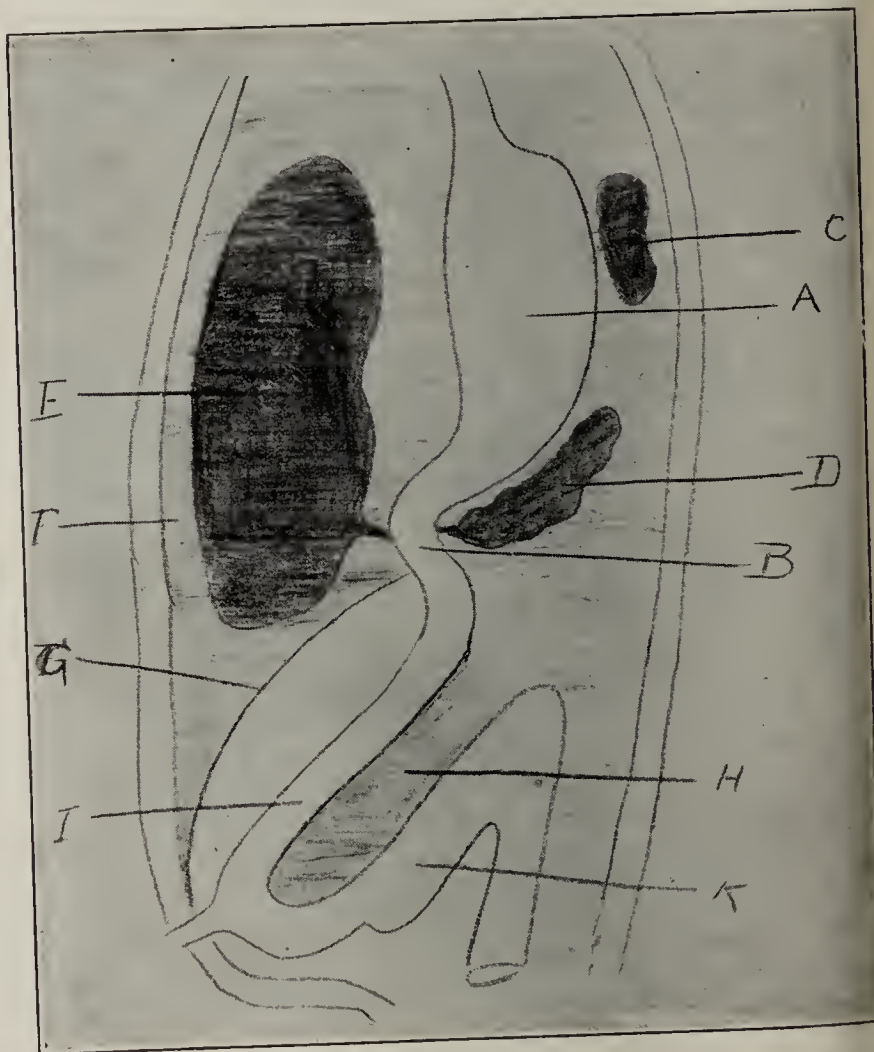


Fig. 6.—Diagrammatic representation of the development of the liver in the embryo; A, stomach; B, duodenum; C, spleen; D, pancreas; E, liver; F, anterior mesogastrium; G, caudal edge of anterior mesogastrium; H, mesentery; I, ilium; K, colon.

first represents an extension to the right of the omentum minus and passes from the under surface of the gall-bladder in two layers, the anterior extending to the omentum majus, while the posterior extends over the posterior surface of the duodenum on to the abdominal wall.

1. Ancel and Sencert: *Neue deutsch. Chir.*, viii, 9.

It is evident that this is the same fold which has been described by others as the ligamentum hepatocolicum. That this ligament or fold, when present, may occasionally give rise to symptoms has been recognized by Konjetzny,² who says:

The practical importance and clinical significance of the ligamentum hepatocolicum lies in the fact that under certain

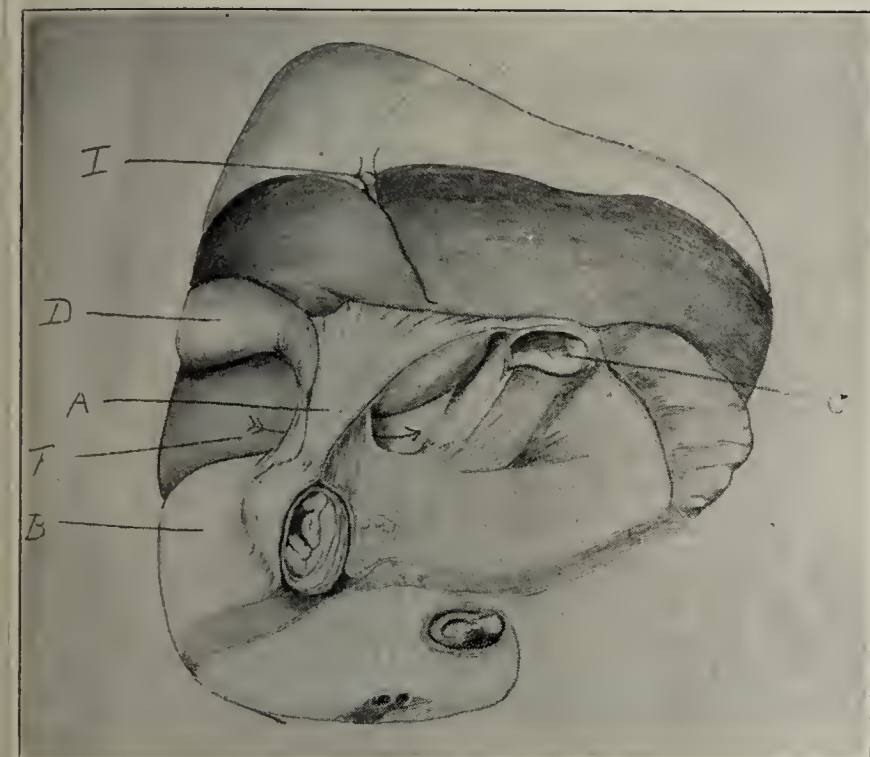


Fig. 7.—Hepatoduodenal ligament (from Huntington's Anatomy of the Peritoneum and Abdomen): A, ligamentum hepatoduodenale; B, duodenum; C, cardia; D, gall-bladder; I, round ligament; F, arrow passing through the foramen of Winslow.

conditions it may give rise to severe annoyance, simulating closely chronic cholecystitis, which may occasion operative interference. I have seen such cases. One was astonished at the operation to find in place of the expected inflamed gall-bladder containing stones, a perfectly normal bladder containing clear bacteria-free bile. The only abnormal condition present was a broad peritoneal duplicature extending from the transverse colon to the gall-bladder, which, however, did not show a trace of inflammatory changes. Division of this fold brought relief from the suffering. Naturally this ligament, as a result of pure mechanical influences (pulling and tension through the drawing effect of the transverse colon) can become secondarily indurated, as is occasionally found elsewhere in the peritoneum or mesentery without a real bacterial infection being assumed. The clinical symptoms caused by this fold are without doubt to be ascribed to the drawing effect of the transverse colon, which is specially marked when it is filled. In that manner the drawing on the gall-bladder is produced, and under certain conditions from time to time a kinking of the neck of the gall-bladder or of the cystic duct, with the damming up of the contents of the bladder. Under such conditions a thickening of the wall of the gall-bladder, without inflammatory changes and the formation of pure cholesterin stones, may occur.

It will be remembered that in two of my cases, symptoms referable to the gall-bladder were present, but at the operation the gall-bladder was found to be normal and free from gall-stones. I have not found described in the literature cases of constriction of the duodenum due to abnormal remains of the caudal edge of the ventral mesogastrium, but since recognizing the condition in these five cases, I am convinced that they are not so rare, and now that they are known a more careful examination of patients suffering from chronic distress in the upper abdomen with hyperchlorhydria, etc., will

lead to their recognition and proper treatment. Division of the folds, thus relieving the constriction of the duodenum, brought complete relief in all of my cases after many years of suffering.

Since the foregoing was written, operation has been performed in a sixth case showing a remarkable constriction of the duodenum.

CASE 6.—P. G., aged 55, at 20 years of age had what the doctors called chronic diarrhea, which is said to have developed into chills and fever. The condition lasted for a year. When about 26 years old he began to have trouble with his stomach. He would have eructations of gas, often foul-smelling, with tympanites and constipation, but no nausea or vomiting. For twenty years he had a variable amount of stomach trouble of this character, when in 1908 he had the first severe attack characterized by pain in the epigastric region. The attack laid him up for five days and he was unable to work for two weeks. The condition was diagnosed acute gastritis. He had a similar severe attack in 1912 and two in 1913. All of the attacks were similar in character. The pain, which was of sudden onset, was located in the right epigastric region and would last two or three days. It was frequently so severe as to require morphin for relief. There was no vomiting. During this time he consulted several doctors and a diagnosis of gall-stones was made by all of them. A roentgenogram was taken which is said not to have shown any gall-stones. The blood, urine and stools had been examined, with negative results. He is said to have had a coated tongue and a foul breath at all times.

He was seen by me in consultation with Dr. George J. Aste, and operated on Jan. 7, 1914. It is to be regretted that we were unable to obtain roentgenograms after the bismuth meal in this case; but a duodenal constriction was suspected and a median incision was made in the epigastric region. A very well-defined, broad peritoneal fold was found, extending from the proximal end of the gall-bladder and the under-surface of the liver across the cystic duct and the duodenum, becoming lost in the root of the cephalic layer of the transverse mesocolon. The fold was adherent to the duodenum, and beneath the broad fold the duodenum showed two distinct kinks, as

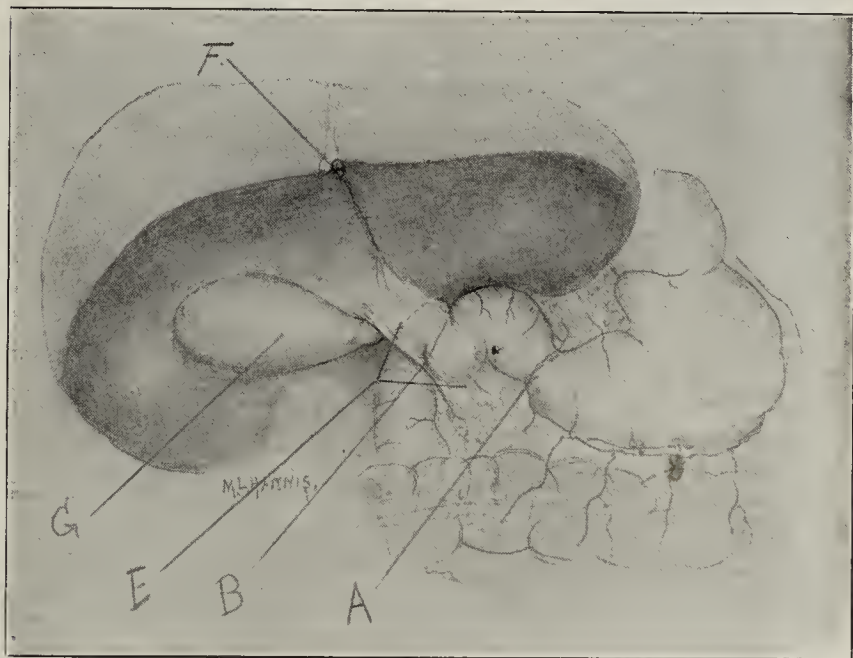


Fig. 8 (Case 6).—A, pylorus; B, constrictions (two) of the duodenum; E, constricting band or fold; F, round ligament; G, gall-bladder.

shown in Figure 8. The opposed surfaces of the duodenum at the kinks were adherent. The fold was divided and the duodenum freed. In freeing the duodenum an area of denuded surface remained. This denuded area was covered by a detached peritoneal graft taken from the omentum. The graft was stitched in place with fine catgut sutures. The patient recovered from the operation, but of course it is too early to say anything about the end-result.

25 East Washington Street.

2. Konjetzny: Neue deutsch. Chir., viii, 8.

THE TREATMENT OF ACUTE OSTEOMYELITIS OF THE LONG BONES BY MEANS OF THE DENTAL ENGINE AND A LARGE BURR

PRELIMINARY REPORT

FREDERICK G. DYAS, M.D.
CHICAGO

The management of acute and chronic osteomyelitis of the long bones is anything but a source of pride to the science of surgery. The crude weapons of attack in the shape of the mallet and chisel really belong to the stone age of surgery. In the hands of the most expert they cause excessive trauma, frequently damage important structures and rarely eradicate all the dis-



Regeneration of bone in a case of acute osteomyelitis treated by means of the dental engine and a large burr.

eased tissue. The highly specialized structures of bone, namely, the haversian systems, compact and cancellous tissue and the peculiar arrangement of the blood-supply of the long bones, as demonstrated by Lexer, make the attainment of sterilization in an old infected bone cavity so hopeless a task that it is frequently surrendered as futile.

The advancement in the treatment of chronic infections in other tissues caused by the so-called pus-producing micro-organisms, by both local and systemic methods, should make us feel that sterilization of an osseous cavity is as much a possibility for the surgeon as is the attainment of asepsis in a carious tooth for the dentist. It must be acknowledged by all who have had experience in the treatment of fractures of the jaw that the exact methods and beautiful technic employed by the average dentist in the treatment of this condition frequently make the efforts of an otherwise skilful sur-

geon appear crude and bungling. The attainment of absolute asepsis in badly decayed and infected teeth is a matter of every-day occurrence to the dentist. Ought not then the sterilization of the medullary cavities of the long bones to be within the range of possibility, if the right technic were used?

With this idea in mind, I have treated a series of cases of chronic osteomyelitis of the long bones at Cook County Hospital by the following method: Preparation of skin by shaving and painting with a solution composed of glycerin, one part, iodine, two parts; long skin incision over shaft of bone; separation of soft tissues and periosteum overlying infected cavity; opening medulla by trephine, drill or chisel; enlargement of cavity. This may be done, either by chisel and mallet, or by the large burr attached to a dental engine driven by the regular electric current. With a large burr a considerable portion of the shaft of a long bone can be removed in a very short time. A stream of hot antiseptic solution should be played on the burr continuously, while it is in use, to clear the field of debris and to facilitate the action of the burr. The rapidly revolving burr is applied to the medullary surface of the bone and pressure made from within outward precisely as the dentist does in drilling out a tooth. This procedure should be continued until every portion of suspicious bone has been removed and the remaining surface is smooth and even, without any projecting spicules or ragged edges, such as usually remain after the use of the chisel.

The operator readily acquires the ability to decide when the burr is drilling out diseased or normal bone, because of the greater resistance offered by the healthy osseous tissue. Because of the ease with which the burr is manipulated, the operator may safely venture into areas which would be very dangerous if the chisel and mallet were used. The risk of fracturing the long bones is reduced to a minimum because the element of violent trauma has been removed. Thus, by the use of the burr, a hazardous, violent and crude procedure is transformed into a comparatively safe operation with a definite and precise technic.

Experimental work must determine what changes are produced on the drilled surface of the bone different from those produced by the chisel. Do the heat and friction generated by the rapidly revolving burr kill the pus-producing micro-organisms? It has been shown by cultures made from the inner surface of machinery belting that mechanical influence may produce an effective bactericidal action, as the cultures made from the belting of machinery in constant use were sterile.

The following case illustrates the results obtainable by the cleaning out of the medullary cavity of infected bone with the large burr.

Patient.—J. M., aged 42, machinist, in February, 1913, complained of an ache in right forearm extending from elbow to wrist. Patient consulted physician, who treated him for chronic rheumatism. The forearm began to swell and the patient was referred to a surgeon, who made an incision over the ulna for about three-fourths of its length. Nothing was done to the bone. The swelling was enormous and the pain intense. The patient was told that nothing more could be done for him, and he applied for admission at Cook County Hospital. His temperature was 101°, pulse 120, leukocyte count 20,000. Roentgen ray showed entire destruction of the upper end of bone, including the olecranon process, together with involvement of the entire shaft of the bone. Quantities of thick, yellow pus were discharged from three sinuses leading down to the bone. Amputation seemed inevitable. As it was

the patient's right arm, however, an attempt was made to remove the necrotic and diseased tissue. With ether anesthesia the ulna was exposed throughout its whole extent. The soft tissues were retracted and the olecranon process and upper end of bone entirely removed subperiosteally. The remainder of the shaft was drilled out with a small dental burr, the larger ones not having been made at that time. All necrotic tissue was removed and a smooth, clean, hard bed of bone remained. This was filled with bone wax and the soft tissues sutured without drain.

The man now has good extension of his forearm, in spite of absence of the olecranon process, and a strong grip in his hand and is able to work.

32 North State Street.

THREE CASES OF WIRING WITH ELECTROLYSIS FOR AORTIC ANEURYSM

ONE HERETOFORE IN PART REPORTED *

H. A. HARE, M.D.

Professor of Therapeutics and Diagnosis in the Jefferson Medical College; Physician to the Jefferson Hospital

PHILADELPHIA

I wish to report three additional cases of wiring with electrolysis for aneurysm of the thoracic aorta, in one of which (Case 2) the patient illustrates the beneficial effects of this procedure more than four years after the first operation and more than two years after the second wiring, which was resorted to because he had a return of very severe pain and a marked bulging near the site of the original sac.



Fig. 1.—Enormous aneurysm of ascending arch (Case 1) before operation.

Case 1.—A man, aged 55, had a large pulsating growth in the upper zone of the right chest, anteriorly, which extended to the second rib in the midclavicular line to the fifth rib (Fig. 1 and 2). The growth did not point, in the sense that it presented a spot which was elevated above the rest of the swelling, but in the center there was a spot where pulsation was marked and the tissues very soft and compressible on palpation. The chief symptoms consisted in severe pain and dyspnea.

Presented before the College of Physicians of Philadelphia, March

The record of the operation is as follows:

1:15 p. m., Feb. 22, 1912: 5 milliamperes.

1:19: 10 milliamperes.

1:23: 15 milliamperes.

1:27: 20 milliamperes.

1:28: Wire broke close to needle.

1:29: 5 milliamperes.

1:32: 10 milliamperes.

1:33: 15 milliamperes.

1:34: 20 milliamperes.

1:35: 25 milliamperes.

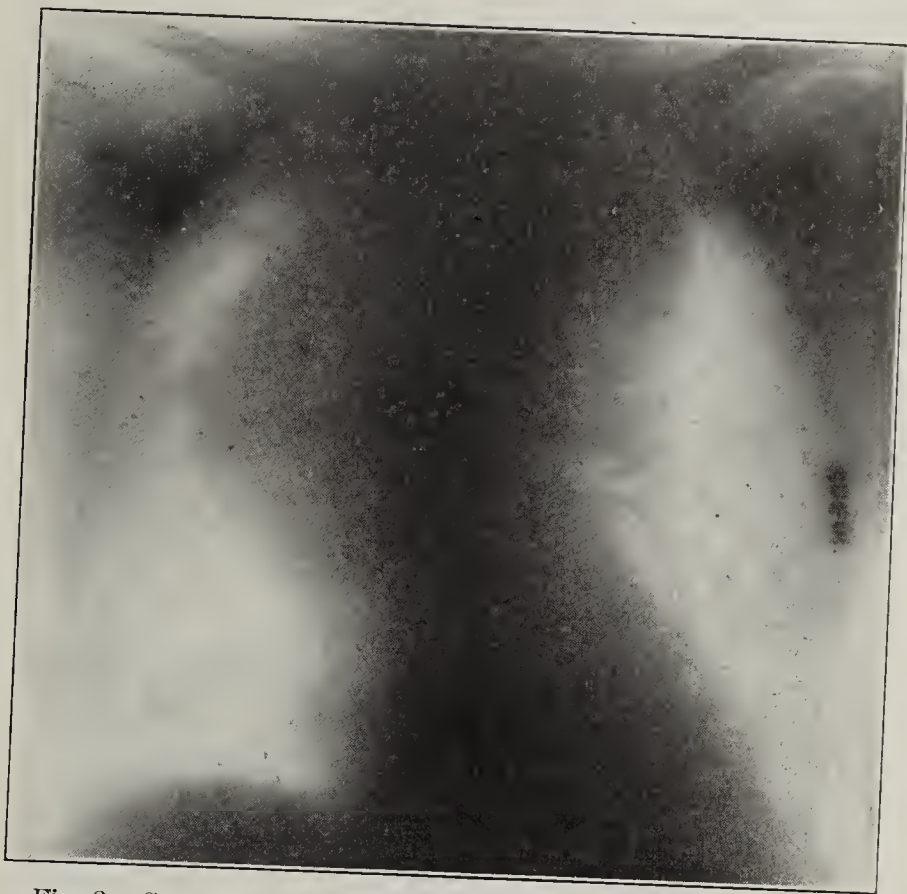


Fig. 2.—Same case of large aneurysm as that shown in Figure 1, wired Feb. 22, 1912; wire coiled in aneurysm, which is lessened in size one week after operation; the patient returned to work and was killed ten months later while walking on the railroad.

1:36: 30 milliamperes.

1:37: 35 milliamperes.

1:41: 40 milliamperes.

1:44: 45 milliamperes.

1:49: 50 milliamperes; maximum amperage, maintained for one minute.

2:00: 45 milliamperes.

2:00:30: 40 milliamperes.

2:01: 35 milliamperes.

2:01:30: 30 milliamperes.

2:02: 25 milliamperes.

2:02:30: 20 milliamperes.

2:03: 15 milliamperes.

2:03:30: 10 milliamperes.

2:04: 5 milliamperes.

2:05: Discontinued.

Insertion of needle at 1:01 p. m.

Insertion of wire begun at 1:03 p. m.

Current started at 1:15 p. m. and discontinued at 2:05 p. m.

Length of operation, one hour and four minutes.

The patient, notwithstanding the fact that his circulatory state was somewhat excited by the performance and interruption of the operation, whereby the pressure in the sac was increased, stated when the current had passed for twenty minutes that his chest felt more comfortable and that he had less pain. Twenty-four hours later he had great hoarseness so that he could speak only in a whisper and he developed signs of pulmonary congestion at the base of the right lung, which cleared up in forty-eight hours under the use of full doses of atropin. The hoarseness gradually decreased, and when he returned home four weeks later had almost disappeared. More than three months later the patient wrote that he was "getting along very well" and "feeling pretty well."

Again, July 10, 1912, he wrote: "I am able to talk pretty well, but get husky when doing very much talking."

In October, 1912, eight months after wiring, this patient came from his home in Johnstown to Altoona, hearing that I would be in the latter town, and stated, after walking about a mile up a steep grade from the station, that he had come to show how well he was. He then walked back to the station without distress. Eleven months after the operation, while walking along the railroad track, he was struck and killed by a train backing down on him.



Fig. 3.—Upper wire put in by Dr. Beardsley in November, 1909, and lower wire introduced by the author in February, 1912, extending down the aorta because it did not coil as gold wire does; patient (Case 2) alive and well.

It will be seen that thirteen minutes after the current was turned on there is a note that the wire broke off. On examining the end of the hollow needle I found that there was a green fluid like verdigris. Fortunately, I was able to push the end of the wire, past that already in the needle, into the sac and continue the procedure, starting the current again at 5 milliamperes.

As this was the second operation in which this untoward accident occurred, I investigated the matter and found that the alloy mixed with the gold was copper and that the copper had been eaten out by the current, proving that a wire made with gold and copper is an unsafe wire because it might be impossible or inadvisable to get more wire in and, if the break occurred after the clot formed in the needle, the further use of electricity would be impossible, although it is absolutely essential to success. At my request, one of the experts of the Philadelphia Electric Company was kind enough to undertake a series of experiments to determine the changes in different kinds of gold wire and silver wire produced by electrolysis, using the same strength of current that I employed clinically, and employing normal salt solution to represent the tonicity of the blood. His results were as follows:

Electrolyte.—This consisted of saline solution having 1 teaspoonful of salt to 1 pint of water.

Electrodes.—The positive electrode was the sample wire to be tested. The negative consisted of copper wire.

Current Used.—A current of 50 milliamperes was allowed to pass for one hour.

RESULTS OF TEST

| Sample | Weight Before mg. | Weight After mg. | Change in Weight |
|-------------------|----------------------|---------------------|-----------------------|
| Yellow gold | 100 | 97 | 3 per cent. decrease |
| Red gold | 259.1 | 160 | 38 per cent. decrease |
| Silver | 283 | 298.1 | 5 per cent. decrease |

The yellow gold wire was practically the same after the test as before, its physical appearance being the same.

The red gold wire became very brittle after the test and changed to a blackish color.

The silver wire took a grayish-blue deposit, and was as flexible as it was before the test.

The saline solution in each case became somewhat of a greenish color.

Chemical analysis of the solution and of the deposits on the wire was not made.

The fact that copper was used for the negative electrode may be partly the cause for the greenish color of the solution. It was unfortunate that platinum wire was not used for the negative electrode. Although this test was rough and approximate, the results give very interesting information as to the kind of wire to be used.

CASE 2.—The patient is an intelligent colored man, aged 61, who appears hale and hearty. He was first wired when in the service of Dr. Rhoads by my chief of clinic, Dr. Beardsley Nov. 1, 1909, four years and four months ago, for a large growth of the descending arch, pointing anteriorly, and wired a second time by me Feb. 23, 1912, more than two years ago since which time he has been to his home in New York State near Albany. After his first operation he worked hard and on one occasion visited friends by walking 60 miles. A report of this case, after the first operation, was published by Dr.



Fig. 4.—Large aneurysm of ascending arch (Case 3) wired in 1912; wire coiled in sac and extending all the way from right to left; roentgenogram taken one week later.

Beardsley.¹ Aside from the patient's being practically so far as pain and dyspnea are concerned, the case is interesting in that it is the only one in which I have employed silver wire, using silver wire because I had used all the wire I could obtain on the previous day in the case.

1. Beardsley, E. J. G.: Symptomatic Relief in Aortic Aneurysm by Wiring and Galvanism (Moore-Conradi Method), *Therap.* March 15, 1911, p. 156.

reported. This man's symptoms were so urgent as to pain, dyspnea and the appearance of the aneurysm, which looked as if it was about to burst, that I felt justified in using silver wire, but I never shall do so again because his survival is most remarkable. The silver wire, having no spring, did not coil, and therefore extended itself far beyond the sac, and the roentgenogram (Fig. 3) shows that it not only entered the aneurysm, but passed not once but several times up and down the aorta as low as the diaphragm. The plate shows this better than the photograph. Why the process of coagulation which closed the sac did not also close the aorta I do not know, but some of the wire certainly went far afield from where I intended it to go. Figure 3 shows the wire placed in the sac in 1909 by Dr. Beardsley above the silver wire which I introduced Feb. 23, 1912. Since that time the patient has been up and about and in excellent condition, with little or no pain except on active exercise.

CASE 3.—This patient presented a large aneurysm of the ascending arch as shown in Figure 4. The roentgenoscopic report made by Dr. Manges was as follows:

"Mr. ——— has a large sacculated aneurysm involving all of the transverse arch and the latter part of the ascending arch. The apex of the sac lies in close relation with the anterior chest wall on a level with the second interspace and about the midclavicular line. There is a considerable space between the posterior surface of the sac and the posterior chest wall, on the right side. On the left side, however, the sac approaches more nearly the posterior wall than the anterior, although it is not in close relation with either. There is no evidence of erosion of the ribs as far as I am able to determine, but the aneurysmal sac completely obscures a portion of the chest wall."

The patient suffered from agonizing pain and urgent dyspnea with incessant cough, and could lie without strangling only on the left side. The record of the operation is as follows:

12:51 p. m., July 13, 1912: Needle inserted.

1:07: Current turned on.

1:07-1:12: 8 milliamperes.

1:12-1:17: 20 milliamperes.

1:17-1:22: 30 milliamperes.

1:22-1:37: 40 milliamperes.

1:37-1:42: 50 milliamperes.

1:42-1:47: 60 milliamperes.

1:47-1:48: 50 milliamperes.

1:48-1:49: 40 milliamperes.

1:49-1:50: 30 milliamperes.

1:50-1:51: 20 milliamperes.

1:51-1:52: 10 milliamperes.

Current turned off at 1:52 p. m.

The patient was in a desperate state, but within two days after operation he could lie on his back and right side with comfort. He had been unable to lie on the right side without great dyspnea and cyanosis for weeks. Cough had been most excessive.

Two months after operation he wrote from his home in Pittsburgh, Pa., that he had been out of the house only once and often had great pain in his heart and chest and all over his body and limbs. Ten months after the operation he wrote as follows:

"I am not getting very strong since the operation and have been able to do but very little work; don't seem to get any strength in my limbs; can lie in only one position and that is on my left side. Neither can I recline in a chair, as the pressure on my back starts me to coughing. It also hurts to raise my right arm and makes me cough when I attempt it. My muscles or nerves all over my body seem to be sore. The pains in my aneurysm have not occurred very frequently, but I have had several severe pains around my heart. My appetite is very good and I am almost back to my normal weight. I get very short of breath from the least little exertion or from talking; do not rest very well at nights and do a great deal of coughing the mornings."

This patient died Dec. 24, 1913, seventeen months after the operation.

In an article previously published by me,² in which I reported a number of cases of this character, I reached the following conclusions:

1. The fact that no accident has occurred in any of the twenty-two (now twenty-five) operations I have performed leads me to believe that this seemingly radical operation is not a dangerous one, the more so as I have no knowledge of any accident having taken place when the operation was *properly* performed by others. In one reported case an attempt to wire a fusiform aneurysm of the carotid artery resulted almost immediately in hemiplegia, and in another unreported case the mistake of using the negative pole in the growth loosened the clot already present and caused multiple emboli.

2. The operation is the only one that offers material hope of prolonging life, this having been prolonged in one case at least five years.

3. It is justified by the prompt relief of pain which nearly always ensues and lasts, unless the growth, extending in another direction, creates a new source of pain.

4. The diagnosis of saccular aneurysm should always be confirmed by Roentgen-ray examination, as this operation is contra-indicated in fusiform aneurysm for obvious reasons.

5. Great care is absolutely necessary that properly prepared wire be employed.

To these conclusions I would now add that, after having performed this operation twenty-five times, I can see no reason for changing the views then expressed, but I desire to emphasize once more the fact that only specially prepared wire can be used and that silver wire, because it does not coil, is an unsuitable agent.

It has been stated that this operation is useless, because the nature of the lesion is such that cure cannot be effected. If by cure is meant the total disappearance of all signs of the disease there is, of course, no cure; but if by "cure" we mean relief from agonizing pain, diminution in the size of the growth, clearing up of distressing pressure symptoms and prolongation of life when death seems very imminent, then the operation is justified, the more so as it seems to be of little danger. Patient 2 had a very marked bulging mass which is described as being as large as an orange. Inspection now fails to show any such mass. I have yet to see a patient who did not receive at least temporary and marked benefit from wiring and electrolysis.

This operation, like all other operations, largely depends for its success on how it is done. If too much current is used, serious damage and necrosis of tissues may be induced, and I am led to believe that in several cases which have not been reported by others such an error in technic has led to bad results. Thus in several of these patients I am told the current was so strong that the wire "burnt off." Such a current cooks the aneurysm. If the street current is used it is necessary not only that the table on which the patient lies should be insulated, but also that the operator wear thick, rubber-soled shoes and stand on a perfectly dry floor.

1801 Spruce Street.

2. Hare, H. A.: The Treatment of Sacculated Aneurysm by Wiring and Electrolysis, THE JOURNAL A. M. A., April 13, 1912, p. 1088.

Social Causes of Disease.—The cause of most epidemic diseases are not individual but social; we must therefore protect one another; there is not a survival of the fittest but a survival of the best protected.

SOME NOTES ON HAY-FEVER*

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The practitioner does not give hay-fever the attention it deserves. There is a growing conviction not only that hay-fever is a local manifestation, but also that it involves general reactions which bring it into the domain of constitutional diseases.

Those who are interested should read the article by Dunbar,¹ who reveals the whole subject from a historical, etiologic and therapeutic point of view. It is the last word of a master mind, familiar with every detail of the gradual growth of a clinical entity to a more rational and scientific basis.

Blakely,² in 1873, was the first to demonstrate the relationship between the pollen of grasses and the disease. These experiments with pollen are most interesting. He collected pollen on glass plates wet with glycerin, proving that pollen was wind-borne. He produced asthma and hay-fever symptoms by inhaling the pollen. He also produced skin reactions, erythemas, by rubbing pollen in scarified areas in the arms and legs. With the rise of bacteriology, Blakely's observations were overshadowed by theories of bacterial origin. From his time to that of Dunbar's communication in 1902-1903, the writings on the etiology of hay-fever offer one of the most weird and fantastic chapters in medicine.

We owe to Dunbar the establishment of the true etiologic basis, namely, that it is a pollen toxicosis. This, in passing, has led Dr. Frank Todd³ to coin the apt term of "pollenosis" as a fitting name for the disease. Dunbar was able to demonstrate in the blood of hay-fever patients and in experimental animals immune bodies such as amboceptors, precipitins and antitoxins.

By injecting pollen toxin into horses he produced what he thinks is an immune serum which neutralizes the pollen extracts on the mucous membrane or in the test-tube. Since 1903 he has put on the market this antitoxin, called by its trade-name, pollantin. This can be obtained in liquid or dry state. I feel safe in saying that the practical results of this serum have not come up to expectations. Dunbar's explanations for this are that (1) patients do not use the antitoxin early enough—that is, prophylactically, and (2) patients do not use it correctly during the course of the disease. Ten years ago, pollantin was hailed as the real treatment for hay-fever. To-day it is drifting dangerously near the thousands of derelict "cures" for which this disease is so justly famed.

Noon⁴ and Freeman,⁵ in 1911, working in Wright's laboratory, attempted active immunity in contradistinction to the passive immunity of Dunbar. They injected small quantities of pollen extract, judging their dosage entirely by the conjunctival reaction. An arbitrary unit of reaction was chosen. This unit represented the amount of extract from 0.001 mg. of pollen. Their injections were made at intervals of three or four days. Later in the case, ten-day intervals were used. Accord-

ing to their conjunctival test they were enabled to increase the resistance usually ten times—in one case 250 times.

Altogether, they report twenty-nine cases. Some of these were treated out of season, some during hay-fever season and during the attacks. Of the latter, the highest increase of resistance is ten times the initial units of sensibility. Noon and Freeman's work marks a distinct advance in hay-fever therapy.

Clowes⁶ of Buffalo was the first in this country to demonstrate immune bodies—amboceptors and precipitins—in patients suffering with our type of hay-fever. He, too, made experiments with patients out of season, using extremely small doses, 1 c.c. of from 1:5,000,000 to 1:500,000 solutions. These were given at intervals of from two to six days. The number of doses ranged from three to fifteen. His unit of resistance was a solution containing the extracts of 1:20,000,000 gm. of pollen. This is twenty times as dilute as Noon and Freeman's unit. Clowes was able to raise the initial resistance a thousand times. He notes, however, that five months later the resistances had lapsed nearly to the original level.

In the meantime there has been a growing impression that the manifestations of hay-fever are of an anaphylactic nature. Weichert,⁷ Wolff-Eisner,⁸ Auer⁹ and a host of others have expressed themselves along this line. Karasawa¹⁰ was able to produce anaphylaxis with extracts of beans, peas, lentils, rice, sago and wheat. Dunbar¹¹ himself has studied anaphylaxis produced by male sperm-cells in lower animals.

The argument that hay-fever is possibly a hypersensitivity to a foreign protein is no more illogical than the argument that the edemas and eruptions following serum injections are evidences of hypersensitivity. Other clinical phenomena such as renal and infectious asthma, spasmophilia and pyloric spasms are examples of similar reactions. According to this theory the proteins of the pollen grains, falling on a diseased mucous membrane, are absorbed by the blood, in which parenteral digestion takes place. These reduction products, by means of a selective action on certain nerve-cell groups, particularly the autonomous centers, produce the irritability in these centers which manifests itself through the erectile tissue in congestion of the nose, in asthma, and, spreading over motor areas, induce general nervous excitation. The local irritability, including itching and burning as well as destruction of mucous membrane (Arthus phenomenon) are truly local manifestations of hypersensitivity just as the skin and conjunctival reaction in tuberculosis is a similar phenomenon.

To review the symptoms I quote Bostock's 1819 classic clinical description¹² of an attack of hay-fever:

When the season approaches the hay-fever patient experiences at first an occasional itching at the inner canthus of the eye, at the earuncle. This itching appears, soon disappears, and may in a few days again assert itself. This time it may be somewhat more annoying and there is seen a definite reddening of the earuncle, perhaps also of the adjacent conjunctiva. Then there occur mild and infrequent attacks of sneezing. Suddenly the condition gets worse. Perhaps

* Read before the Hennepin County Medical Society, November, 1913.

1. Dunbar, W. P.: The Present State of Our Knowledge Concerning Hay Fever, *Ann. Otol., Rhinol. and Laryngol.*, 1912, xxi, 277.

2. Blakely: Referred to by Dunbar (Footnote 1).

3. Todd, Frank: *Jour. Minnesota State Med. Assn.*, 1908, p. 323.

4. Noon, L.: Prophylactic Inoculation against Hay-Fever, *Lancet*, London, 1911, i, 1572.

5. Freeman, J.: Further Observation on the Treatment of Hay-Fever by Hypodermic Inoculations of Pollen Vaccine, *Lancet*, London, 1911, ii, 814.

6. Clowes: *Proc. Soc. Exper. Biol. and Med.*, 1913, x, 69.

7. Weichert: *Wien. klin. Wchnschr.*, 1904, p. 407.

8. Wolff-Eisner: *Das Heufieber*, München, 1906.

9. Auer: *Pop. Sc. Month.*, 1912, p. 434.

10. Karasawa: *Ztschr. g. Immunitätsforsch. u. exper. Therap. Orig.*, 1910, v, 509.

11. Dunbar, W. P.: *Ztschr. f. Immunitätsforsch. u. exper. Therap.*, 1910, vii, 454.

12. Quoted by Dunbar (Footnote 1).

while taking a walk on a warm sunny day the patient has paroxysmal attacks of sneezing which interfere with his respiration. The eyes itch fiercely, the conjunctiva becomes red as fire and edematous. The patient can no longer breathe through his nose; the mucous lining of the mouth begins to itch, especially the gums. There follows a condition of malaise and general weakness which may become so marked that the patient must take to his bed. He is very depressed, robbed of all his energy, and loses the joy of living. In some cases asthmatic symptoms appear so that during the night the patient cannot rest. Finally many patients suffer with an unbearable itching of the skin. All symptoms may disappear for several days, the patient seems to be well, only to have the symptoms reappear again.

This mysterious changeable condition lasts, as a rule, six weeks and then gradually disappears. The attacks become lighter and more infrequent, resemble those of the onset, and gradually disappear altogether.

This descriptive narrative appears to us rather mild in comparison with our autumnal catarrh. Our catarrh exhibits more severe symptoms, such as extreme irritability of autonomous centers, mainly the nasoglossopharyngeal and vagus groups. This often overspreads the motor areas, giving rise to marked asthenia.

wind-borne. Indeed, it is difficult to remove the pollen from goldenrod blossoms except by most energetic shaking. To collect ragweed pollen, one must be up early, before the sun has had time to warm up the air held in the oily envelope of the pollen grain, for it is by reason of this air and its light weight that the pollen grain is lifted to its aerial flight. Many times after 9 in the morning it was impossible to find pollen on plants in exposed places. The production of pollen from ragweed is most prodigious. Daily for weeks I have been able to dust pollen off flowers in the same bush, even from the same cluster.

I am convinced that ragweed pollen is constantly in the atmosphere of the countryside and the city. Pollen grains could be found daily in receptacles containing water placed in window-sills or outdoors. Liefmann,¹² in the heart of Hamburg during the height of the hay-fever season, collected 250 pollen grains to the square centimeter during twenty-four hours. He estimated by means of an aeroscope that in the middle of a large city there were 308 grains to 1 cubic meter of air. In the neighborhood of a rye-field, one inhales with each breath two or three pollen-grains. Kammann¹² esti-

TABLE OF CASES TREATED WITH POLLEN TOXIN

| No. | Name | History | No. of Treatments | Remarks | Results |
|-----|--------------|---|-------------------|--|--|
| 1. | E. A. B.... | Turbinates removed in Feb. Inflammation of nose ever since. Hay-fever of 4 weeks' standing. | 5 | ..... | Considerable improvement. |
| 2. | Dr. H.F.... | T. B. Deviated septum. Hypertrophy of turbinates of left side. | 5 | Took toxin with him when he left city. Under observation 5 days. Have not heard from him. | Very much improved. |
| 3. | W. J. M.... | Hay-fever many years. | 8 | ..... | Much improved. |
| 4. | M. K..... | Hay-fever many years. | 6 | ..... | Satisfactory. |
| 5. | Mrs. B..... | Hay-fever 4 yrs. Bronchitis in the winter; wheezing. | 7 | Much improved at first. Exacerbation Sept. 1; last treatment Sept. 12. Experienced great and permanent relief. | Very satisfactory. |
| 6. | Mrs. A..... | Bronchial asthma with exacerbations at hay-fever time and hay-fever. | 7 | Last 2 weeks autogenous vaccine from bronchial sputum. No relief from asthma. | Nose and eye symptoms rel'ed. Asthma not relieved. |
| 7. | Dr. J. D. W. | Hay-fever many years. | 7 | Steady improvement. | Satisfactory. |
| 8. | Miss B..... | Hay-fever 10 yrs.; subject to nasal and sinus infection. | 18 | Also pneumococcus vaccine therapy for sinusitis. Some eosinophils; 4.5%. | Satisfactory. |
| 9. | Dr. W. T... | Hay-fever very severe. | 5 | ..... | Very satisfactory. |
| 10. | Dr. B..... | Hay-fever first year. | 1 | Immunity for 1 week; slight attack following this immunity. Very comfortable ever since. | Satisfactory. |
| 11. | Dr. H. S... | Hay-fever for many years; getting lighter of late. | 3 | ..... | Doubtful. |
| 12. | Dr. J. P.... | Hay-fever for years. | 2 | Refuses treatment for fear of anaphylaxis. | Unsatisfactory. |

Whether some of these manifestations are genetically of local or central origin remains to be seen. That there is a dual origin is more likely. At any rate the nervous irritability seems to be more pronounced in autumnal catarrh. Dunbar speaks of thousands of cases he has seen in which there has never been fever. Clowes mentions rise of temperature in his cases, and I have found one case with fever. There is no doubt that rise of temperature would be found a common symptom if systematically looked for.

I review the clinical picture to call attention to the fact that no known infectious process expresses itself in symptoms of this nature. They are entirely too spasmodic, irregular, bizarre, for the well-ordered mechanism of the ebb and flow of immunity which controls infectious processes. The irregularity of time, sequence and intensity suggests still more the hypersensibility of nerve and tissue groups to an irregular protein intoxication, the portal of entry of which is the nose.

For two years I have been observing ragweed. I have confined myself to ragweed because I find that it is the only flowering plant which has a wind-borne pollen during the period between July 1 and September 15. I speedily dismissed the idea of goldenrod as a causative factor in hay-fever, simply because its pollen is not

mated that 20,000,000 pollen grains weighed 1 gm. I have estimated that 1 gm. of ragweed pollen contains 172,800,000 grains.

My extracts were obtained by means of Dunbar's method, which consists in making a 5 per cent. suspension of pollen in distilled water or normal salt, and alternately freezing and thawing the mixture. Clowes' method of removing the oily envelope with acetone and then extracting is an excellent modification. This extract, according to Kammann,¹³ contains several proteins. By fractional methods of separation he finds three, two types of globulins and an albumin. The latter is the toxic agent, as far as local action is concerned.

With these extracts I have treated twelve cases of hay-fever during the last season. Subcutaneous injections of very dilute extracts were given at intervals of one, two and three days. The usual dose was 0.5 c.c. of a dilution, never greater than 1:500,000 nor less than 1:1,000,000. The latter is a more satisfactory and safer dose. I soon found that the conjunctival test for adjudicating the dosage was impracticable. The patients came in all stages of conjunctival inflammation. To attempt to get reactions in a red and swollen surface

13. Kammann: Beitr. z. chem. Physiol. u. Path., 1904, v, 346.

was futile. I therefore confined myself to the subjective findings at the time of treatment (see the tabulated report).

The most striking features of this experiment, measured purely from clinical results, were: 1. The patients in the majority of instances were relieved partially or wholly from symptoms in from fifteen minutes to two hours. This relief lasted some times a few hours, again for days (one week is the longest). 2. There was a gradual improvement of symptoms in the majority of cases which cannot be explained wholly by a diminution of pollen in the air.

I am convinced from the *manner* of its production and its short duration that I was producing a refractory or inhibitory phase of hypersensibility. The difficulty in proving this statement lies in the lack of experimental evidence in this field of anaphylaxis. Attention has been directed to the more dramatic reactions in anaphylaxis such as shock, the paralyses, the increased coagulation-time of the blood, and thermogenic disturbances. Antianaphylaxis has been demonstrated repeatedly, but there is a growing impression that the refractory or anti stages of anaphylaxis are far more difficult to produce, less constant, and also not so lasting as in infectious processes.

You will note that my point of view differs from that of Dunbar, Noon and Freeman, and Clowes. Whereas they think that they are dealing with an infectious process similar to bacterial infection, I contend that the process is of the nature of a protein toxicosis. Noon and Freeman and Clowes have actually demonstrated not so much an actual immunity as perhaps a refractory stage of the eye- and nose-cells to the local action of the anaphylatoxin (Friedberger¹⁴). In Dunbar's antitoxin there may be free receptors—antianaphylatoxins—which shunt the local toxin action, thus inhibiting the usual reaction. In the fact that it is not introduced into the general circulation—that its action is purely local and does not reach the autonomous centers—may lie the explanation of the failure of Dunbar's serum. Dunbar will accept in no wise the anaphylactic theory of hay-fever.

Two clinical studies suggest themselves along the thought that hay-fever is a manifestation of hypersensibility:

1. If it can be shown that the muscle-reactions in hay-fever patients are modified just as they are in spasmodic asthma we shall have added another link to the chain of evidence.

2. Recent reports of eosinophilia in animals sensitized to foreign proteins have led observers to think that an increase in oxyphils in the blood is an indication of this condition. If this can be shown to occur in hay-fever, another clinical test can be added to our list. As a matter of fact, Dr. George D. Head has verbally communicated to me that eosinophilia is a common occurrence in those cases giving asthmatic symptoms. In one of my cases under complete control I had the blood studied before and during the season. At no time did the eosinophils go above 4.5 per cent.

CONCLUSION

The problem of autumnal pollinosis can be approached in three ways:

1. By the removal of the cause, namely, the eradication of ragweed.

2. By the removal of the patient from the ragweed environment.

3. By producing antihypersensibility.

The first proposition is a far more practical plan than one realizes at first thought. Societies of hay-fever sufferers, properly financed as county units, to cover state areas, could readily make ragweed disappear from roads, fields and empty lots.

The second proposition has been the solution of the problem of the favored few.

In the third proposition I see a glimmer of hope for the many who are condemned to this nagging scourge.

Lastly, I feel that in hay-fever, more than in any other clinical entity, is a fruitful field of search both in a clinical and biological sense, for exact measures, which are so essential and as yet so lacking in those vague conditions grouped under the term "hypersensibilities."

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RECENT WORK ON THE PHYSIOLOGIC PATHOLOGY OF GLYCOSURIA *

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The advancement which medical knowledge has made during recent years can no doubt be in large part attributed to the closer affiliation which has developed between clinical and laboratory workers. Among the earliest attempts to apply the results of laboratory investigation in the clinic were those made in the case of diabetes, and although the progress achieved in the elucidation of the cause of this mysterious disease may not have been so striking as in the case of some other diseases, there has nevertheless been a steady accumulation of knowledge, which, when intelligently applied, is of immense value in its prophylaxis and treatment.

As attesting the value of laboratory investigations side by side with clinical, it is a noteworthy fact that the physicians who have been most successful in the treatment of diabetes are those who have kept themselves in constant touch with the work of both laboratory and clinic. Many of these men, such as Naunyn, Kültz, Lepine, Pavy, Minkowski and von Noorden, have contributed materially to the advancement of our knowledge of the history of sugar in the animal body by laboratory experiment, while at the same time busily engaged in observing and treating cases of diabetes in clinical practice.

One of the most important results of the laboratory investigations has been to show that conditions exhibiting at least some of the symptoms of diabetes in man, more especially glycosuria, can be induced in animals by a multitude of causes. This laboratory experience finds its clinical counterpart in the etiologic, therapeutic and prognostic aspects of diabetes mellitus: etiologically, in the fact that such apparently distinct and separate influences as inheritance, nervous strain and overindulgence in carbohydrate foods all predispose to the disease; therapeutically, in the undoubted benefit which certain cases derive from curtailment of the carbohydrate ingestion, while others benefit more from control of proteins, and prognostically, in the rapid development of the disease in some cases as compared

14. Friedberger: Ztschr. f. Immunitätsforsch. u. exper. Therap. Orig., 1909, II, 208.

* Delivered before the Harvey Society, New York, Feb. 14, 1914.

with its gradual betterment in others. These facts would seem to indicate that in the clinical, as in the laboratory experience, we are dealing not with a distinct and separate pathologic entity, but with a variety of conditions having only certain symptoms in common. It is indeed quite uncertain whether there is any variety of laboratory diabetes which can be strictly compared with any clinical form, for even in the case of the diabetes which is produced in animals by removal of the pancreas, there are so many dissimilarities from most of the severe clinical cases that a strict analogy cannot be drawn between the two. We shall see, however, that in spite of these differences, many of the problems which the clinical observer has to face in treating the disease can be satisfactorily studied by work on animals, and many mistakes that might otherwise be made in applying new methods of treatment thereby avoided.

Facing such difficulties, how then are we to proceed in investigating the cause of diabetes? There is obviously but one way, and that is by collecting and carefully correlating as much information as we can regarding the causes which may produce the main symptoms of diabetes, by careful clinical study in the case of man, or by well-controlled and properly conducted experiments in the case of the lower animals. Of the symptoms of diabetes, glycosuria has naturally been chosen as the most characteristic. Since this symptom may depend merely on a local interference with renal function, and since the essential derangements which are responsible for the development of the diabetic state may already be considerably advanced before any glycosuria makes itself evident, it is more reliable for most purposes to employ as our criterion of diabetes not glycosuria, but hyperglycemia.

In doing this we must be careful, however, to bear in mind the physiologic conditions which govern the relationship between hyperglycemia and glycosuria. It is commonly taught that the kidneys do not permit any, or only a trace of, the blood-sugar to escape into the urine until the percentage in the blood has risen to considerably above the normal level. The kidney has been compared in this connection to the overflow tube in a cistern, the contents of which, representing the blood-sugar, are ordinarily discharged by other paths. It is only when these paths in some manner do not discharge quickly enough, or the inflow becomes too rapid, that the level rises until the overflow is reached.

For many purposes this analogy has proved most useful, but it is far from being a strictly true one. It explains why a temporary increase in blood-sugar, such as that produced by stimulation of the splanchnic nerves or by parenteral administration of sugar, is unaccompanied by any demonstrable glycosuria until the blood-sugar has risen to a certain height, after which the glycosuria runs more or less parallel with the hyperglycemia.¹ It also applies in the early stages of clinical diabetes, but it does not apply in the more advanced cases, either in those that are acute, in which there is usually much more sugar in the urine than would be expected from the amount present in the blood, or in chronic cases, in which there may be no demonstrable glycosuria and yet a marked degree of hyperglycemia. Some change in the excretory function of the kidney must therefore be considered as one of the results of

the diabetic state in man, a conclusion for which evidence is furnished by the observation that the same degree of hyperglycemia causes more glycosuria in the diabetic than in the normal man.²

Even when the kidney itself is healthy this parallelism only obtains provided there is no disturbance in its blood-flow. Consequently we find that the excretion of sugar into the urine is readily affected by changes in the arterial blood-pressure. Thus a certain degree of hyperglycemia may cause marked glycosuria when the blood-pressure is normal, but none at all when it is subnormal.³

There are certain forms of experimental glycosuria which seem to owe their origin to no other lesion than one so affecting the kidney as to make it excrete large quantities of sugar from normal blood. These include, not only the important form of diabetes, which is caused by phlorhizin, but also that which occurs after poisoning by such metals as uranium, etc.⁴ It is possible that there may be a clinical variety of renal glycosuria. Such cases could be diagnosed with certainty only by comparisons between the sugar concentrations of blood and urine, although a strong suspicion of their existence would be furnished by finding that the ingestion of excess of carbohydrate food did not increase the glycosuria. It is very doubtful, however, if such purely renal cases exist.⁵

I need scarcely pause to point out that although phlorhizin glycosuria, so far as it is unaccompanied by hyperglycemia, is unlike the clinical varieties of glycosuria, this does not in the least diminish the great importance of the studies which have been made by Lusk and his pupils concerning the nature of the faulty metabolism which it entails. Indeed, I do not overshoot the mark when I assert that more accurate knowledge concerning the possible antecedents of dextrose in the animal body has been gleaned by investigations on this form of experimental glycosuria than by those made on any other, either experimental or clinical; for, by establishing a constant drain of dextrose from the blood, phlorhizin calls into play all the agencies which are available in the organism for the manufacture of new supplies. It may be considered as the standard method for studies on glycogenesis.

In choosing hyperglycemia as the most characteristic symptom of an abnormal state of carbohydrate metabolism, we must be careful to remember that it is not necessarily a sign of diabetes.

Disregarding for the present the distinct degrees of hyperglycemia which occur in all diseases that are associated with asphyxial conditions or with pyrexia,⁶ we must bear in mind that a distinct increase in blood-sugar occurs as a physiologic condition after the ingestion of any food that is rich in carbohydrates. Although this has been known for several years, it has recently been made the subject of more thorough investigation, both in the lower animals and in man. Bang and his collaborators,⁷ using a so-called micro-method, estimated the sugar concentration of the blood in rabbits during short intervals of time following the giving by stomach-

2. Jacobson, A. T. B.: *Biochem. Ztschr.*, 1913, lvi, 471.

3. Macleod: *Diabetes, Its Pathological Physiology*.

4. MacNider: *Jour. Pharmacol. and Exper. Therap.*, 1912, 423.

5. Weiland: *Deutsch. Arch. f. klin. Med.*, 1911, cii, 167.

6. Schumm and Hegler: *Mitteilungen aus den Hamburger Staats Krankenanstalten*, 1911, xii, 429; 1913, xiii, 187. Oppermann and Rolly: *Biochem. Ztschr.*, 1913, xlviii, 187, 200, 259, 471; xlix, 278. Hollinger: *Deutsch. Arch. f. klin. Med.*, 1908, xcii, 217.

7. Bang: *Der Blutzucker*, Wiesbaden, 1913. Jacobson: See Footnote 2. Bö: *Biochem. Ztschr.*, 1913, lviii, 106. Welz: *Arch. f. exper. Path. u. Pharmacol.*, 1913, lxxiii, 159.

1. Rolly and Oppermann: *Biochem. Ztschr.*, xlix, 278. Macleod, J. J. R.: *Diabetes, Its Pathological Physiology*, New York, Longmans, Green & Co., 1913.

tube of quantities of from 2 to 10 gm. each of various sugars or starches. An increase in blood-sugar was evident in fifteen minutes, a maximum amounting to about double that of the normal being reached in about an hour, after which there was a gradual fall to the old level, which was attained in about three hours. This *postprandial hyperglycemia*, as we may call it, developed more quickly, and was more marked, in starved than in recently fed animals, and it became less and less evident when the administrations were repeated, until ultimately the 10 gm. of dextrose could be ingested without producing any effect on the blood-sugar. Galactose, maltose and saccharose, given in the same amounts, caused a similar rise, but the return to the normal level was delayed. Fisher and Wishart,⁸ by giving 50 gm. of dextrose by stomach-tube, to dogs, found that hyperglycemia occurred during the succeeding hour, after which the blood-sugar quickly fell to normal, apparently in large part because of dilution of the blood by water absorbed from the tissues. At least it was found by making hemoglobin estimations that during the hyperglycemic stage the amount of water in the blood remained unchanged, but that as the hyperglycemia decreased, the blood became more diluted. As this occurred, there was evidence of increased combustion of carbohydrates, as shown by a rising of the respiratory quotient and by a greater energy output.

A most significant fact was brought to light, particularly by Bang's researches, namely, that 10 gm. of starch produced exactly the same effect on the blood-sugar as 10 gm. of dextrose, provided it was given to previously starved rabbits. Given to rabbits having food already in the stomach, the starch had little effect. Starch-rich foods, such as potatoes and turnips, produced the same results as starch itself; they readily caused hyperglycemia on an empty stomach, but had little effect when the stomach was full. Evidently the rate with which the starchy food passes from the stomach to the intestines determines in large degree the extent to which it is likely to produce hyperglycemia.

Before we seek for any application of the results obtained from experiments on lower animals that may aid us in the diagnosis and treatment of diabetes in man, we must obtain evidence that in man similar changes in the blood-sugar accompany the ingestion of carbohydrates. Such caution is particularly necessary when we are dealing with carbohydrate metabolism, because the factors which govern the various stages in the breakdown of sugar may vary considerably in different animal groups. Even in so comparatively simple a condition as that which we are considering, the dog and the rabbit, for example, do not behave alike, for in the former not only is the hyperglycemia which follows sugar ingestion less in degree than it is in the case of the rabbit, but there is a greater tendency for glycosuria to become established. Without actually trying, it would obviously be very risky to assume that what occurs in the rabbit will also occur in man. Jacobson⁹ has, however, furnished us with evidence that it does, for, after giving 100 gm. of dextrose to normal persons before breakfast, he found that even in so short a time as five minutes an increase was evident in the blood-sugar, and that the hyperglycemia became more marked, until in about thirty minutes it had attained a maximum, after which it fell to reach its normal, or even a subnormal, level in about two hours. From

the clinical point of view the most significant outcome of the researches was the discovery that in six out of fourteen persons, examination of the urine voided at short intervals after taking 100 gm. of starch, revealed the presence of glycosuria, which was also the case in eight of the cases after taking 100 gm. of dextrose. Practically the same results were obtained after giving an amount of white bread (167 gm.) capable of yielding 100 gm. of dextrose. The development of the hyperglycemia became much slower when digestion was prolonged by giving a large quantity of butter along with the bread. No change was produced in the blood-sugar after feeding with proteins alone.

The conclusion that the only difference between sugar and starch, so far as they influence carbohydrate metabolism, rests in their relative rates of absorption, is most strikingly confirmed by these observations.

A fundamental principle that must guide us in the treatment of early cases of diabetes in man is brought to light by these researches. We shall see later that the object which we must aim at in this treatment is the maintaining of the sugar content of the blood at as low a level as possible, and it is evident from the foregoing observations that to do this the ingestion not only of sugar, but of starchy foods as well, requires careful regulation. Whatever carbohydrates are given must not only be well below the tolerance limit, but they should be such as are so slowly broken down to sugar that no unphysiologic degree of hyperglycemia is permitted to develop.

The decrease in glycosuria which opium causes in many diabetics may be due to the retarding influence of this drug on the emptying of the stomach. Apart from the use of opium, however, there are several ways in which we may possibly bring about the delay in the absorption of starch. Three of these are: (1) By mixing the starch with fats; (2) by choosing foods in which the starch grains are naturally more or less protected from digestion, and (3) by choosing varieties of starches that are themselves only slowly digested.

These considerations naturally lead us to the question as to whether the undoubted benefit which certain cases of diabetes derive by feeding with oatmeal, in the absence of other carbohydrates and animal proteins, may not depend on the slow rate at which the starch in this food is digested and absorbed. Cohnheim and Klee have shown by observations on dogs having duodenal fistulas that oatmeal causes very much less pancreatic juice to be secreted than when an equivalent amount of wheaten bread or potatoes is given.⁹ Although these two facts concerning oatmeal, namely, that it calls forth but little pancreatic secretion, and that it is a readily tolerated form of starchy food in diabetics, seem to be most simply correlated in the foregoing manner, yet we must not overlook another possible explanation for the benefit of the oatmeal treatment, namely, that by holding down the intestinal secretion of pancreatic juice, a better chance is given the pancreas to furnish the internal secretion or hormone whose deficiency is thought to be in some way associated with the cause of the disease. The well-known fact that the oatmeal treatment is not likely to meet any success unless such foodstuffs as animal proteins and wheat starch are simultaneously withheld is readily explained on account of the readiness with which

8. Fisher and Wishart: Jour. Biol. Chem., 1912, xili, 49.

9. Baumgarten and Grund: Deutsch. Arch. f. klin. Med., 1911, p. 169. Cohnheim and Klee: Ztschr. f. physiol. Chem., 1912, lxxviii, 464.

these foods excite pancreatic secretion. In the same manner the benefit of alkali treatment may be accounted for. It is more probably in some such manner as that discussed above that oatmeal acts in diabetes than, as has been suggested, by its furnishing to the organism some vitamin necessary for the utilization of sugar. I refer to some such substance as has been shown to be necessary for the prevention of beriberi in rice-feeders and to be important for proper increase in body-weight in growing animals.

So far as these laboratory observations apply to the management of early cases of diabetes, we may sum up by saying that the earliest indication of derangement in carbohydrate metabolism is that the postprandial hyperglycemia is greater and persists longer than it should, becoming progressively more and more marked, until ultimately the separate periods fuse into one continuous hyperglycemia, which for some time is probably maintained at a fairly constant level by overflow of the excess of sugar into the urine. Ultimately, however, the kidneys, suffering possibly because of the constant toxic influence of the excess of sugar, become less permeable toward it, and again the hyperglycemia begins to mount. Although the literature does not, so far as I am aware, contain a sufficiently complete series of records of blood-sugar estimations in diabetes, especially in its earlier stages, to justify the positive assertion that this course is run by every case, yet very strong evidence that it is so is furnished by the observation that glycosuria is evident in early stages of diabetes only after taking food. The mixed twenty-four-hour specimen, when tested, however carefully, by the various qualitative tests for sugar, may be normal, whereas the specimen voided during the hour or two immediately following a meal may give a distinctly positive test. For practical purposes postprandial glycosuria must undoubtedly be considered as the initial symptom of diabetes, provided, of course, that excessive amounts of sugar have not been taken. Its occurrence should serve as an indication that the diet must be altered, for although we cannot cure a late case of diabetes, we can, by preventing glycosuria, if not indefinitely, yet for a long time, retard the development of incipient cases into those of a more serious character.

In employing hyperglycemia as our most trustworthy criterion of disturbed carbohydrate metabolism in experiments on anesthetized animals, many precautions must be taken so as to avoid, or at least discount, the effects which fright, anesthesia, body temperature, etc., may have in causing that condition.¹⁰

One other question concerning the sugar in the blood remains to be discussed, and that is its condition, whether free or combined. This does not mean combined in the sense that it is no longer included in our blood-sugar estimations, but combined in such a manner as to be readily split off. I do not intend to go into all the outs and ins of this most troublesome question, but I must at least pause to explain its significance, and to mention some of the most recent work which has been brought to bear on its elucidation. The hypothesis is that most of the dextrose exists in some sort of loose combination, possibly of physiochemical nature, with certain of the blood constituents, and that only a small fraction is free. It is further supposed that it is only after it has become thus combined that the sugar can

be utilized by the tissue-cells. Of the older writers, it was Pavy who most insistently upheld this view, and there are few who have not in some of their writings expressed some adherence to it. The most recent advocate is Allen,¹¹ whose most exhaustive treatise on diabetes is indeed based on the idea that all the circulating sugar of the normal body exists in some sort of loose combination, as which it is assimilated by the tissues.

It is impossible to settle this question by means of chemical investigation of the blood. Even the brilliantly conceived experiments of Michaelis and Rona are insufficient. It was found in these that when samples of sterile unclotted blood were dialyzed against a series of isotonic solutions each containing a different percentage of dextrose, diffusion of dextrose in one direction or the other occurred in all save one case, namely, in that in which the percentage of dextrose in the outside fluid was exactly equal to the total sugar content of the blood. Such a result can be interpreted only by assuming that all of the sugar exists in the blood in a freely diffusible state, a conclusion which is supported by the results of the colloidal precipitation experiments of the same workers. The chemical evidence is therefore all in favor of the view that the blood-sugar exists in a free state. On what grounds, then, do so many authorities insist that the sugar is practically all combined? They do so on biologic grounds, namely, because of the difficulty of explaining, in any other way, why the blood-sugar does not constantly leak into the urine. Pavy, for example, insists that if it were free in the blood, sugar, like any other body of small molecular weight, would flow off in the urine; and exactly the same line of argument is contained in Allen's statement that "in normal animals all sugar not injected intravenously reaches the circulation in combination with a colloid," so that "it behaves as a typical colloid, not only in failing to pass into the urine, but also in depressing the excretion of this fluid. When, however, sugar is added directly to the blood, it fails to become thus combined, with the result that like any other crystalloid it escapes in the urine and stimulates diuresis." These conclusions are based on the observation that when dextrose is given intravenously to a normal animal, it causes diuresis, whereas anuria results when it is given in any other way. To explain these differences it is supposed that the sugar molecule, in passing through the endothelial wall of the capillaries, combines with some substance, as a result of which the sugar becomes available for incorporation in, and utilization by, the tissues, which, in the free state, it is not. This substance is supposed to be related to the internal secretion of the pancreas, and it has been called an amboceptor to indicate that it links the dextrose molecule to the tissues.

Upholders of these views, however, do not stop short in merely explaining how sugar circulates in the normal animal. They go further, for they tell us that "deficiency of the amboceptor is diabetes"; in other words, they assert that the essential lesion in diabetes is a failure of the sugar that is absorbed from the intestine to become united with amboceptor, as a consequence of which it circulates in a free state and is not available for combustion in the tissues. This free sugar, acting like a crystalloid, stimulates the kidney to diuresis and itself escapes by this path. Allen has cleverly defended this hypothesis against most of the criticisms that could

10. Hirsch and Reinbach: *Ztschr. f. physiol. Chem.*, 1913, lxxxvii, 122. See also references in Footnote 6.

11. Allen: *Glycosuria and Diabetes*, Boston, 1913.

be brought against it, although I for one am not yet quite convinced that the striking differences in diuretic effect which he found according to the manner of administration of the sugar may not be largely a question of the rate at which the sugar becomes added to the blood. It is at least significant that when the intravenous injections of sugar are made very slowly, the renal function behaves exactly as it does when the slower subcutaneous or intestinal paths of absorption are traversed.¹² The remarkable disappearance from the blood which we have seen to occur when dextrose is intravenously injected in eviscerated animals shows also that incorporation with the tissues is possible without any amboceptor attachment in Allen's sense.

It has been common to consider that glycogen is nothing more than a storage material for the carbohydrate which the organism does not require for its immediate uses. Some have thought, however, that glycogen, besides being a storage material, is likewise a necessary preliminary stage in the metabolism of sugar; in other words, that no sugar is burned unless it has passed through a glycogen stage. Time will not permit me to say more with regard to this question than that there is so far no conclusive evidence which would enable us to decide it one way or the other. That liverless animals can burn injected sugar, or that isolated muscular tissues use it, is no proof that the sugar has been directly used, for the muscles contain glycogen. On the other hand, the glycolytic powers of blood are exactly the same toward ordinary dextrose as toward dextrose produced by the diastase of the blood or liver acting on glycogen.¹³

Although of the highest importance as showing the manner in which carbohydrates behave immediately after they are ingested, the researches which we have so far considered bring no light to bear on the nature of the disturbances which may cause excessive amounts of dextrose to pile up in the blood, independently of increased ingestion of carbohydrates. They inform us as to how excess of ingested sugar may be disposed of, but they do not explain why in severe forms of diabetes there comes to be a constant and uncontrollable new production of sugar, or glyconeogenesis, in the organism itself. To explain this our attention must be turned to a study of the conditions which bring about excessive sugar-production in laboratory animals. At the outset of such an investigation, however, we encounter a serious difficulty in the multiplicity of experimental conditions which may cause hyperglycemia and glycosuria. It becomes necessary to adopt some classification. To start with, a classification can readily be made into transient and permanent forms of hyperglycemia. There is practically but one form of permanent experimental hyperglycemia, namely, that which follows complete removal of the pancreas, and, since the behavior of the animal in this condition is in many respects like that of the severely diabetic patient, it has been chosen as the experimental prototype of the clinical disease. Most forms of transient experimental hyperglycemia are more or less dependent on stimulation of those portions of the nervous system that exercise a control over the glycogenic function of the liver. The cause of the difference between the two forms is, therefore, that in the transient form the excess of sugar is derived from no other source than the glycogen reserves of the liver

and muscles, whereas in the permanent form it is derived only from this source until no more glycogen remains, after which it comes from protein or possibly from some varieties of fat. An excessive hepatic glycogenolysis occurs as the first stage in both forms of experimental diabetes, so that an understanding of the nature of the factors which control the glycogenic function of the liver, and of the conditions which may lead to a failure of this control, is fundamental to intelligent investigation of the diabetes problem. Although it has so far been impossible by any kind of disturbance of the nervous system to create a diabetic state in laboratory animals which is comparable with that which follows removal of the pancreas, yet there is abundance of clinical evidence to show that a certain nervous element does enter into the causation of diabetes mellitus. The frequent occurrence of diabetes in those predisposed by inheritance to neurotic conditions, or in those whose daily habits entail much nerve-strain, and the aggravation of the symptoms which is likely to follow when a diabetic patient experiences some nervous shock, all point in this direction.

Diabetes is common in locomotive engineers and in the captains of ocean liners, that is to say, in men who in the performance of their daily duties are frequently put under a severe nerve-strain. It is apparently increasing in men engaged in occupations that demand mental concentration and strain, such as in professional and business work. Cannon¹⁴ found glycosuria in four out of nine students after a severe examination, but only in one of them after an easier examination. In the urine of twenty-five members of a famous football squad, sugar was found present immediately after a keenly contested game in twelve. Anxiety and excitement were its cause, for five of the twelve were substitutes who did not get into the game.†

Although these nervous conditions, by excitement of hepatic glycogenolysis, produce at first nothing more than an excessive discharge of sugar into the blood, a condition which is exactly duplicated in our laboratory experiments by stimulation of the nerve-supply of the liver, their repetition gradually leads to the development of a permanent form of hyperglycemia. To prevent the repetition of these transient hyperglycemia must be our aim in the treatment of the early stages of the disease. This may be done partly by control of the diet and partly by removal of any possible cause of nerve-strain.

The simplest experimental condition which illustrates the relationship between the nervous system and the blood-sugar is electrical stimulation of the great splanchnic nerve in animals in which, by previous feeding with carbohydrates, a large amount of glycogen has been deposited in the liver. By examination of the blood as it is discharged into the vena cava from the hepatic veins, the increase in blood-sugar is very evident in from five to ten minutes after the first application of the stimulus, but it is not until later that a general hyperglycemia becomes evident. The conclusion which we may draw from these results is that the splanchnic nerve contains efferent fibers controlling the rate at which glycogen becomes converted to dextrose. The center from which these fibers originate is situated somewhere in the medulla oblongata, for the irritation that is set up by puncturing this portion of the nervous system with a needle yields similar results to those

12. Pavy and Godden: *Jour. Physiol.*, 1911, xliii, 199.
13. Macleod: *Jour. Biol. Chem.*, 1913, xv, 497.

14. Cannon: *Am. Jour. Physiol.*, 1914, xxxiii, 356.
† Cannon: Private communication.

which follow splanchnic stimulation. It is natural to assume that there must be afferent impulses running to this center. Such impulses have indeed been described in the vagus nerves, but their demonstration is by no means an easy matter on account of the disturbance in the respiratory movements which stimulation of the central ends of these nerves entails. The changes which such disturbances bring about in the aeration of the blood may in themselves be responsible for the hyperglycemia. This much can at least be said: that when the respiratory disturbances are guarded against, as by intratracheal insufflation of oxygen, vagal hyperglycemia is much less marked, if not entirely absent. But this question requires more thorough investigation.

There are two explanations possible for the increased glycogenolysis which follows the stimulation of the efferent fibers in the splanchnic nerves: either they exercise direct control over the glycogenic functions of the hepatic cells, or they govern the discharge from some ductless gland of an internal secretion or hormone which excites the glycogenolytic process. From their anatomic position, the adrenals are to be thought of in this connection, and evidence that they really do perform such a function has seemed to be furnished by the fact that after they are extirpated, splanchnic stimulation no longer produces hyperglycemia,¹⁵ nor, indeed, does puncture of the medulla.¹⁶ Not only this, but there is no doubt that the nervous system, acting by way of the splanchnic nerves, does exercise a control over the discharge of the internal secretion of the adrenal gland,¹⁷ and, moreover, that extracts of the gland, which we must suppose contain the internal secretion, cause hyperglycemia. But on theoretical grounds alone, certain difficulties immediately present themselves in accepting this as the mechanism by which the nervous system controls the sugar output of the liver, for if increased sugar formation in the liver is dependent on a discharge of epinephrin, why should this secretion be caused to traverse the entire circulation before reaching the liver?

There are, besides, certain experimental facts which do not conform with such a view. Thus, after complete severance of the hepatic plexus of nerves, stimulation of the splanchnic nerve does not cause the usual degree of hyperglycemia, whereas electric stimulation of the peripheral end of the cut plexus does cause it. On the one hand, therefore, there is evidence that stimulation of the efferent nerve-path above the level of the adrenals has no effect on the sugar-production of the liver in the absence of these glands, and on the other, we see that when they are present, stimulation of the nerve-supply of the liver is effective, even though the point of stimulation is beyond them. There is but one conclusion that we may draw, namely, that the functional integrity of the efferent nerve-fibers that control the glycogenolytic process of the liver depends on the presence of the adrenals, very probably on the hormone which the glands secrete into the blood. This conclusion is corroborated by the fact that stimulation of the hepatic plexus, even with a strong electric current, some time after complete removal of both adrenals, is not followed by the usual degree of excitement of the glycogenolytic process. I have called attention to these experiments because of the light which they throw on the relationship exist-

ing between the nervous, and at least one form of hormone control of the sugar-output of the liver. They indicate that when a sudden increase of blood-sugar is required, the glycogenic center sends out impulses which not only act on the hepatic cells, but also simultaneously influence the adrenals in such a manner as to facilitate the passage of the nerve impulse on to the liver-cells. The fact elicited by Cannon and his co-workers¹⁸ and by Elliott, that hypersecretion of epinephrin occurs during conditions of deep emotion, fright, fear, etc., becomes doubly interesting when we consider that these conditions also lead to hyperglycemia. It seems natural enough to assume that the discharge of nervous energy which occurs in man in emotional states likewise affects both the adrenal activity and the glycogenic function of the liver.

We are as yet quite in the dark as to the mechanism by which the nerve impulse brings about increased glycogenolysis. Many possibilities must be borne in mind. It will be remembered that the glycogen is deposited in the cytoplasm of the liver-cell in somewhat irregular masses, being possibly combined with some form of sustentacular substances. Our present problem is to explain how it comes about that these masses of glycogen are suddenly discharged from the cells as dextrose when the nerve-supply is stimulated.

The first thing to be thought of is an increase within the liver-cell of the ferment which hydrolyzes glycogen to dextrose. But this does not seem to be the mechanism, for it is impossible to show that there is any more of this ferment in an extract prepared from a liver in which active glycogenolysis is in progress than in one from a liver that is quiescent in this regard.¹⁹

It is well known that enzyme activities may become most markedly altered by slight changes in the chemical and physical nature of the environment in which they act. Diastatic enzymes are particularly susceptible to the reaction of their environment, a very slight degree of acidity, as measured by the H ion concentration favoring, whereas a trace of alkalinity markedly depresses. That this favoring action of acid may occur in the case of the diastase of the intact liver has been well established, partly by studying the effect which is produced on sugar tolerance by administering acids by way of the alimentary canal,²⁰ and partly by studies on post-mortem glycogenolysis.²¹ It might be thought then that the nerve-impulse sets free in the liver-cell a certain amount of acid, which being produced locally, would encourage diastatic action before it became neutralized. This liberation of free acid could obviously be dependent on a curtailment in the blood-supply of the hepatic cell, thus producing a local accumulation either of carbonic or of other less completely oxidized acids. That vascular changes do occur in the liver when the hepatic nerves are stimulated,²² and that such changes may in themselves alter the rate of glycogenolysis, are well-established facts.²³ The accelerating effect of epinephrin on the glycogenolysis which is occurring in a perfused liver outside the body²⁴ may be explained as

18. Cannon and De La Paz: Emotional Stimulation of Adrenal Secretion, *Am. Jour. Physiol.*, 1911, xxviii, 64.

19. Macleod and Pearce, R. G.: *Am. Jour. Physiol.*, 1911, xxviii, 403.

20. Elias: *Biochem. Ztschr.*, 1913, xlviii, 120. Elias and Kolb: *ibid.*, 1913, lii, 331. Murlin and Kramer: *Jour. Biol. Chem.*, 1913, xv, 365.

21. Macleod and Pearce, R. G.: *Am. Jour. Physiol.*, 1911, xxvii, 341.

22. Burton-Opitz: *Quart. Jour. Physiol.*, 1910, iii, 197.

23. Masing: *Arch. f. exper. Path. u. Pharmacol.*, 1912, lxix, 431.

24. Fröhlich and Pollak: *Zentralbl. f. Physiol.*, 1913, xxiv, 1326. Bang: *Biochem. Ztschr.*, 1913, xlix, 81.

15. Macleod and Pearce, R. G.: *Am. Jour. Physiol.*, 1912, xxix, 9.

16. Mayer, A.: *Compt. rend. Soc. de Biol.*, 1908, lxiv, 219.

17. Kalin: *Arch. f. d. ges. Physiol. (Pflüger's)*, 1911, cxl, 209;

1912, cxlvi, 578.

due to limitation of blood-supply on account of vasoconstriction; but until such a local production of acid is actually demonstrated in the liver-cell, it would be unsafe to give this hypothesis too much weight.

Another possibility is that the glycogen, on account of its combination with a sustentacular material, is ordinarily removed from the influence of the intrahepatic glycogenase, and that the nerve-impulse acts by disrupting this combination and thus exposing the glycogen to attack. In contrast to the preceding, we may call this the mechanical hypothesis. It deserves serious consideration, for it has been shown that very little post-mortem glycogenolysis occurs in the intact liver of frogs in winter—even though at this time the organ contains an excess of glycogen—but glycogenolysis becomes marked when the liver is broken down by mechanical means.²⁵

There is, indeed, some evidence that the glycogen is itself expelled from the liver-cell into the lymph-spaces, where it is converted to sugar by the glycogenase, which the fluid of the spaces contains in large amount. Thus, Ishimori,²⁶ working in Hofmeister's laboratory, found by microscopic examination of sections of the rabbit's liver stained for glycogen by Best's carmin method, that some time after *piqûre* had been performed, the glycogen masses were found to have been irregularly discharged from the lobules, some of them being actually present as such not only in the interlobular lymph-spaces, but also in the venous radicals, whereas that which remained in the lobule was distributed in an irregular fashion. The conclusion seems justified that the nerve-impulse causes glycogen itself to be discharged from the cell into the lymph-space, where, being freely exposed to the glycogenolytic enzymes therein present, it very quickly becomes hydrolyzed to sugar. The extrusions of zymogen granules and vacuoles are quoted as examples of processes of a similar nature occurring in other cells. The increased vascularity of the liver in *piqûre* is significant in light of these researches.

To sum up, we may conclude that the nerve-impulse that brings about an increased discharge of dextrose from the liver does so either by producing in the liver-cells some chemical change which facilitates the action of the glycogenase on the glycogen, or by causing the glycogen masses to become dissociated from the protoplasm so that they become susceptible to the intracellular enzymes, or become extruded from the cell so that they are attacked by the glycogenase which exists in the neighboring lymph- and blood-vessels.

There is only one form of experimental diabetes, however, namely, that due to removal of the pancreas, which can be considered as analogous with the severer forms of the disease in man. It is true that disturbances in carbohydrate metabolism, sometimes severe enough to cause glycosuria, are also produced by disturbances in the functions of other ductless glands, for example, by removal of more than two parathyroids, or by conditions which cause a hypersecretion of the hypophysis of the pituitary gland; but there is no evidence that permanent diabetes, as encountered in clinical practice, bears any relationship to lesions in these glands. On the other hand, experimental pancreatic diabetes can be made to simulate very closely the disease in man. This was first of all demonstrated by Sandemeyer, who found

that if not all but the greater part of the pancreas were removed, the animals for some months, if at all, were only occasionally glycosuric, but later became more and more frequently so, until at last the condition typical of complete pancreatectomy supervened. Similar results have more recently been obtained by Thiroloix and Jacob, in France, and by Allen¹¹ in this country. These investigators point out that different results are to be expected according to whether the portion of pancreas which is left does, or does not, remain in connection with the duodenal duct. When this duct is ligated, atrophy of any remnant of pancreas that is left is bound to occur, and this is associated with rapid emaciation of the animal, diabetes and death. When the remnant surrounds a still patent duct, a condition much more closely simulating diabetes in man is likely to become developed, one, namely, in which there is, for some months following the operation, a more or less mild diabetes, which, however, usually passes later into the fatal type. It is, of course, difficult to state accurately what proportion of the pancreas must be left in order that this interesting condition may supervene. Leaving a remnant amounting to from one-fifth to one-eighth of the entire gland is commonly followed by a mild diabetes, whereas if only one-ninth or less is left, a rapidly fatal type develops. As in clinical experience, the distinguishing feature between the mild and the severe types of experimental pancreatic diabetes is the tolerance toward carbohydrates. In the mild form, no glycosuria develops unless carbohydrate food is taken; in the severe form, it is present when the diet is composed entirely of flesh. It is thus shown that "by removal of a suitable proportion of the pancreas, it is possible to bring an animal to the verge of diabetes, yet to know that the animal will never of itself become diabetic. . . . Such animals, therefore, constitute valuable test objects for judging the effects of various agencies with respect to diabetes" (Allen). It therefore becomes theoretically possible to investigate, on the one hand, other conditions which will have a similar influence to removal of more of the gland, or, on the other, conditions which might prevent the incidence of diabetes, even though this extra portion of pancreas is removed. From the work which he has already done, Allen believes that he has sufficient evidence to show that the continued feeding with excess of carbohydrate food will surely convert a mild into a severe case, and in one experiment he succeeded in bringing about the same transition by performing puncture of the medulla; that is, by creating an irritative nervous lesion. By none of the other means usually employed to produce experimental glycosuria could the bordering case be made diabetic, although one such animal became acutely diabetic after ligation of the portal vein. To the clinical worker the value of these results lies in the fact that they furnish experimental proof that a so-called latent case of diabetes, that is, one that has a low tolerance value for carbohydrates, may be prevented from developing into a severe case by proper control of the diet. Attempts to show whether or not there are any conditions which might bring about improvements in animals that were just diabetic have not as yet been sufficiently made to warrant any conclusions that could help us in the treatment of human cases. The encouragement of the internal pancreatic secretion by diminution of that discharged into the intestine has already been referred to.

The certainty with which diabetes results from pancreatectomy in dogs, as well as the frequent occurrence

25. Grode and Lesser: *Ztschr. f. Biol.*, 1913, ix, 371. Lesser: *Biochem. Ztschr.*, 1913, lii, 471.

26. Ishimori: In Hofmeister: *Sammlung der von der Nothnagel-Stiftung veranstalteten Vorträge*, 1913, i.

of demonstrable lesions in the pancreas in diabetes in man, leaves no doubt that this gland must be in some way essential in the physiologic breakdown of carbohydrates in the normal animal, but how, we cannot at present tell. All we know is that the first change to occur after the gland is removed is a sweeping out of all but a trace of the glycogen of the liver, although the muscles may retain theirs; indeed, in the cardiac muscle there may be more than the usual amount.²⁷ Nor can any glycogen be stored in the liver when excess of carbohydrates is fed. After the glycogen has disappeared, a new process sets in, namely, that of glycconeogenesis, which, as its name indicates, consists of a manufacture of new sugar out of other than carbohydrate molecules. It is possible that more or less glycconeogenesis occurs in the animal body in health, and that the process merely becomes exaggerated in diabetes. Be that as it may, the fact remains that in this disease the tissues come to melt away into sugar, and all the symptoms of acute starvation, associated with certain others that are possibly due to a toxic action of the excess of sugar or of other abnormal products in the blood, make their appearance.

So far it might be permissible to consider an overproduction of dextrose as the cause of the hyperglycemia of pancreatic diabetes, just as we have seen it to be of these forms of hyperglycemia that are due to stimulation of the nervous system; but this cannot be the case, for another very definite abnormality in metabolism becomes evident, namely, an inability of the tissues to burn sugar. This fact is ascertained by observing the respiratory quotient, which is the ratio between the volume of carbon dioxide expired and the oxygen absorbed. When dextrose is added to the blood in a normal animal, the quotient rises almost, if not entirely, to unity, but however much may be added in the case of a completely diabetic animal, no change occurs. Some investigators have endeavored to explain this lowering of the quotient in other terms than that it indicates an inability to burn sugar, but the recent work of Verzář and of Murlin²⁸ removes all doubt about the matter.

There are, therefore, two essential disturbances of carbohydrate metabolism in diabetes, overproduction of sugar and abolition of the ability of the tissues to use it. It becomes important for us to see whether the tissues exhibit this inability to use sugar when they are isolated from the animal, for if they should, a much more searching investigation of the essential cause of their inability would be possible than is the case when they are functioning along with the other organs and tissues. I need not here mention the earlier experiments of Lépine and his pupils, who thought that diabetic blood did not possess the glycolytic power of normal blood; or of those of Cohnheim, who believed that mixtures of the expressed juices of muscle (liver) and pancreas, although ordinarily destroying dextrose, failed to do so when they were taken from a diabetic animal. The failure to show a depression of glycolytic power by these methods prompted Knowlton and Starling²⁹ to investigate the question whether any difference is evident in the rate with which dextrose disappears from a mixture of blood and saline solution used to perfuse a heart outside the body, according to whether the heart was from a normal or a diabetic dog. In the

first series of observations which these workers made, it was thought that the heart of a normal animal used dextrose at the rate of about 4 mg. per hundred grams of heart substance per minute; whereas that of a diabetic (depancreatized) animal used less than 1 mg. If such striking differences in the rate of sugar consumption could make themselves manifest for so relatively small a mass of muscular tissue as that of the heart, it is permissible to assume that a much more striking difference could be demonstrated when the perfusion fluid is made to traverse all or practically all of the skeletal muscles, as well as the heart. For this purpose an eviscerated animal may be employed; that is, one in which the abdominal viscera are removed after ligation of the celiac axis and mesenteric arteries, and the liver is eliminated by mass ligation of its lobes. To avoid the necessity of anesthesia the cerebral vessels are also tied off. R. G. Pearce and I³⁰ have found that the rate at which dextrose disappears from the blood in such a preparation, although very irregular, is in no way different in completely diabetic as compared with normal dogs. We were thus unable to confirm any of Knowlton and Starling's earlier conclusions. Patterson and Starling³¹ have subsequently shown that a serious error was involved in the earlier perfusion experiments, partly on account of a remarkable but irregular disappearance of dextrose from the lungs, and partly because the diabetic heart may contain a considerable excess of glycogen, from which its demands for sugar may be met without calling on that of the perfusion fluid. These observations have made it evident that conclusions regarding the rate of sugar consumption in the tissues cannot be drawn from the rate of the disappearance of this substance from the blood, unless determinations are simultaneously made of the amounts of glycogen in the tissues before and after the perfusion.³² The property of the muscles to take up sugar from the blood which Meltzer and Kleiner have recently investigated, further illustrates the difficulties of work of this nature.³³

Much more satisfactory results can be procured by taking as our index of dextrose consumption, not the rate at which dextrose disappears from the blood, but the behavior of the respiratory exchange after the injection of dextrose. In normal animals such injections, as we have already seen, cause an increase in the carbon dioxide excretion and a rise in the respiratory quotient. In diabetic (depancreatized) animals, on the other hand, it is asserted by Verzář that the sugar injections do not have this effect, provided a period of at least five days has been permitted to elapse since the pancreas was removed.³⁴ It is pertinent to note that if five days elapse after the removal of the pancreas before there is definite evidence of deficient sugar combustion, this cannot be the immediate cause of the diabetic condition.

The fact that on the one hand the normal animal, as judged from the respiratory exchange, burns more sugar when an excess is present in the blood, while the diabetic animal fails to do so, but excretes the excess instead, does not, however, carry us very far in deciding whether the failure to burn the sugar is dependent on a fault resident in the consuming tissues themselves, or on one affecting some organ whose function it is to prepare the sugar molecule for utilization.

30. Macleod, J. J. R., and Pearce, R. G.: *Zentralbl. f. Physiol.*, 1913, xxvi, 1311. *Am. Jour. Physiol.*, 1913, xxxii, 184.

31. Patterson and Starling: *Jour. Physiol.*, 1913, xlvii, 135. Cruickshank and Patterson: *ibid.*, 1913, xlvii, 381.

32. Camis: *Arch. ital. de biol.*, 1913, lx, 113.

33. Meltzer and Kleiner: *Proc. Am. Physiol. Soc.*, December, 1913.

34. Verzář and Fejér: *Biochem. Ztschr.*, 1913, llii, 140.

27. Cruickshank: *Jour. Physiol.*, 1913, xlvii, 1.

28. Verzář: *Biochem. Ztschr.*, 1911, xxxiv, 63.

29. Knowlton and Starling: *Jour. Physiol.*, 1912, xlv, 146. Maclean and Smedley: *ibid.*, 1913, xlv, 470.

All we really know at present is that the depancreatized animal cannot burn sugar, but, encouraged by the fruitful outcome of researches on the ductless glands, we have come to assume that this inability is because the removal entails the loss to the organism of some internal secretion or hormone which is necessary for sugar combustion. This is, however, by no means the only way by which the results can be explained, for we can assume that the pancreas owes its influence over sugar metabolism to some local change occurring in the composition of the blood as this circulates through the gland—a change which is dependent on the integrity of the gland and not on any one enzyme or hormone which it produces. It is obvious that the results of removal of the gland could be explained in terms of either view, and indeed, there is but one experiment which would permit us to decide which of them is correct. This consists in seeing whether the symptoms which follow pancreatectomy are removed, and a normal condition reestablished, when means are taken to supply the supposed missing internal secretion to the organism; if they should be, conclusive evidence would be furnished that it is by “internal secretion” and not by “local influence” that the gland functionates.

The experiments have been of two types: in the one, variously prepared extracts of the glands have been employed, and in the other, blood which is presumably rich in the internal secretion. The most recent work with pancreatic extracts has been performed by Knowlton and Starling, by Verzár,³⁴ and by Murlin and Kramer.²⁰ Although the first-mentioned workers have thought that their earlier experiments pointed to an improvement in the sugar-consuming powers of the isolated diabetic heart, when pancreatic extracts were mixed with the perfusion fluid, more recent investigation has shown that the complexity of the experimental conditions renders such a conclusion untenable. It has been unreservedly withdrawn by Patterson and Starling. Neither Verzár nor Murlin and Kramer were able to find that injection of pancreatic extracts into a depancreatized animal produced any effect on the respiratory quotient, although Murlin and Kramer did observe that injections of extracts of pancreas and duodenum produce a temporary fall in the dextrose excretion in the urine. More thorough investigation of the cause of this apparent antidiabetic effect, however, revealed the fact that it was due to the alkalinity of the extract. Alkali temporarily decreases and acids increase the sugar excretion in the urine in diabetic animals, possibly by the influence which they have in accelerating or depressing glycogenolytic activity. Apart from the conclusions which they permit us to draw, these experiments are of great importance in cautioning us as to the extreme technical difficulties that are likely to embarrass us in attacking this problem.

Nor have the experiments with blood-transfusions yielded results that are any more satisfactory. In undertaking these experiments it is of course assumed that the internal secretion is present in the blood, and that if this blood be supplied to an animal suffering from diabetes because of the loss of its pancreas, it will restore it to a non-diabetic state. The most important experiments have been performed by Hédon, Forsehbach, Carlson and Drennan, Murlin and Kramer,²⁰ Woodyat,³⁵ and Verzár and Fejér.³⁴ It would be useless for me to review the results of each observer. The gen-

eral conclusions, which may be drawn from their researches as a whole, is that there is no evidence that the blood of a normal animal, even when it is from the pancreatic vein, contains an internal secretion that can restore to a diabetic animal any of its lost power to utilize carbohydrates. When the extent of glycosuria alone is used as the criterion of the state of carbohydrate metabolism, serious errors in judgment are liable to be drawn. The condition of the blood-sugar and the extent and character of the respiratory exchange are the most reliable indexes.

In this article I have endeavored to do no more than pick out a few of the researches that have interested me most during the past two years. I have been compelled, perhaps somewhat arbitrarily, to exclude from my review among other things the extremely interesting and important work which has in this time been done on the nature of the chemical processes which are responsible for the new formation of sugar (glyconeogenesis) in the diabetic animal, and of those concerning the formation of acetone bodies which so regularly make their appearance in the later stages of the disease.

We may hope that the outcome of the studies which Ringer has recently prosecuted in this direction will be the successful control by therapeutic means of the development of the acetone bodies which occurs in the later stages of diabetes, just as the researches which I have attempted to review indicate in what way we may hope to control the disease in its earlier stages.

POSSIBILITIES IN THE USE OF THE AUSCULTATORY METHOD OF DETERMINING BLOOD-PRESSURE IN PNEUMONIA

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The advantage to be derived from the following of pneumonia cases with the sphygmomanometer has already been so fully shown that no further comment on this fact is necessary other than to emphasize by repetition its importance. The significance of the Gibson pulse-blood-pressure ratio in its relation to prognosis and treatment has likewise been fully shown.¹ This, in brief, as propounded by its originator, G. A. Gibson of Edinburgh, states that, in pneumonia, so long as the blood-pressure expressed in millimeters of mercury remains well above the pulse-beat per minute, the condition of the circulation can be considered as satisfactory, and the outlook for the patient as correspondingly favorable. Should the pulse per minute curve, however, rise above the systolic blood-pressure curve, the case assumes a most serious aspect, and unless this state of affairs is quickly amenable to our therapeutic endeavors a fatality may be expected.

While the preceding assertions have not borne without exception the extended clinical test accorded them, yet in spirit if not in letter they have been abundantly justified. The types of cases which have shown a lack

1. Gibson, G. A.: Some Lessons from the Study of Arterial Pressure, *Edinburgh Med. Jour.*, 1908, n. s., xxiii, 17. Gordon, G. A.: Some Remarks on the Value of Accurate Blood-Pressure Estimations, *Edinburgh Med. Jour.*, 1910, n. s., iv, 31. Hare: *Therap. Gaz.*, 1910, Series 3, xxvi, 387. Goodman and Pitman: *Therap. Gaz.*, July, 1911.

35. Woodyat: *Proc. Am. Physiol. Soc.*, December, 1913.

of conformity to the rule have been those in which the pulse and systolic pressure were, independently of the pneumonia, out of the proper relation. Most prominent among these are the senile and arteriosclerotic high blood-pressure cases in which the systolic pressure is so far above the pulse-rate that their comparison by the Gibson ratio may be most misleading. Thus a ratio which would indicate a splendid state of affairs in a young person with elastic vessels might prove incompatible with life in the case of an elderly arteriosclerotic. Such persons may die with a pressure well above pulse-rate. At the other extreme are found the cases with habitually relaxed circulation, wherein the system must have accommodated itself through necessity to the output of a cardiovascular mechanism of poor efficiency, and can therefore the more tenaciously cling to life in spite of a still further circulatory depression. This group comprises young persons—as instanced by chlorotic young girls—and more elderly persons of an anemic or emaciated habit. These cases are the ones in which life is maintained and recovery accomplished in spite of a continued pulse-rate above the blood-pressure. Between these extremes, cases are occasionally found which deviate from the rule but in which the influencing factor can usually be found to explain the discrepancy, as a nephritis, valvular defect, etc.

In all of these exceptions, however, as a working substitute for the ratio, Gibson's statement holds that "a pressure appreciably below normal in pneumonia is invariably an evil omen and any considerable fall bodes disaster." The "normal" pressure here must be taken as that normal to each individual when not suffering from pneumonia and not as referring to the usual 120 to 130 mm. The failure of Gibson's rule to hold in all cases of pneumonia must be largely due to the fact that in this instance alone is the systolic blood-pressure taken as the sphygmomanometric index of circulatory efficiency. As in no other condition is this the case why should it be so in pneumonia? Instances of high blood-pressure with poor circulatory efficiency are so common as to need no comment. Indeed, hardly less frequent are cases in which improvement takes place with an actual drop in the systolic blood-pressure, and it is with wonder, as well, that we recall the respectable pressures often maintained to the very last by the dying heart.

To make the Gibson pulse-blood-pressure ratio in pneumonia an even more valuable guide to the state of the circulation than it already is I would urge the attempt to estimate mentally in every case just what the pulse-blood-pressure ratio was prior to the onset of the disease, the age, vessels, heart lesions, kidney changes, etc., being taken into consideration. To this I would further add the noting of the auscultatory phases of the blood-pressure reading. With the auscultatory method of determining blood-pressure² now in general use, a noting of the auscultatory phases adds practically nothing in the way of time or trouble to the pulse-blood-pressure estimation.

The auscultatory phases above mentioned, in brief, number four and comprise the so-called auscultatory sequence. This sequence of sounds is heard with the stethoscope placed over the brachial artery below the sphygmomanometer cuff, as the column of mercury is

gradually allowed to fall in passing downward from the systolic pressure.

The first sound heard, after obliteration of the pulse, is a clear-cut tap, and indicates the point of systolic pressure. As the column of mercury falls other similar taps are heard. These *in toto* constitute the first phase. A sudden change from taps to a succession of murmurs marks the passage of first into second phase. The third phase is instituted on a reappearance of clear tapping sounds, and, as the column of mercury is allowed to gently sink, gives way to a succession of dull, muffled taps—the fourth phase. At the cessation of these sounds the mercury column continues its fall to the zero mark, unaccompanied by auscultatory phenomena. This absence of sound has been called by some the fifth phase. In view of the recent work by Warfield³ and also by Weyssse and Lutz,⁴ the diastolic pressure must be taken as corresponding with the beginning of the fourth phase, and not as with the cessation of all sounds.

The proper allotment of space, in the normal, to each of these phases has been worked out and the whole graphically presented on a percentage basis. A backward look at the manner in which the question of auscultatory sequence reading has been presented leads me to feel that its kernel of truth has been lost in the maze of numerals and percentages that have accompanied its description. What is needed, for the appreciation of the worth of this method, is its reduction to the simplest terms. Who of us on listening to a heart consciously recalls the numerical relations and ratios of the various components of the cardiac cycle? We have, rather, fixed in our consciousness what we look on as a normal sequence of these sounds. This is the fruit of numberless examinations and serves us as a standard for comparison. The impress of a normal auscultatory sequence must be sought in the same way. It will come through our sense of hearing, in repeated examinations, rather than by studying sets of figures or by devoting much time to percentage calculations.

It is important to realize that normally these four phases do exist. Of further importance is it that a predominance of the characteristics of the second and third phase, murmurs and clear taps, bespeak cardiac and arterial integrity and circulatory efficiency, while on the other hand, a prolongation of those of the fourth phase, dull taps at the expense of the second and third phases indicates a reversal of these favorable conditions.

As a more comprehensive statement of what can be learned from auscultatory sequence reading I quote from the second paper by Dr. Goodman and myself⁵ on this subject:

Aside from the value of the persistence of the fourth phase in aortic insufficiency, little of diagnostic value has developed in regard to the length of any individual phase. Advantage has been derived, however, from studying the changes in the sequence readings, especially in decompensating cardiac lesions, as the patient improves or not. Or to put it another way, sequence readings have a functional rather than an organic significance.

To this I would add that in pneumonia, especially, is found a fruitful field for its usefulness.

2. Korotkow: (Quoted by Ettinger.) Ettinger: Wien. klin. Wchnschr., 1907, p. 992. Gittings, J. C.: Auscultatory Blood-Pressure Determinations, Arch. Int. Med., Aug. 15, 1910, 196. Goodman and Howell: Univ. Penn. Med. Bull., 1910, xxiii, 469. Fischer: Deutsch. med. Wchnschr., 1908, p. 1141.

3. Warfield, L. M.: Studies in Auscultatory Blood-Pressure Phenomena, 1. The Experimental Determination of Diastolic Pressure, Arch. Int. Med., Sept. 15, 1912, p. 258; Interstate Med. Jour., 1912, xix, 856; THE JOURNAL A. M. A., Oct. 4, 1913, p. 1254.

4. Weyssse and Lutz: Am. Jour. Physiol., Dec. 1, 1913, xxxii, No. 8.

5. Goodman and Howell: Am. Jour. Med. Sc., 1911, p. 146.

As regards the characteristics of the auscultatory sequences in pneumonia, I would preface my remarks by saying that I do not recommend an attempt at recording the phases in their actual millimetric length, as this would in the majority of cases be impossible, but rather their individual scrutiny as to whether present or absent, long or short, or good or bad (that is, characteristic or not), in fact, with about the same thoughts in mind as one would have in listening to the heart itself.

Indeed, the heart sounds and those heard over the artery are comparable in a general way. Other things being equal, strong, clear-cut sounds over the artery are as indicative of a state of circulatory well being as are sounds of similar nature heard at the apex. Likewise indefinite, muffled or irregular sounds are as worthy of the opposite interpretation as are like sounds over the heart.

While the second and third phases when generously present are taken as standing for circulatory strength, this interpretation must be modified by the way in which these phases measure up to the standard in the quality of their individual sounds. Thus a very clear and much-prolonged third phase is found with arteriosclerosis, cardiac hypertrophy and accentuated aortic second sound. It can be seen, therefore, that in the third phase information can be gleaned regarding both the heart and the degree of peripheral resistance. For this reason it, of all the phases, is the most enlightening one in pneumonia.

Again I emphasize that more is to be gained from watching the changes in a succession of sequences than from isolated observations, for, indeed, one patient may be quite comfortable with a sequence which in another promises the worst.

The second phase is the one most quickly lost in pneumonia and therefore its presence is of good augury. As already suggested, it is principally in the general character and duration of the clear tap of the third phase that information as to the degree of circulatory efficiency must be sought.

In pneumonia I take all clear tapping sounds as of good import whether heard in that part of the sequence usually assigned to the third phase or not. To all weak or muffled sounds, in the same way, the opposite significance is given. When the clear tap is lost and the sequence appears as a succession of dull muffled sounds from systole downward, a high grade of peripheral relaxation and secondary cardiac exhaustion can be inferred. When to this, arrhythmia is added, the worst picture is drawn.

The preceding statements would not in themselves be so interesting were it not for the fact that such changes in the sequences can occur without a corresponding change in the Gibson ratio. It would seem, therefore, that a laboring heart and its relaxed vessels can more easily sustain a stationary Gibson ratio than a stationary auscultatory sequence.

It is in the advance information thus afforded that the auscultatory sequence can claim its unique place in the following of a pneumonia case. Furthermore, the same kind of information is at hand in those cases which do not lend themselves to Gibson's dictum. As it is the little things that so often turn the tide for or against us in pneumonia, I feel that here we have one of the little things that we can't afford to miss.

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VARIATIONS IN THE STRENGTH OF THE WASSERMANN REACTION IN UNTREATED SYPHILITIC INFECTIONS *

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The complement-fixation test for syphilis has proved to be of the greatest value in the diagnosis of the disease, and as a control of the efficiency of treatment. I believe that this statement will be accepted by all students of the subject who have had a wide experience in the application of the test, despite the adverse reports and criticisms of some syphilographers who are loath to admit that the opinions of centuries concerning certain clinical conceptions of the disease, and the ease with which it may be cured, have received a death-blow, as shown by the positive results obtained with this test in innumerable cases thought to have been cured by the older methods of treatment.

Certainly, my own experience, covering over 15,000 Wassermann tests made during my service at the Laboratory of the Army Medical School, Washington, D. C., and at this laboratory, has convinced me that in this reaction we possess the most valuable test that we have of the presence of syphilitic infection, a positive reaction being the most delicate and persistent of all of the symptoms of syphilis, and that, in the light of our present knowledge, to consider a patient as cured of the disease so long as a positive Wassermann reaction is present, is not only irrational, but most unjust to the patient, in that it exposes him to almost certain relapse in the future, and renders the infection of innocent individuals more than probable.

Valuable as this test is, however, in the diagnosis and as a guide to the treatment of syphilis, there are many phenomena connected with it that are, as yet, unexplained, and it is one of these that forms the subject of this contribution, that is, the extreme variation in the strength of the reaction sometimes observed in untreated patients suffering from syphilitic infection.

During the routine examination of serums for the Wassermann reaction at the laboratories mentioned, I have frequently observed cases in which the reaction varied from a strongly suspicious one to a plus-minus or negative one within intervals of one or two weeks, while in a few cases a positive reaction has become negative within the same period of time, the patients in the meanwhile having received no treatment. In all of these instances subsequent tests of the blood-serum resulted in a positive reaction, so that it was evident that these variations in the result must have depended on the reduction or absence of the body or bodies in the patient's serum which produce complement fixation in the presence of an efficient antigen.

The fact that the blood-serum of an undoubted syphilitic patient may, during certain intervals, give a negative reaction, in the absence of specific treatment, and when previous and subsequent tests are positive, is of considerable importance in the interpretation of a negative result in any case suspected of the disease, and of significance in the study of the exact nature of this reaction. In my experience these anomalous results have not been very numerous, but their occurrence, together with the criticisms of some writers who have

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had a similar experience, and who therefore appear to consider the test untrustworthy, renders an experimental study of the subject of value, and in this paper I shall give in detail the results obtained from the daily titration of the blood-serum of ten untreated cases of syphilis. the titrations covering seven days in each instance.

While, *a priori*, there would appear to be no reason why the strength of the complement-fixation reaction in the blood-serum of untreated syphilitics should not vary markedly from day to day, this phase of the subject appears to have received little attention, and we have grown to consider the strength of the reaction as an invariable quantity, the discordant results that have sometimes been obtained with the reaction either being imputed to the serologist or considered as proof of the unreliability of the test. If this paper does nothing more, it will demonstrate that marked daily variations do occur in the strength of the reaction and that these must be most carefully considered in the interpretation of negative or anomalous results.

MATERIAL AND TECHNIC

Ten patients suffering from undoubted syphilitic infection were selected for the experiments. Of these, two were in the primary stage of the disease, four in the secondary stage, and four in the latent stage of syphilis. The only patients who had received any treatment were those in the latent stage and it had been over a year since any treatment had been administered to these cases. The two patients in the primary stage showed typical chancres, and have since developed secondary lesions; the four in the secondary stage all showed typical eruptions or mucous lesions; while the four with latent infections were free from symptoms at the time of examination, but gave a typical history of infection and had presented typical symptoms in the past. All of the patients with latent infections had been treated with salvarsan about one year before these tests were made.

Most of the men were prisoners in the U. S. Military Prison, at Fort Leavenworth, and thus all chance of the strength of the reaction being influenced by the use of alcohol or by other irregularities was obviated, the men being under a rigid discipline and on a plain, wholesome diet. The serum was collected every morning in sterilized tubes and promptly tested.

As regards the technic of the test, it may be stated that it was identical with that used by myself during the past four years in the routine Wassermann work of the laboratories mentioned, being a modification of both the original Wassermann and the Noguchi technic. A human hemolytic system was employed instead of the sheep system of Wassermann, while an alcoholic syphilitic antigen was employed and the serums were always inactivated before being tested.

Each patient's blood-serum was titrated every day for one week, the quantities of serum employed being 0.02 c.c.; 0.04 c.c.; 0.06 c.c.; 0.08 c.c. and 0.1 c.c. The quantity of blood-serum used in our routine Wassermann tests is 0.08 c.c., so that this quantity may be taken as the diagnostic amount given in the tables. A control of 0.1 c.c. of the serum titrated was always used.

In the tables the sign ++ indicates absolute inhibition of hemolysis, or a positive reaction; the sign + anything between absolute inhibition and 50 per cent. of inhibition of hemolysis, or a doubtful reaction; the sign +— anything between 50 per cent. of inhibition and total hemolysis, or practically a negative reaction; and the sign — total hemolysis or a negative result.

RESULTS IN THE PRIMARY STAGE OF SYPHILIS

Owing to lack of material, there were only two cases tested in the primary stage of syphilis. The men both presented typical chancres and when first tested gave a double-plus, or positive Wassermann reaction.

CASE 1.—The results obtained in the titration of the blood-serum in Case 1 are shown in Table 1. Several days before the titrations were begun the blood-serum in this case gave a double-plus reaction. The variations in the strength of the serum, as shown by the table, are most marked, of course, with the smaller amounts used but it will be noted that on three days of the test week, the amount of serum usually used as the diagnostic amount (0.08 c.c.) gave a plus, or doubtful reaction, and that this was also true of 0.1 c.c. of the serum, an amount larger than is usually employed in our routine tests. It is thus evident that if spirochetes could not have been demonstrated in the lesion present the Wassermann test in this case would have been doubtful during three of seven days. With the smaller amounts of serum the reaction varied from a plus-minus to a double-plus reaction, and on the seventh titration the smallest amount of serum used gave a double-plus reaction.

TABLE 1.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 1 (PRIMARY)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|---------------|-----------------------------|------|------|------|-----|--------------|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Nov. 19 | +— | + | + | + | + | — |
| Nov. 20 | +— | +— | ++ | ++ | ++ | — |
| Nov. 21 | +— | + | ++ | ++ | ++ | — |
| Nov. 22 | +— | +— | ++ | + | + | — |
| Nov. 23 | + | ++ | ++ | ++ | ++ | — |
| Nov. 24 | +— | + | + | + | + | — |
| Nov. 25 | ++ | ++ | ++ | ++ | ++ | — |

CASE 2.—The results obtained in the titration of the blood-serum of Patient 2 are given in Table 2. Several days before the titrations were begun the blood-serum of this patient gave a double-plus or positive reaction. It will be noted that while for five of the seven days during which the serum was titrated, he gave a double-plus reaction, on two days he gave a plus or doubtful reaction, and that this reaction was obtained with both 0.08 c.c. and 0.1 c.c. of serum. With smaller quantities of serum he varied more than Case 1, on two of the seven days being negative with 0.02 c.c. of serum, and at no time did this amount of serum give a double-plus reaction.

TABLE 2.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 2 (PRIMARY)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|---------------|-----------------------------|------|------|------|-----|--------------|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Nov. 19 | + | ++ | ++ | ++ | ++ | — |
| Nov. 20 | +— | ++ | ++ | ++ | ++ | — |
| Nov. 21 | — | +— | + | + | + | — |
| Nov. 22 | — | +— | +— | + | + | — |
| Nov. 23 | + | ++ | ++ | ++ | ++ | — |
| Nov. 24 | + | ++ | ++ | ++ | ++ | — |
| Nov. 25 | + | ++ | ++ | ++ | ++ | — |

It may be stated, then, that both of these cases of primary syphilis showed such variations in the strength of the Wassermann reaction as to have been reported doubtful had spirochetes not been demonstrable in the lesion present, even when an amount of serum in excess of that usually employed in the test was used.

RESULTS IN THE SECONDARY STAGE OF SYPHILIS

The blood-serum of four cases of secondary syphilis, presenting symptoms typical in character, was tested in the same manner and with the following results.

CASE 3.—This patient presented a few typical mucous patches in the mouth and throat and gave a history of having had an eruption covering the chest and back. Table 3 gives the results of the titration of his blood-serum. It will be noted that in this case even the smallest amount of serum employed gave a double-plus reaction each day it was tested, and that at no time during the week was there a diminution in the strength of the reaction. The case is interesting as showing how strong the reaction is in some instances and how little it varies even with very small amounts of serum.

TABLE 3.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 3 (SECONDARY)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|---------------|-----------------------------|------|------|------|-----|--------------|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Nov. 26 | ++ | ++ | ++ | ++ | ++ | — |
| Nov. 27 | ++ | ++ | ++ | ++ | ++ | — |
| Nov. 28 | ++ | ++ | ++ | ++ | ++ | — |
| Nov. 29 | ++ | ++ | ++ | ++ | ++ | — |
| Nov. 30 | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 1 | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 2 | ++ | ++ | ++ | ++ | ++ | — |

CASE 4.—This patient had mucous patches and a slight secondary eruption at the time of examination. The results of the titration of his blood-serum are given in Table 4. In this case the only variation in the binding power of the serum was noted in the smallest quantity used, on two days 0.02 c.c. of the serum giving a plus reaction. The diagnostic amount of serum (0.08 c.c.), however, always gave a double-plus reaction, so that in this and the preceding case it may be stated that no variation of diagnostic importance occurred during the titrations.

TABLE 4.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 4 (SECONDARY)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|---------------|-----------------------------|------|------|------|-----|--------------|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Jan. 3* | ++ | ++ | ++ | ++ | ++ | — |
| Jan. 4 | ++ | ++ | ++ | ++ | ++ | — |
| Jan. 5 | ++ | ++ | ++ | ++ | ++ | — |
| Jan. 6 | ++ | ++ | ++ | ++ | ++ | — |
| Jan. 7 | + | ++ | ++ | ++ | ++ | — |
| Jan. 8 | + | ++ | ++ | ++ | ++ | — |
| Jan. 9 | ++ | ++ | ++ | ++ | ++ | — |

CASE 5.—This patient presented mucous patches and a well-marked secondary eruption at the time of examination, and had given a double-plus Wassermann reaction a few days before the titrations were begun. Table 5 illustrates the results obtained.

TABLE 5.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 5 (SECONDARY)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|---------------|-----------------------------|------|------|------|-----|--------------|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Dec. 24 | +- | +- | + | ++ | ++ | — |
| Dec. 25 | — | — | — | + | + | — |
| Dec. 26 | — | +- | +- | + | + | — |
| Dec. 27 | — | — | + | ++ | ++ | — |
| Dec. 28 | +- | + | + | ++ | ++ | — |
| Dec. 29 | — | +- | +- | + | ++ | — |
| Dec. 30 | — | +- | + | + | ++ | — |

The blood-serum of this patient presented marked variations in the strength of the Wassermann reaction. On one day he was absolutely negative with the usual amount of serum used in the test and only gave a plus-minus reaction with 0.1 c.c.

of the serum; on another day he gave a plus-minus reaction with the diagnostic amount of serum and a plus reaction with the larger amount, while on three days he gave a plus or doubtful reaction with the diagnostic amount of serum. The variations with the smaller amounts of serum are still more marked, negative and plus-minus reactions being very numerous, while at no time did less than 0.08 c.c. of his serum give a double plus, or positive result. With the diagnostic amount of serum, namely, 0.08 c.c., he gave a positive reaction only on two of the seven days his serum was tested, and on two days he was practically negative, doubtful results being obtained on the remaining days.

This case is of great interest owing to the marked variations that occurred in the strength of the reaction in the presence of very marked secondary symptoms.

CASE 6.—This patient presented a typical secondary eruption on the chest and back at the time of examination, and gave a double-plus Wassermann reaction before the titrations of his serum were begun. Table 6 gives the result of the titrations in this case.

TABLE 6.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 6 (SECONDARY)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|---------------|-----------------------------|------|------|------|-----|--------------|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Dec. 5 | +- | +- | + | + | ++ | — |
| Dec. 6 | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 7 | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 8 | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 9 | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 10 | +- | + | + | + | + | — |

Comparatively little variation occurred in the strength of the reaction in this case, but on two days the diagnostic amount of serum gave only a plus or doubtful reaction, while on one day even the larger amount of serum gave a similar reaction.

From these results in secondary, untreated, cases of syphilis, it is evident that the strength of the Wassermann reaction may vary all the way from a double-plus or positive reaction to a negative reaction, in the same patient, within an interval of a few days, and in the presence of marked symptoms of syphilitic infection. The great practical importance of this fact is apparent and must be borne in mind in the interpretation of a negative or doubtful result with this test in suspected cases of the disease.

RESULTS IN THE LATENT STAGE OF SYPHILIS

Four patients in the latent stage of syphilis were tested. All of them gave a history of definite symptoms of the disease in the past, but in none of them had active symptoms been present for a period of at least one year. All of the men had received one or two injections of salvarsan over one year ago and all gave a double-plus Wassermann reaction shortly before the titrations of the blood-serum were commenced. None of the men presented symptoms of syphilitic infection beyond enlarged inguinal and epitrochlear glands at the time of examination.

CASE 7.—Table 7 gives the result of the titration of the blood-serum in this case. It will be noted that, with the diagnostic amount of serum, this patient gave a doubtful, or plus, reaction on three of the seven days on which it was tested, and that the same type of reaction was also given with 0.1 c.c. of the serum. On two days the serum gave a double-plus reaction even with the smallest quantity used, while the same amount on five days gave a negative or plus-minus reaction.

TABLE 7.—RESULTS OF TITRATION OF BLOOD-SERUM IN
CASE 7 (LATENT)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|-----------------|-----------------------------|------|------|------|-----|-----------------|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Dec. 19 | +— | + | + | ++ | ++ | — |
| Dec. 20 | — | +— | + | ++ | ++ | — |
| Dec. 21 | — | + | ++ | ++ | ++ | — |
| Dec. 22 | — | +— | + | + | + | — |
| Dec. 23 | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 24 | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 25 | +— | + | + | + | + | — |

On three days the serum from this patient gave a reaction which could not be considered positive, so that it may be stated that the Wassermann test in this case would have been of little diagnostic service on three of seven consecutive days.

CASE 8.—Although no symptoms had been noted in Patient 8 for over one year, his blood-serum was very uniform in strength, and gave a double-plus or positive result on every day it was tested. Table 8 gives the result of the daily titration of the blood-serum in this case.

TABLE 8.—RESULTS OF TITRATION OF BLOOD-SERUM IN
CASE 8 (LATENT)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|-----------------|-----------------------------|------|------|------|-----|-----------------|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Jan. 12 | + | ++ | ++ | ++ | ++ | — |
| Jan. 13 | + | ++ | ++ | ++ | ++ | — |
| Jan. 14 | + | ++ | ++ | ++ | ++ | — |
| Jan. 15 | +— | + | ++ | ++ | ++ | — |
| Jan. 16 | +— | + | ++ | ++ | ++ | — |
| Jan. 17 | +— | + | ++ | ++ | ++ | — |
| Jan. 18 | +— | + | + | + | ++ | — |

It will be noted that on only one day did the strength of the Wassermann reaction in this case vary enough to cause a doubtful or plus reaction with the diagnostic amount of serum, and that even with the smaller amounts of serum the results were generally positive, with the exception of 0.02 c.c., which never gave a double-plus reaction. The case is of interest as showing how uniform the reaction may be in a latent case of syphilis.

CASE 9.—The blood-serum in this case varied markedly in complement-fixing strength, as will be seen by Table 9. A consideration of this table shows that, if we take the diagnostic amount of serum, or 0.08 c.c., on only two of the seven days was a positive, or double-plus, reaction obtained; that on one day the serum was negative; on one day, plus-minus; and on three days a plus reaction was obtained. With an amount of serum larger than the diagnostic amount usually employed, that is, 0.1 c.c., on two days a plus-minus reaction was obtained and on one day a plus reaction.

TABLE 9.—RESULTS OF TITRATION OF BLOOD-SERUM IN
CASE 9 (LATENT)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|-----------------|-----------------------------|------|------|------|-----|-----------------|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Jan. 15 | — | +— | ++ | ++ | ++ | — |
| Jan. 16 | — | +— | + | + | + | — |
| Jan. 17 | +— | + | + | ++ | ++ | — |
| Jan. 18 | — | — | +— | + | ++ | — |
| Jan. 19 | — | — | — | — | +— | — |
| Jan. 20 | — | — | +— | + | ++ | — |
| Jan. 21 | — | — | — | +— | +— | — |

With the smaller amounts of serum the variations in the strength of the reaction were still more striking, as will be noted by consulting the table.

CASE 10.—In so far as a positive result is concerned, this patient's serum varied even more markedly than did that of the preceding case. The results of the titration of this serum are shown in Table 10. From a consideration of this table it will be noted that with 0.08 c.c. of serum, the amount usually employed in our routine tests, a double-plus, or positive, reaction was obtained on only one day of the seven during which the serum was titrated. This patient's blood had been tested the day before the titrations commenced and gave a double-plus reaction, and since then has repeatedly given such a reaction, but it is evident that had he been tested on six of the seven days covered by titration of his serum, a doubtful or negative report would have been returned. With 0.1 c.c. of serum the reaction was positive on three of the seven days he was under examination. With the smaller amounts of serum the variation in the strength of the reaction is still more apparent.

TABLE 10.—RESULTS OF TITRATION OF BLOOD-SERUM IN
CASE 4 (LATENT)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|-----------------|-----------------------------|------|------|------|-----|-----------------|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Jan. 15 | — | — | — | +— | + | — |
| Jan. 16 | — | +— | + | + | ++ | — |
| Jan. 17 | — | +— | + | + | + | — |
| Jan. 18 | — | — | +— | + | + | — |
| Jan. 19 | — | +— | +— | +— | +— | — |
| Jan. 20 | — | + | + | + | ++ | — |
| Jan. 21 | +— | ++ | ++ | ++ | ++ | — |

DISCUSSION OF THE RESULTS

Briefly summarized, the results obtained in this investigation may be stated as follows: In one case of primary syphilis, a plus or doubtful complement-fixation reaction was obtained on three of seven days, the reaction on four days being double-plus, or positive; in another case, a plus or doubtful reaction was obtained on two of seven days. In one case of secondary syphilis, a negative reaction was obtained on one day, a plus-minus on one day, a plus or doubtful reaction on three days and a positive or double-plus reaction on two days; in another secondary case a plus or doubtful reaction was obtained on two of seven days. Of the latent cases, one gave a plus-minus reaction on two days and a plus reaction on four days of the week, a positive reaction being obtained only on one day; another gave a negative reaction on one day, a plus-minus on another, and a plus reaction on three days. The third latent case gave a plus or doubtful reaction on three of seven days, while the fourth case gave a double plus reaction on all but one day of the seven.

The most important practical points brought out by these observations on the daily titration of the blood-serum of untreated syphilitics are that great variations may occur in the complement-binding power of the serum in patients uninfluenced by any kind of treatment; that a single negative or doubtful Wassermann reaction is of no value in excluding syphilis; and that the occurrence of these natural variations must be carefully considered in the diagnosis and the control of treatment of the disease.

There can be no question regarding the technic employed in the titration of these serums as it was identical with that used in our routine Wassermann work, a technic that has been thoroughly controlled and checked by thousands of reexaminations of patients under treatment during the past four and a half years in which I have employed it. Any interference with the reaction which might have been brought about by

excesses of any kind is thought to be impossible, as the patients, with two exceptions, were military prisoners, under strict discipline and on an ordinary diet. The influence of alcohol in rendering a positive Wassermann test negative, first called attention to by Nichols and myself,¹ was one of the reasons that prisoners were selected for these tests, and I believe that this disturbing factor was entirely eliminated.

It would appear, then, that marked variations in the strength of the Wassermann reaction may occur, from day to day, in the blood-serum of untreated syphilitic patients, and the question arises: To what are these variations due? In order to answer this question it would be necessary to know the exact cause of complement-fixation in syphilis, a problem still unsolved, although many interesting, attractive and plausible theories have been brought forward by numerous investigators to explain this phenomenon.

That complement-fixation in syphilis is not always a true antigen-antibody reaction is proved by the fact that antigens prepared from normal tissues are efficient, and when such an antigen is used it has been shown that complement-fixation is due to the reaction between the lipoids present in the antigen and lipotropic substances present in the patient's serum. That a true antigen-antibody reaction does occur, however, in certain instances, is proved by the positive results obtained with antigens made from pure cultures of *Spirochaeta pallida*, as shown by Noguchi,² Nichols and myself,³ and Kolmer, Williams and Laubach.⁴ When an antigen prepared from a fetal syphilitic liver, rich in spirochetes, is employed, I am of the opinion that the complement-fixation reaction obtained is often of a dual nature, there being a specific reaction between the substances extracted from the spirochetes and antibodies in the syphilitic serum, and a non-specific reaction between lipoids present in the extract and lipotropic substances in the serum.

I believe that it may be accepted as proved that there exist in the blood-serum of syphilitics specific antibodies and lipotropic substances that are capable of fixing complement when brought into contact with an efficient antigen. It has also been demonstrated that these bodies depend for their origin on the presence in the body of the spirochetes, for when the latter disappear from the lesions in experimental animals, as the result of treatment, the complement-fixation reaction also disappears. Whether these substances are produced by the reaction of the tissues to endotoxins liberated by the breaking up of the dead spirochetes, to toxins produced by the living spirochetes, or to the presence in the blood of the toxins themselves, are all mooted questions, but it is evident that there must be a certain amount of them in the blood-serum before a positive Wassermann reaction can be obtained. This amount would be expected to vary greatly with the amount of infection; that is, with the number of spirochetes, and from a practical point of view, so far as the correct interpretation of the reaction is concerned, it is immaterial how

these substances are produced. The fact must be recognized that in untreated cases of syphilis the Wassermann reaction may vary all the way from a positive to a negative within a short period of time, and with the usual amount of serum employed in the test.

The observations detailed in this contribution make still more evident the absolute worthlessness of a single negative reaction in eliminating syphilis in a suspected person. In several of the cases under discussion the blood-serum, if tested only on certain days, would have given a negative, or practically negative, result, although serum from the same persons had previously given a positive result and again became positive within a day or two. If this be true of untreated cases, some of them showing severe lesions of the disease, it will certainly be found true of a greater number of latent and treated infections, the very class of cases in which a negative Wassermann test is so often considered decisive as to the absence of the disease. The present propaganda for a *engenie* law, in which a single, or even two, negative Wassermann reactions are to be relied on to exclude syphilis, does not take into consideration the very slight value of a negative result, and while such a law would be a step in the right direction, a dependence on such a standard alone will inevitably lead to a false sense of security and to the infection of innocent persons.

In conclusion, it may be stated that the daily titration of the complement-fixing power of untreated syphilitics indicates the importance of repeated examinations, when a negative result is obtained, before the patient is considered free from infection. The results also explain some of the anomalous reactions that have been recorded in the literature, and emphasize the need of great caution in the interpretation of negative or doubtful Wassermann reactions.

I desire to express my thanks to Major Kent Nelson, Medical Corps, U. S. Army, and to Capt. Thomas D. Woodson, Medical Corps, U. S. Army, for the opportunity of making the tests recorded in this paper.

THE LUETIN CUTANEOUS REACTION FOR SYPHILIS *

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Those who have reported results with the luetin cutaneous reaction for syphilis are practically agreed in the conclusion that the test is valueless in primary and secondary (untreated) syphilis and is of value only in the later stages. Over 1,500 tests have been reported in cases of late syphilis and 2,000 in control cases by over twenty-five observers. The percentages of positive reactions reported by different authors vary about as follows:

Tertiary and latent, from 65 to 100 per cent.

Congenital, from 10 to 96 per cent.

Cerebrospinal "parasyphilis," from 30 to 80 per cent.

Variations such as these between the reports of a number of observers are not surprising except in the wide differences in congenital syphilis. For this form, Kaliski reports one positive test in ten cases, while Brown reports thirty positive in thirty-four cases, and Noguchi reports twenty-three positive in twenty-four. The total number of tests in congenital syphilis is still very small, and more reports are evidently needed.

1. Craig, Charles F., and Nichols, H. J.: The Effect of the Ingestion of Alcohol on the Result of the Complement-Fixation Test in Syphilis. *THE JOURNAL A. M. A.*, Aug. 5, 1911, p. 474.

2. Noguchi, H.: Experimental Research in Syphilis with Especial Reference to *Spirochaeta pallida* (*Treponema pallidum*). *THE JOURNAL A. M. A.*, April 20, 1912, p. 1163.

3. Craig, Charles F., and Nichols, H. J.: A Study of Complement-Fixation in Syphilis with *Spirochaeta* Culture Antigens. *Jour. Exper. Med.*, 1912, xvi, 336.

4. Kolmer, J. A., Williams, W. W., and Laubach, E. E.: A Study of Complement-Fixation in Syphilis with *Treponema* Antigens. *Jour. Med. Research*, 1913, n. s., xxiii, 345.

* From the West Medical Service, Massachusetts General Hospital, Dr. R. C. Cabot, Chief of Service.

It is generally agreed that the luetin test, when positive, is highly specific for syphilis. Out of 2,000 control cases, only fourteen are reported as giving positive reactions (twelve of these by Kaliski). These cases were: tuberculosis (four cases); nephritis, endocarditis, cirrhosis, gout, myasthenia gravis, multiple sclerosis, scrofuloderma, and psoriasis. It seems impossible to prove whether some of these patients may not have had latent syphilis. Two patients were seen in the series to be reported here, giving positive reactions, in which syphilis could not be proved. Both were clinically diagnosed as joint tuberculosis, but left the hospital before the result of a therapeutic test for syphilis could be observed.

METHOD OF INJECTION OF LUETIN¹

The luetin, which is an emulsion of a killed culture of *Spirochaeta pallida*, is mixed with equal parts of normal salt solution, and 0.07 c.c. of this mixture is injected with a tuberculin syringe, as superficially as possible into the skin, so as to form a wheal about 5mm. in diameter. In a negative reaction, the lesion may become slightly reddened but never becomes larger than the original wheal and disappears in three or four days. In a positive reaction, a raised papule appears, usually within from twenty-four to forty-eight hours, with rather diffusé induration and surrounding redness. The whole increases in size in from four to six days, reaching a total diameter of not less than 8 mm. and usually from 10 to 20 mm. It then fades during from three to six days more, some reactions being still evident after twenty or thirty days. The papule frequently goes on to pustule formation, but rarely requires opening, and there is very little pain and tenderness in proportion to the size of the lesion. Constitutional reactions are rare and very slight when they do occur. None were seen in the cases in this series.

REPORT OF TESTS

Through the courtesy of Dr. Noguchi, in supplying us with luetin, we have been able to perform 150 tests in 120 cases (ninety cases on the medical wards and also thirty cases on the orthopedic ward, done by Dr. J. F. O'Farrell, who very kindly furnished the records

LUETIN AND WASSERMANN TESTS IN THIRTY-SIX CASES OF SYPHILIS

| | No. of Cases | Luetin Test, Positive | Wassermann, Positive | Luetin Pos. with Negative Wass. | Luetin Positive, Without Treatment | Luetin Neg. before Treatment and Pos. after Treatment |
|--------------------------------------|--------------|-----------------------|----------------------|---------------------------------|------------------------------------|---|
| Tertiary and latent | 22 | 14=64% | 18*=80% | 3 | 8† | 2 |
| Cerebrospinal parasyphilis | 12 | 5=42% | 9 =75% | 1‡ | 1 | 2 |
| Congenital . . | 2 | 0 | 1 | .. | .. | .. |

* The figures in this column are high because they include some cases in which the Wassermann reaction was negative in the blood and only weakly or moderately positive in the spinal fluid.

† It is well understood that the luetin reaction is more often positive in treated than in untreated cases, but the low number here shown of cases positive without treatment is partly due to the fact that many of the patients entered the hospital with the diagnosis already made, and treatment was begun at once before the luetin reaction could be observed.

‡ Blood Wassermann negative four times. The Wassermann on the spinal fluid was weakly positive.

1. For method of preparation of luetin, classification of types of reaction, etc., see Noguchi: Jour. Exper. Med., 1911, xiv, 557; Experimental Research in Syphilis, with Especial Reference to *Spirochaeta Pallida* (*Treponema Pallidum*), THE JOURNAL A. M. A., April 20, 1912, p. 1163.

for this report). There were thirty-six cases of syphilis and eighty-four controls. All of the control cases gave negative reactions with the exception of the two cases of joint disease noted before. The results in the cases of syphilis can best be shown by the accompanying table.

The relative values of the luetin and Wassermann tests in this small series of cases is evident from the table. The Wassermann reaction is positive in a higher percentage of cases of late syphilis than is the luetin. The value of the luetin reaction appears in the small number of cases of syphilis in which it is positive, while the Wassermann is negative (four out of thirty-six cases). In these cases it is of definite value, and it is for this reason that the test is now used on the medical service at this hospital.

REPEATED INOCULATIONS

In thirty cases giving negative or doubtful results on first inoculation, the test was repeated after an interval of from ten to sixty days, in an effort to determine whether or not it is possible to sensitize either a normal person or a syphilitic by one inoculation so that a second injection will give a positive reaction.

Of thirteen control cases, none reacted positively on second inoculation. Of fifteen luetic cases giving negative reactions, five gave positive reactions on second inoculation. It is impossible to say, however, whether this was due to sensitization by the first injection or to treatment, since all five patients were given either salvarsan or mercury before the second injection.

In two cases, the second injection gave a doubtful reaction. One of these was a case of infectious arthritis. The second injection of luetin was given two weeks after the first, and the following day, there appeared at the site of the first injection a superficial papule with an area of surrounding hyperemia, which increased in size during twenty-four hours to a diameter of 10 mm. and then rapidly faded. On account of the short duration of the reaction and the lack of induration the test was not called positive.

The second case was also one of chronic infectious arthritis of eight months' duration. Repeated Wassermann tests were negative and there was no history of lues. The second luetin injection produced a superficial papule with an area of hyperemia 10 mm. in diameter, in twenty-four hours, which faded during the next twenty-four to forty-eight hours. Three days later 0.3 gm. of salvarsan was given as a therapeutic test, without any noticeable effect at the site of the luetin injection. Another similar dose of salvarsan was given twelve days later, and the following day a reaction appeared at the site of the second luetin injection which ran a course similar to the previous reaction. Whether or not this may have been a case of luetic arthritis it is impossible to say, but the improvement of the patient, which had been slow with frequent relapses, was rapid and very marked after the beginning of the salvarsan treatment.

TYPES OF REACTIONS

Besides the original types of reactions described by Noguchi—the papular, pustular and torpid forms—there have since been described several cases of the formation of a hemorrhagic exudate, the lesion usually breaking spontaneously and not running a more severe or longer course than the pustular. Two of the reactions in this series were of the hemorrhagic type.

Still another type of reaction has been noted in two cases in this series, characterized by the appearance

within from twenty-four to forty-eight hours of a light purplish or violet areola from 35 to 40 mm. in diameter around a small, slightly indurated, reddened papule. During the next three or four days, the large areola fades, and at the same time the central reddened papule increases in size, becomes more indurated, and runs the course of an ordinary papular reaction.

DOUBTFUL REACTIONS

In 120 tests, there were but five reactions which were not typically negative but which were too superficial and faded too rapidly to be called positive. One of these was in a case of syphilis which gave a positive reaction on second inoculation. Two were apparently non-syphilitic, and the other two have just been described.

CONCLUSIONS

The luetin test is of practical value in a few cases of late syphilis (four out of thirty six) in which it is positive when the Wassermann is negative.

Second injections apparently do not give positive reactions in non-syphilitic cases.

RETRO-AORTIC LEFT RENAL VEINS*

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The complicated development of the inferior vena cava is responsible for numerous anomalies of the abdominal veins, since four of the veins present at varying stages of embryonal life take part in its formation. Among these anomalies the passage of the left renal vein behind the aorta has received least attention in medical literature, and I have succeeded in finding only sixteen instances of the condition reported.¹ Darrach,² in 605 dissections of the cat, an animal in which the venous system is prone to many variations, make no mention of this condition, and the character of the examination reported by Darrach leaves no doubt in the mind of the reader that had such an anomaly been present it would have been observed.

It is well known that the early symmetrical distribution of the venous channels in the embryo is soon lost. Ventral to each postcardinal vein, branches coming from the mesentery by a series of longitudinal anastomoses form a second vessel parallel to each of the postcardinal veins which open at each end and by numerous anastomoses throughout their length into the postcardinal veins. These vessels, termed by Lewis³ the subcardinal veins, later anastomose with each other by a cross branch (A, Fig. 1) just below the superior mesenteric artery. This large anastomotic branch is continued to the postcardinal vein on each side, all other anastomoses between these channels tending to disappear at this time. The primitive, and later the permanent kidneys are connected with the postcardinal veins at this level. From this point upward the right subcardinal vein enlarges rapidly at the expense of the right postcardinal, and empties into the ductus venosus. The ductus venosus becomes the permanent uppermost or first portion of the inferior cava. The enlarged right subcardinal vein, which comes to be the chief channel for the blood return-

ing from the lower extremities, is therefore the second vessel which becomes a permanent part of the inferior cava.

According to F. Hochstetter,⁴ the portion of the left subcardinal vein above the anastomosis referred to becomes the left suprarenal vein of the adult, while below the anastomosis the subcardinal veins cease to exist as blood-vessels but become lymph-channels.

The portion of each postcardinal vein immediately above the anastomosis (A, Fig. 1) disappears. At about this time a second important anastomosis develops between the postcardinal veins at the level of the fifth lumbar vertebra (C, Fig. 2). The right postcardinal vein, enlarging rapidly, constitutes the permanent lower portion of the inferior cava (Fig. 3). The left subcardinal vein between this anastomosis and the left renal vein disappears except that small portion of its upper part which forms the left spermatic vein (Fig. 3).

For a time the ureters lying dorsal to the postcardinal veins are surrounded by a venous ring produced by the development of a channel, which in turn is formed by the longitudinal anastomosis of veins draining the posterior abdominal walls. These newly formed vessels are called the supracardinal veins.⁵ The ventral portion of this loop formed by the postcardinals disappears. On the right side the supracardinal vein persisting forms the third portion of the vena cava.

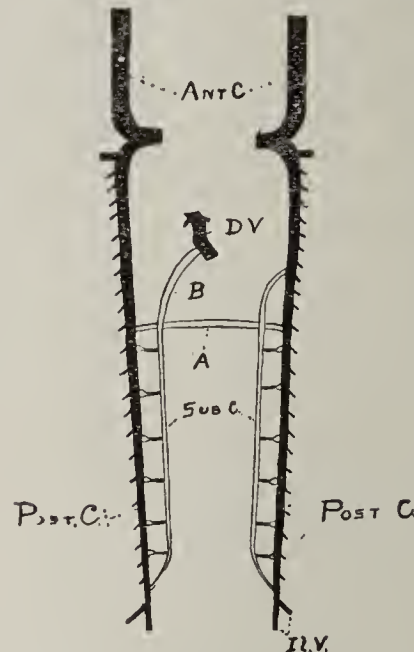


Fig. 1.—Relation between cardinal veins, subcardinal veins and the ductus venosus at an early developmental period. In this and the accompanying illustrations the abbreviations have the following meanings: D. V., Ductus venosus; Sub. C., subcardinal veins; Ant. C., anterior cardinal veins; Post. C., posterior cardinal veins; Il. V., iliac veins; Supra. C., supracardinal veins; R. V., renal veins; Sp. V., spermatic veins; Hem. V., hemiazygos veins; Az. V., azygos veins; Cor. S., coronary sinus; A, anastomotic branch between the subcardinal veins; B, upper portion of the right subcardinal vein; C, anastomotic branch between the posterior cardinal veins; D, anastomotic branch between the azygos and hemiazygos veins; E, site of the left postcardinal vein.

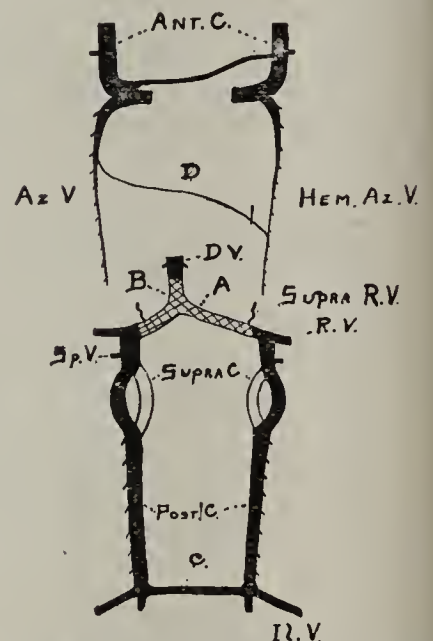


Fig. 2.—Intermediate stage in the development of the venous system.

In recapitulation, the inferior cava (Fig. 3) comes to consist of (1) the proximal portion of the ductus venosus; (2) the proximal portion of the right subcardinal; (3) the right supracardinal, and (4) the distal portion of the right postcardinal veins.⁶

According to Hochstetter, who is confirmed by other investigators, in dealing with anomalies of the renal veins, particularly the left renal vein, we have to do with vestiges of the original postcardinal channels. The instances in which a left renal vein passes behind the aorta, or is represented by one or more branches passing behind the aorta, are results of primitive anastomoses

* From the Pathological Laboratory of Rush Medical College.

1. This search has not been exhaustive, but has included the *Anatomischer Anzeiger*, the *Ergebnisse der Anatomie und Entwicklungsgeschichte*, the *Bulletin de la Société anatomique de Paris*, the *Centralblatt für allgemeine Pathologie und pathologische Anatomie*, the *Beiträge zur pathologischen Anatomie und zur allgemeinen Pathologie* (Ziegler's), *Virchows Archiv für pathologische Anatomie und Physiologie und für klinische Medizin*, and a number of text-books on anatomy, pathology and embryology.

2. Darrach, William: Variations in the Post Cava and its Tributaries as Observed in 605 Examples of the Domestic Cat, *Proc. Assn. Am. Anatomists*, 1906-1908, i, 30.

3. Lewis, F. T.: The Development of the Vena Cava Inferior, *Am. Jour. Anat.*, 1902, i, 229.

4. The work of this author is cited by all writers on this subject, and as complete a reference as any, perhaps, may be found appended to a work by C. Meyer: *Beitr. z. path. Anat.* (Ziegler's), 1908, xlv, 1.

5. McClure, C. F. W., and Huntington, G. H.: Development of the Post Cava and Tributaries in the Domestic Cat, *Am. Jour. Anat.*, 1907, vi.

6. Lewis, F. T.: *Am. Jour. Anat.*, 1902, i, 229.

between these embryonal channels, the postcardinal veins which, instead of atrophying as they normally do, have persisted.

That anastomoses do exist between these postcardinal veins during embryonal development has been definitely shown by Davis,⁷ who found as many as seventeen cross-branches between the postcardinals at one time during their development, and it is therefore not strange that one or more of these anastomosing branches frequently persist as a retro-aortic renal vein.

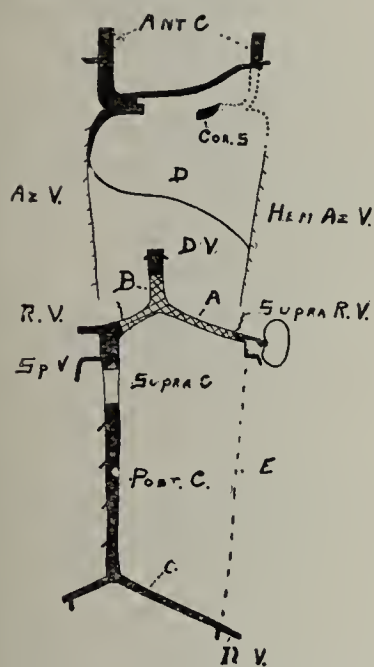


Fig. 3.—The embryonal channels which have united to form the vena cava of the adult.

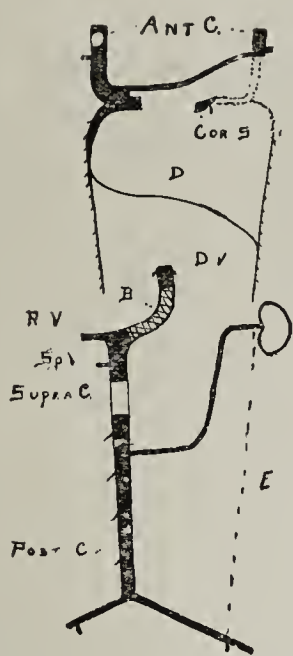


Fig. 4.—A primitive anastomosis such as has existed in six of the cases reported.

In reviewing diagrammatically the reported anomalies, Figure 4 represents the condition, an old anastomosis between the postcardinal veins, present in six of the sixteen, four reported by Gosset,⁸ one by Gladstone⁹ and one by Tichomirow.¹⁰

Figure 5 illustrates approximately the condition present in another example studied by Gosset, and in one reported by N. A. Batujew.¹¹

Figure 6 represents the persistence of an anastomosis of the postcardinal veins in still another case reported by Gosset. Here the conditions are not very unlike those represented by Figure 5.

In an article discussing twelve misplaced kidneys, Meyer¹² has incidentally described seven in which the left renal vein passes behind the aorta. One of these instances is particularly interesting in that, according to Meyer, the left renal vein was formed by the persistent left cardinal, which entered the inferior cava at approximately the level of the point of entry of the right vein and behind the aorta (illustrated by Figure 7).

To these sixteen examples of anomalous renal veins I wish to add ten, records of which are in the files of the pathologic laboratory of Rush Medical College. Specimens 1, 2, 3, 4, 5, and 6 are identical and are the

simplest type, in that, in each case, but one left renal vein is present, and this vein passes downward and to the right posteriorly to the aorta and enters the cava approximately 8 cm. below the mouth of the right renal vein (illustrated by Figure 4).

The fifth case has a single vein leaving the hilum of the left kidney which divides into two branches after passing downward a distance of 4 cm., both of these passing behind the aorta and entering the cava at different levels, the mouth of the upper branch being 4 cm. above that of the lower. This instance is similar to those reported by Gosset and Batujew (Fig. 5).

The remaining cases are more complex in their arrangement. In one of these (Fig. 8) the kidney is drained by one vein which, however, divides into three branches before entering the cava, one passing in front and two behind the aorta, emptying directly into the cava. From the posterior surface of this horizontal left renal vein two smaller branches are given off, each of which passes behind the aorta, emptying into the cava below the mouth of the horizontal branch. The superior or first posterior branch arises, as above stated, at a point 2.5 cm. to the right of the hilum of the kidney, passes behind the aorta parallel with the anterior branch and turns downward just before it emerges from behind the aorta, emptying into the cava 1 cm. below the point of entry of the branch first described. The second or inferior posterior branch arises from a point 2 cm. to the right of the hilum of the kidney and just below the point of the left margin of the aorta, turns to the right and joins the cava 4 cm. below the horizontal, anterior branch. The combined volume of the lumen of the two posterior branches is approximately equal to one-third that of the anterior branch. The right kidney of this specimen has a double pelvis with a separate artery and vein, for each, the lower venous channel emptying into

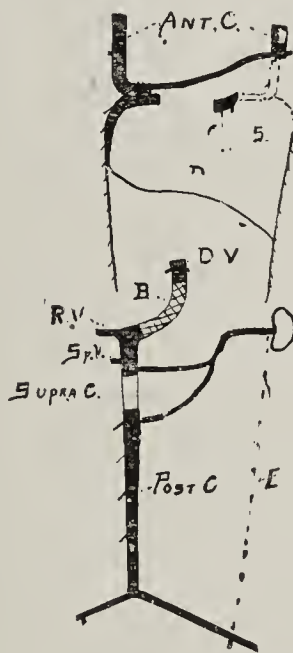


Fig. 5.—Persistent anastomoses present in a case reported by Gosset, and one reported by Batujew.

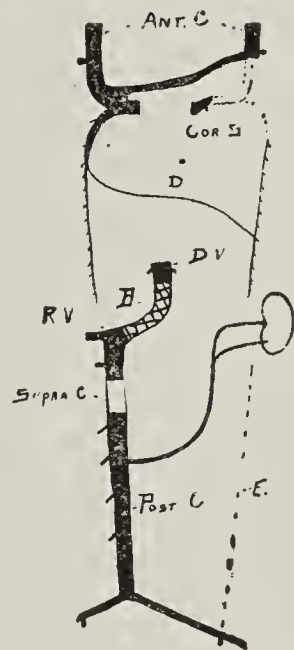


Fig. 6.—The condition present in one of the cases reported by Gosset.

the cava at a point on a level with the mouth of the upper retro-aortic vein of the left kidney.

The seventh specimen which I studied is an example of the so-called sigmoid kidney or a horseshoe kidney in which one arm of the shoe is imperfect. The lower pole of the left kidney is fused with the lower pole of the right, the upper pole of this organ being displaced to the left and partly behind the vena cava, while the left kidney lies anterior to the aorta and cava, its upper

7. Davis, D. M.: The Origin of the Vena Cava, *Am. Jour. Anat.*, 1911, x, 461.

8. Gosset, A.: Contribution à l'étude du développement de la veine cave inférieure et des veines rénales, *Bull. Soc. anat. de Paris*, 1898, lxxiii, 341.

9. Gladstone: A Case of the Left Renal Vein Passing Behind the Aorta and the Bearing of These Abnormalities on the Development of the Abdominal Veins, *Jour. Anat. and Physiol.*, vi, Part 3, p. 225.

10. Tichomirow: Reviewed by L. Stieda: Bericht über die anatomische, histologische und embryologische Literatur Russlands für 1893, *Ergebn. d. Anat. u. Ent.*, 1893, iii, 383.

11. Batujew: Reviewed by L. Stieda: Bericht über die anatomische, histologische und embryologische Literatur Russlands, 1896-1897, *Ergebn. d. Anat. u. Ent.*, 1897, vii, 431.

12. Meyer, O.: Zur Kenntniss der Gefässe einseitig kongenital verlagelter Nieren und Hufeisennieren, *Beitr. z. path. Anat.* (Ziegler's), 1908, xlii, 1.

margin just below the point of bifurcation of the aorta. The combined weight of these kidneys is somewhat larger than normal. The left, or in this case the anterior, kidney is supplied by two arteries and two veins. The smaller vein passes upward from the hilum and enters the cava at a point on the anterior surface of the great vein 2 cm. above the level of the mouth of the iliac veins. The second and larger left renal vein emerges from the hilum of the kidney, passes upward and to the left, winding around the iliac artery and passing behind the aorta, enters the cava on the same plane, in which the first-mentioned branch does and at a

of the two common iliacs turns upward on the left side of the vertebral column emptying, as before stated, into the inferior, posterior left renal vein. There is a small anastomosing branch between the two left iliac veins at the point at which the one turns upward to join the left renal vein. There is a second anastomosing branch between this left ascending branch and the inferior cava which is horizontal in direction, lies behind the aorta and is 3 cm. below the level of the inferior posterior left renal vein. For reasons which will be stated later, I believe that this anomalous vein is the persistent postrenal part of the left cardinal vein.

Instances of the persistence of both postcardinal veins have been recorded from time to time until now, though somewhat more numerous than anomalous left renal veins such as have been described, their number is approximately from twenty-five to thirty.

There is to my knowledge in the literature but one case of a postaortic left renal vein in conjunction with a persistent left cardinal vein, this being Meyer's specimen (Fig. 7), and in this instance the left kidney has a malposition.

In reviewing the recorded anomalies of persistent postcardinal veins it would seem that the authors have not given sufficient thought as to the possibility of their cases being abnormally large or anomalous lumbar veins, though in their own minds they may have completely ruled out such a possibility. There can be no doubt that the specimen represented by Figure 1 is one in which both an early embryonal renal and postcardinal condition has persisted, and with Meyer's case, which is by no means so perfect a specimen, makes the second example of the kind on record.

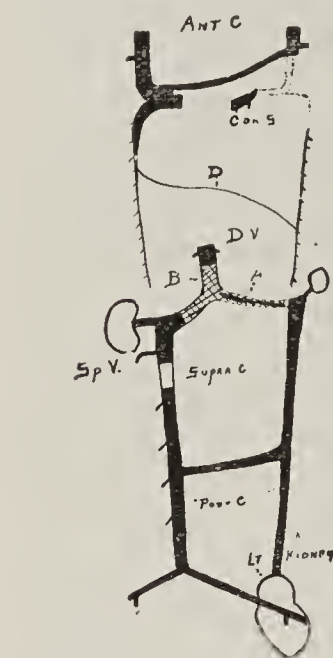


Fig. 7.—O. Meyer's case, a persistent left postcardinal vein in conjunction with a retro-aortic left renal vein.

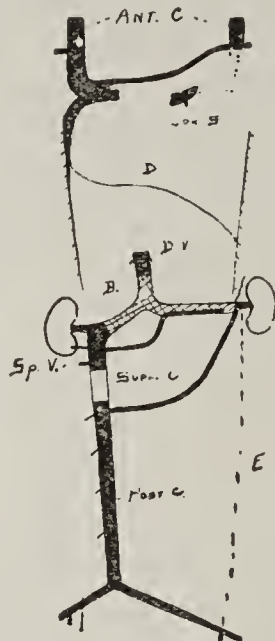


Fig. 8.—Two retro-aortic left renal veins present in the first case here reported. A left renal vein passing anteriorly to the aorta is also present, as illustrated.

point but a few millimeters lateral to it. The diameter of the lumen of this branch is the same throughout and is approximately three times greater than that of its fellow which passes from the pelvis to the anterior surface of the cava. Its length is 10 cm., while that of the former is 5 cm. The left suprarenal vein empties as usual into the upper surface of the retro-aortic branch, while the left spermatic empties into it at its inferior margin (Fig. 9).

The eighth specimen is an example of the persistence of the left postcardinal vein (Fig. 10). A single vein passes from the hilum of the left kidney toward the right for a distance of 3.5 cm., where it divides into two branches, the superior and smaller of which passes horizontally behind the aorta, emptying into the vena cava 1.8 cm. below the mouth of the right renal vein; the inferior branch passes downward a distance of 2 cm. from the point of bifurcation, then turning to the right passes behind the aorta and ends in the cava 4.5 cm. below the point of entry of the right renal vein. The left suprarenal vein, according to Hochstetter the remnant of the left subcardinal, empties into the left renal vein just before its bifurcation. The left spermatic vein empties into the inferior branch just after its division. One centimeter below the point of entry of the spermatic vein a large vein lying just to the left of the spinal column and parallel with it also empties into the descending portion of the inferior posterior branch. The vein originates from the left common iliac vein, which in this case is double, one part continuing on and joining the right common iliac to form the inferior cava, while the other at a point 6 cm. from the point of fusion

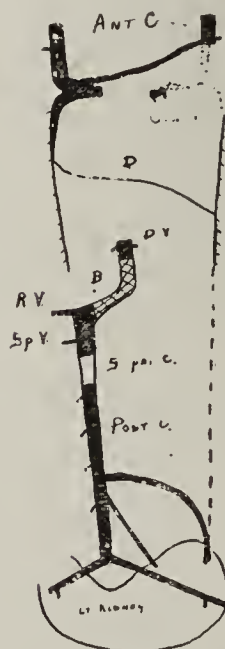


Fig. 9.—Illustrating the second case, the kidney in this instance being misplaced.

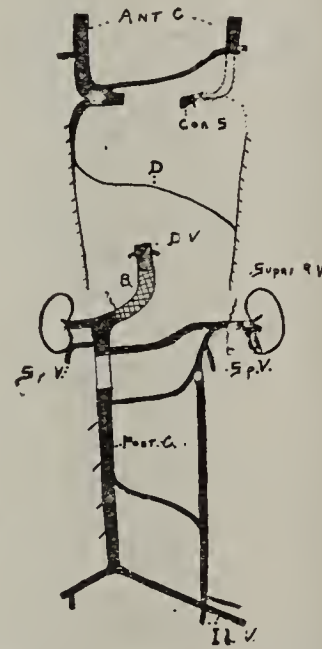


Fig. 10.—Illustrating the final case, in which the postrenal left postcardinal is present in conjunction with two retro-aortic left renal veins. The double left iliac vein and the anastomotic branch between the inferior cava and the left postcardinal are also represented.

That such a condition might exist is altogether possible, and the evidence in assuming the case to be one of persistent postcardinal vein lies in the following:

1. The left spermatic vein is given off from the descending portion of the inferior, posterior left renal vein in conjunction with the anomalous stem.
2. The channel under consideration has the proper location and direction for a posterior left cardinal vein.
3. The size of the channel warrants this belief.

4. The presence of an ileolumbar vein in connection with the external iliac vein on the left side is evidence that this is not a lumbar vein.

5. The reduplication of the left common iliac, one branch of which empties into this vein, undoubtedly has been an important etiologic factor in the persistence of this vein and is additional evidence.

All the recorded cases of retro-aortic left renal veins follow the general rule that all are on the left side, all have an oblique course and all enter the vena cava posterior to the aorta.

One might theoretically assume that in the recumbent position there would be more constriction (compression) of these retro-aortic veins between the aorta anteriorly and the vertebral column posteriorly than in the erect position. At least, it seems reasonable to believe that the abdominal viscera falling to the sides of an individual on his or her back and deriving their blood-supply from the aorta would put tension on the branches of the aorta which supply them and pull the aorta closer to the spinal column. Current explanations for orthostatic albuminuria are concerned with interference with the circulation of the kidneys. It seems appropriate to suggest a relationship between these retro-aortic renal veins and that condition known as hypostatic albuminuria, in which the urine is entirely free from albumin while the person is erect, but appears when he lies on his back. Falkenheim¹³ has reported such an instance:

The patient's urine was free from albumin after rising in the morning at 6 o'clock and remained free until retiring at 9 p. m. At 12 o'clock midnight, 3 and 6 o'clock the urine contained increasing amounts of albumin. If the patient went to bed at noon and remained there until midnight, specimens of urine examined during this interval contained albumin; and if he sat in a chair from midnight until the next morning the urine during this time was found to contain no albumin.

Further observation established the fact that the position which the patient assumed in bed altered the amount of albumin present in the urine. When the patient lay flat on the back or on the left side the amount of albumin was greater than if he lay on his right side.

At 11 o'clock in the morning the patient's urine contained no albumin. He was placed in a sitting posture, drank two glasses of water and a catheter was passed. Specimens of urine taken from time to time were albumin-free.

The patient was then given another glass of water, placed on his back at 12 o'clock and a catheter passed and closed. At 12:03, 2.25 c.c. of urine were obtained which was albumin-free. At 12:08, 5:25 c.c. of urine were obtained which by both the acid and the heat test was positive. At 12:13, 4 c.c. of urine were obtained which contained albumin more copiously than in the preceding test ("Eiweis hält reichlicher als in voriger Probe"). At 12:18, a final specimen was strongly positive.

Rolleston¹⁴ reports three similar instances. Unfortunately, post-mortem examinations were not made on these bodies.

Von Leube¹⁵ reported that in the examination of 119 healthy soldiers, 4 per cent. of the number had albumin in the urine on rising in the morning. Felsenburg,¹⁵ after the examination of 53 soldiers, found albumin in the morning urine in 2.12 per cent. of the instances.

There is enough of parity between the occurrence of these two conditions, the clinically observed hypostatic albuminuria and the anatomically demonstrated retro-aortic drainage of the left kidney, to at least suggest some relationship between the conditions.

A NEW METHOD OF PREPARING MUSEUM SPECIMENS

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To the student of pathologic anatomy, the preservation of specimens with their natural colors has long been recognized as a matter of great importance, as it is by means of the accurate and artistic presentation of colors, together with the form of the original, that the pathologist is able to trace with accuracy the various tissue changes which present themselves in morbid anatomy. The wax models have disappeared; the colored pictures, presenting in the main but a superficial resemblance to the original structure, possess but a passing interest. With the work of Kaiserling, however, a new era dawned and a wealth of pathologic material was saved to the student of that important branch of medical science.

Notwithstanding the brilliant work of the Kaiserling school, a brief experience with that system soon convinces the curator that a further improvement in the method of developing colors in fresh specimens is needed. Nor can he fail to observe, in the attempted restoration of colors to old specimens, that the system of the German is strikingly deficient; for in this important feature of museum work, alcohol does not produce the desired results. Failure to restore the color in old specimens, together with the attendant cost of the alcohol, makes the discovery of a substitute for that agent a desideratum of great importance.

In presenting this preliminary note, a new method of preparing specimens, old as well as new, is substituted for the well-known alcohol procedure of Kaiserling — a method which not only avoids the pecuniary disadvantages attending the use of alcohol, but which, from the point of view of color, also results in advantages. After considerable experimentation in an endeavor to find a satisfactory substitute for alcohol, the use of a saturated solution of sodium chlorid gave such striking results, not only in the extraction of the formaldehyd content from the freshly prepared specimen, but also in the restoration of color to old Kaiserling specimens, that the solution in question became an important part of the new system. Old tuberculous viscera which had lost so much of their color as to render the tubercles in the intestinal walls practically invisible were restored to their natural colors by an immersion, for a period of six days, in the saturated salt solution. An old and discolored lung (pleurisy), a kidney 11 years old, together with a miscellaneous collection of old Kaiserling specimens, were similarly treated with striking results.

While the use of the sodium chlorid solution proved of distinct advantage in the process of clearing the specimens and developing the gross colors, a study of the results revealed the possibility of a further evolution of color production by restoring the finer tints which had been lost in the gradual process of deterioration. Experimental procedures proved that a solution of potassium acetate and nitrate would produce, in conjunction with the saturated salt solution, the desired end-restoration of the finer tints. With new as well as with old specimens, the tests proved that in the prep-

13. Falkenheim: *Deutsch. Arch. f. klin. Med.*, 1884, xxxv, 446.

14. Rolleston: *Lancet*, London, 1902, i, 285.

15. Quoted by Pallitzer: *Beiträge zur Kenntniss der orthostatischen Albuminuria*, June, 1912.

aration of museum specimens, the use of alcohol could be avoided. After a number of experiments, it was conclusively demonstrated that the formaldehyd extraction and subsequent color development were far more satisfactory when the procedures in question were effected by means of the saturated salt and nitro-acetate solutions than by the more expensive method of using one or more alcohols.

The system employed in the preparation of specimens for the Pathological Museum of the George Washington University Department of Medicine involves the use of the following solutions:

| SOLUTION 1 | |
|---------------------------|------------|
| Liquor formaldehydi | 200 c.c. |
| Potassium nitrate | 15 gm. |
| Potassium acetate | 30 gm. |
| Water | 1,000 c.c. |

| SOLUTION 2 | |
|---|-----|
| Saturated solution of sodium chloride.. | q.s |

| SOLUTION 3 | |
|-------------------------|------------|
| Potassium acetate | 60 gm. |
| Potassium nitrate | 30 gm. |
| Water | 1,000 c.c. |

| SOLUTION 4 | |
|---------------------------|--------------|
| Potassium acetate | 100 gm. |
| Glycerin, C. P. | 250 c.c. |
| Liquor formaldehydi | 5 to 10 c.c. |
| Water | 1,000 c.c. |

Depending on its size, the carefully washed fresh specimen is allowed to remain in Solution 1 for a period of from one to five days. With allowance for the extent of the pathologic changes as well as for the size of the specimen, formaldehyd extraction and gross color development are usually completed by Solution 2 in from one to three days. In Solution 3 (nitro-acetate solution) the time required for the complete development of the colors in the fresh specimen is from two to seven days, old specimens requiring, of course, a longer period of immersion. The specimen is then placed in the glycerin preservative fluid to which liquor formaldehydi is added to prevent the growth of molds. In the preparation of solid viscera (kidney, liver, spleen, etc.), the color development of the deeper parts is of paramount importance. The best results will be obtained by placing the specimen directly in Solution 1 for a period of several days, at the end of which time it should be sectioned as desired and immersed (one or two days) in Solution 2. An immersion in Solution 3 for a period of from two to five days will complete the color evolution of the exposed surface of the sectioned specimen with a remarkable degree of perfection. In the preparation of old specimens, the Kaiserling-preserved viscus admits of a remarkable degree of color restoration by the use of Solutions 2 and 3. Old specimens should be placed in Solution 2 for a period of from two to five days, then in Solution 3 for a similar period of time. During the year in which this method of preparing museum specimens has been tried, the results have proved eminently satisfactory. Daylight and direct sunlight have in no way affected the variety and brilliancy of the colors. Shrinkage of the specimens has not been observed and a crucial test—drying a specimen in the air for several days and recoloring with Solutions 2 and 3—has given excellent results in the recovery, not only of the form of the original, but also of the color differentiation obtained at the time of preservation.

Getting Results.—Authors who put off their thinking until they come to write are like a sportsman who goes forth at random and is not likely to bring very much home.—Schopenhauer.

HEMOTHORAX CAUSED BY RUPTURE OF A DISSECTING ANEURYSM. RECOVERY

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PHILADELPHIA

History.—The patient, D. F. D., a man aged 40, married, was admitted to the medical ward of the Presbyterian Hospital at 1:30 a. m., July 15, 1913. He had had the usual diseases of childhood, including diphtheria. Since childhood he had been healthy. Fifteen years ago, at the age of 25, he had an attack of rheumatic fever, which confined him to the house for a week but did not damage his heart. Except for occasional annoyance from hemorrhoids, the man has not been sick since 1898. He uses tea and coffee very moderately, but drinks a moderate amount of beer every day and confesses to occasions of inebriety. He denies venereal disease. The family history is negative.

For twenty-three years the patient was a bricklayer and has had much climbing to do, especially when employed on tall buildings. It has not been at all unusual for him to climb twelve stories a day, carrying a 25-pound kit of tools. For a year he has been a traveling salesman, and has indulged freely in alcohol, though not to excess.

Present Illness.—The patient states that for about six months he has been getting short of breath, especially when going up stairs and has had pain in the heart and across the upper portion of the chest, which became severe four days before the attack to be described, and on the day of the attack was worse than at any previous time. These pains come on independently of exertion or emotion and apparently have no relation to digestion. They are not very severe and are not associated with fear of death (angina?). The patient's appetite is good; his bowels are regular. No cough or hoarseness existed until two days before admission when a cough developed, accompanied by some expectoration but no hemoptysis. No swelling of the ankles has been present.

July 14 he started on a business trip and was carrying two heavy valises. When he reached the train-shed, the patient became anxious about the time and ran to his sleeping-car. While running, he suddenly became short of breath and broke out into a profuse perspiration. He felt very weak and almost fainted, but by great effort got to the coach and into a seat, panting for breath. The dyspnea was very great. He was conscious during this attack, was nauseated, vomited and had diarrhea, but suffered no pain. The patient insists that his only discomfort was the dyspnea. His wife states that he became very pale. He was admitted to the Presbyterian Hospital approximately two and a half hours from the time the attack began. While waiting for the ambulance to arrive, the patient was forced to sit upright. The dyspnea did not increase and he had no pain. When admitted, there was but little dulness over his left chest.

The patient, after admission, had a fairly comfortable night. He could not lie flat, however, and spent the remainder of the night sitting up in bed. The resident physician noticed a few hours after admission that there was restriction of expansion on the left side of the chest, especially anteriorly. The percussion note was flat over this area, and the heart could not be outlined with any degree of accuracy. The breath-sounds and vocal resonance were diminished on the left side anteriorly and posteriorly. The heart-sounds were not well heard. The pulses were equal, full and regular, and the vessels did not seem to be sclerosed.

I saw the patient for the first time about ten hours after admission. He was then propped up in bed, was breathing with more difficulty, and pallor was marked. He complained at this time of discomfort in the left chest, which he described as a dull, heavy pain or sense of oppression. There was no sharp, stabbing pain. The heart was displaced, its right border being 4 cm. to the right of the sternum. The apex-beat was not palpable, and the left border could not be determined, owing to the flatness in the left chest into which the cardiac

dulness merged. There was impaired resonance over the apex of the left lung, and flatness over the base with all the usual signs of a large pleural effusion. The aorta was found to be slightly dilated, but no definite sign of aneurysm was present. The pulse was irregular. The blood-pressure was 145 mm. Hg systolic, and 65 mm. Hg diastolic. A Wassermann test was negative.

| BLOOD-COUNT | |
|--------------------|--------------|
| Hemoglobin | 60 per cent. |
| Erythrocytes | 3,120,000 |
| Leukocytes | 13,250 |

| DIFFERENTIAL | |
|-------------------------|--------------|
| Polynuclear | 60 per cent. |
| Lymphocytes | 33 per cent. |
| Large mononuclear | 6 per cent. |
| Transitional | 1 per cent. |

The urine had a specific gravity of 1.021, but apart from a cloud of albumin was otherwise apparently negative. The temperature was 97.8, pulse 108, and respiration 44.

Owing to the symptoms of pressure, the left chest was aspirated about 12 noon, July 15, 1913, nearly fourteen hours from the onset of the first symptoms, and 650 c.c. of a bloody fluid were withdrawn. Following this the patient breathed more easily and the pulse became stronger and less irregular. The fluid from the pleura contained approximately the same number of erythrocytes per cubic millimeter as the blood, namely, 3,000,000.

July 18, the patient was in a condition which warranted his removal to the Roentgen-ray laboratory. The picture taken at this time corroborated the diagnosis of a dilated aorta and hemothorax. During his stay in the hospital the patient had a febrile temperature but complained of nothing after the thoracentesis, and was discharged July 27, 1913, very much improved.

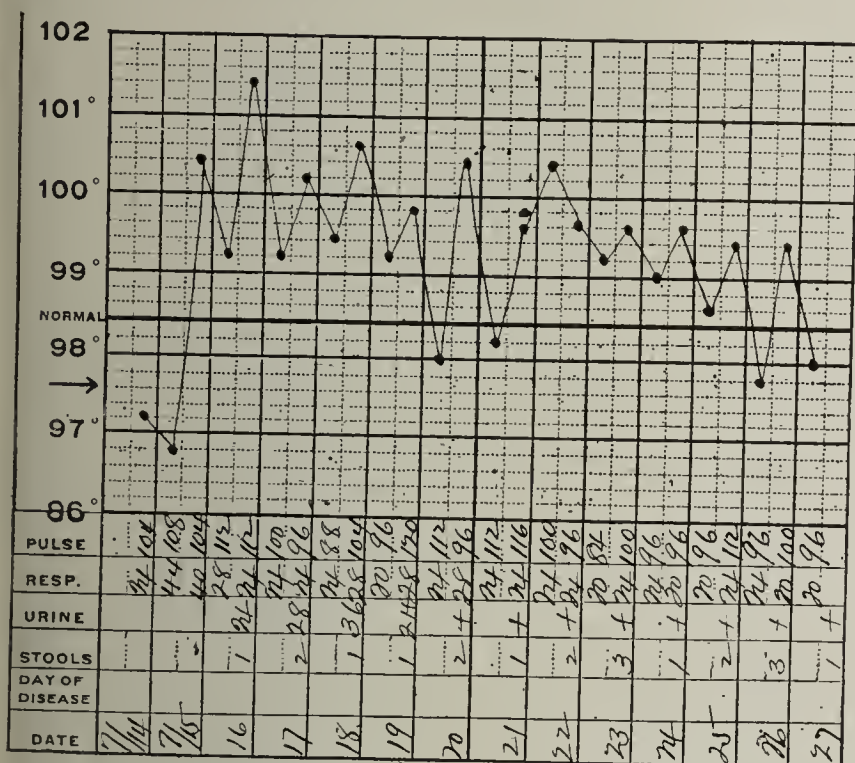


Chart of temperature, pulse and respiration of Patient D. F. D.

Shortly after his discharge from the hospital the patient presented himself at the university hospital for a fluoroscopic examination, which was made by Dr. Graves. A large diffuse aneurysm of the aorta could be plainly seen. The left chest showed a dense shadow due to the hemothorax.

In the fall the patient wrote that he was engaged in active business in the middle West and that his health had been good except that he had occasional pains about the heart and in the scapular region, which became worse on lying down.

Nov. 26, 1913, the patient appeared at my office. Except a lessening of the extent of flatness in the left chest, the physical signs were about the same as in July. Roentgen-ray and fluoroscopic examinations were made Nov. 28, 1913, and revealed a less extensive shadow in the left chest while the aorta was dilated as on the first examination.

There can be no doubt but that in this patient we have to do with a hemothorax whose origin must be ascribed to the rupture of a preexisting aneurysm. It is far from likely that, as a result of the effort of running for the train, there could be a sudden rupture of a normal aorta, with the resulting bloody effusion, and it seems more probable that an aneurysm had been existent for some time. Indeed, it was beginning to make its presence felt by pressure symptoms—cardiac oppression, chest pains. Just how long the aneurysm had been present it is impossible to say, but these symptoms had been existing with exacerbations for six months before the rupture. Of the important etiologic factors in the production of arterial disease, only syphilis is lacking in this man. The patient admits abuse of alcohol and has been accustomed to extreme hard work, but denies syphilis, and there is no reason to doubt his statements.

The question whether a normal aorta or an aorta only moderately diseased can be ruptured by muscular exertion has been often discussed, although there can be little doubt that an aorta which is the seat of an extensive degeneration can be ruptured as the result of an unusual effort. Busse¹ believes that sudden extreme muscular exertion can rupture a perfectly healthy aorta, and holds that if the aorta wall is the seat of the disease, a very slight effort may have the same consequences. He offers an instance of rupture of a supposedly normal aorta in the case of a coachman aged 38, who, while trying to fasten two terrified horses experienced a sharp pain in the breast. The pain was of such intensity that he was forced to release the animals. The precordial distress and the headache which followed gradually wore away and the man returned to work the next morning. He was ordered to drive the same horses again. The beasts became terrified at an electric car and attempted to run away. By a tremendous effort the driver succeeded in holding them in check, but again experienced a pain in his chest, followed by vomiting and collapse. He was put to bed, but the next day, forty-eight hours after the first attack of pain, he died.

The necropsy revealed an aneurysma dissecans, which Busse believes was the direct result of the violent exertion. A noteworthy feature was that there was no sign of degeneration or softening throughout the whole extent of the aorta. Busse conjectures that forty-eight hours before death the break in the arterial coat had begun and that a dissecting aneurysm then resulted. The second exertion, about twenty-four hours before death, is held responsible for the final rupture. This author presents, as exemplifying his second theory, namely, slight effort serving to rupture a diseased vessel, the record of an old woman, who died following effort at defecation. In Busse's paper other cases are reported of spontaneous rupture following effort.

Schede² has subjected cases like those reported by Busse to a thorough and thoughtful criticism, and offers strong argument that in none can a degeneration of the aorta be excluded. To conclude, from a study of an isolated portion of a vessel, that it is healthy is not safe, and unless the whole vessel is carefully studied inferences as to normality are unwarranted.

Woloschin, despite Schede's argument, records the case of rupture of a perfectly healthy aorta [*sic*] following unusual effort. The rupture took place into

1. Busse: Virchow's Arch. f. path. Anat., 1906, clxxxiii, 440.
2. Schede: Virchow's Arch. f. path. Anat., 1908, cxlii, 52.

the left pleural cavity (3,500 c.c.) from a break in the aorta about 1 cm. in size.

It is more than probable that in all cases there has been some degeneration of the aorta, which may be very difficult to determine. Indeed, Tschechowski has shown that such a degeneration may follow acute and chronic infections without any inflammatory changes in the aorta.

According to statistics, aneurysms rupture very infrequently, only thirty-two instances of rupture (0.69 per cent.) occurring in 4,593 cases of aneurysm.³ Of the thirty-two cases, thirty, or 93.75 per cent., were in men, and two, or 6.25 per cent., were in women. The average age was 40.4 years. As to the structure most frequently receiving the contents of the aorta, the accompanying table may be consulted.

STRUCTURES INTO WHICH ANEURYSMS MOST COMMONLY RUPTURE

| Parts | No. of Cases | Percentage |
|--------------------------|--------------|------------|
| Pericardium | 13 | 40.62 |
| Pleura (left) | 7* | 21.87 |
| Esophagus | 3 | 9.37 |
| Externally | 3 | 9.37 |
| Trachea | 2 | 6.25 |
| Pleura (right) | 1 | 3.12 |
| Lung (left) | 1 | 3.12 |
| Bronehus (right) | 1 | 3.12 |
| Superior vena cava | 1 | 3.12 |

* One of these cases was a case of dissecting aneurysm.

Although spontaneous cures of ruptured dissecting aneurysms have been reported, I have been able to find no case in literature where such a massive hemothorax has occurred without a fatal outcome. In all cases of hemothorax following rupture of the aorta, death has resulted in a few hours. The case herewith reported, therefore, has an unusual interest, and is believed to be worthy of publication.

248 South Twenty-first Street.

THE DISAPPEARANCE OF SUGAR IN
DIABETICS AFTER CERTAIN
PELVIC OPERATIONS *

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There is no doubt that we have deviated from our older and more orthodox views in regard to surgical intervention in cases of urgency in the presence of diabetes. Particularly in prostatic disease it has been shown that operation is well borne and that diabetes, if not too far advanced is no contra-indication.

That prostatectomy or hysterectomy in diabetes of long duration is occasionally followed by a subsidence or total disappearance of the sugar output is a new theme for which there is no plausible explanation at hand.

COLLECTED REPORTS OF CASES

CASE 1.—In the discussion of Joslin's paper,¹ Miller mentioned the following case: A woman passed 50 gm. of sugar in spite of being on a rigid diet. She had very severe uterine hemorrhages, and as a result was markedly anemic. A hysterectomy was performed. It was found that a carcinoma

had developed on an old fibroid tumor. Several months later the patient returned, and it was found that she was entirely free from sugar. She is still well in spite of taking an unlimited diet.

CASE 2.—In closing the discussion Joslin reported a similar case: The patient had a severe attack of diabetes; the glycosuria occurred in connection with a fibroid tumor of the uterus. When the fibroid was removed the sugar disappeared.

The following two cases are reported by Manges, to whom credit is due for bringing conspicuously into the limelight of clinical medicine this fact, which probably has been in the minds of other observers, but remained unexpressed. Manges' two cases occurred in prostatitis.

CASE 3.—The first case occurred ten years ago. The patient was a man aged 62, with long-standing diabetes. He had prostatic bladder symptoms of several years' duration. On account of his severe diabetes, the daily amount of sugar ranging from 50 to 150 gm., and a marked acidosis being present, he was considered a bad surgical risk, the more so as he had a very vulnerable skin. Finally the condition of urinary sepsis became so urgent that drainage of the bladder and prostatectomy were performed. The operation was well borne, and a marked improvement in the diabetes was noticed. The sugar excretion remained below 20 gm., and the acidosis disappeared. About one and a half years later the diabetes again took on a severe form and the patient succumbed to that disease.

CASE 4.—The second case occurred in a man aged 70. He had a long-standing diabetes and prostatic disease. The sugar ranged between 3 and 5 per cent. in spite of diet, and there was marked acidosis. A bad urinary sepsis supervened and operation was performed. Calculi were removed from the bladder and the prostate gland was enucleated. Subsequently the sugar disappeared completely and remained away in spite of a liberal diet.

After a careful search of the literature, I have been unable to find any similar case-reports.

To this list of four cases I wish to add two of advanced prostatic disease with pronounced and severe diabetes in which all traces of sugar disappeared from the urine soon after operation.

AUTHOR'S CASES

CASE 1.—M. G., aged 54, a robust, florid man, had had diabetes for a number of years, and was passing at the time I first saw him a urine giving a marked reaction for sugar. No quantitative estimate was obtainable nor was there any knowledge of the presence of acid bodies. At this time he complained of marked bladder tenesmus with frequent urination and burning. Cystoscopy revealed the presence of numerous calculi in the bladder. The prostate at this time was slightly enlarged, but there were no symptoms of obstruction. In view of the diabetes a stone-crushing operation was done, with only partial success. Prostatectomy at this time was not even thought of.

May 4, 1910, a suprapubic operation was done under local anesthesia, and eight calculi were removed. The patient made an uneventful recovery and continued to pass urine giving a marked sugar reaction.

The patient was not seen again until December, 1912, when he complained of pronounced obstructive symptoms, and on several occasions had to be catheterized for retention. At this time he was passing from 2.5 to 3 per cent. of sugar, and the prostate was very large. The dangers of an operation in a diabetic were explained to him, but he said that he would rather die than live on in his present condition.

Dec. 9, 1912, prostatectomy was performed under nitrous oxid anesthesia. The patient left the hospital cured after sixteen days.

Two weeks later, in my office, the urine was turbid and to my astonishment did not react to the Fehling test. I felt that I could not explain this fact otherwise than that the products of exudation present in the urine at this time inhibited

3. Kelynaeh: Laneet, London, 1897, xi, 193.
* Read before the Metropolitan Medical Society, Jan. 27, 1914.
1. Joslin, Elliott P.: My Experience with Diabetic Patients Living Ten or More Years. THE JOURNAL A. M. A., Sept. 21, 1912, p. 933.

ited the reaction. As months went on the urine cleared and at no subsequent time did sugar reappear.

Unfortunately this patient, who was restored to complete health, was hit by a Brooklyn trolley-car in July, 1913, sustained a fracture of the base of the skull and died.

CASE 2.—Mr. J. G., aged 45, a man of slight build and much exsanguinated, was on his way from Chicago to Carlsbad for treatment for diabetes. The quantity of sugar the patient had been passing was unknown, and could not be estimated for reasons hereafter to be seen. April 12, 1912, I saw this patient for the first time. He had arrived in New York a day or two previously. On the train soon after leaving Chicago he began passing bloody urine. This continued and became aggravated until I saw him. He was then very much exsanguinated and nervous, with a constant desire to pass water, and had a bloody discharge from the meatus. Percussion of the bladder showed it to be much distended, and large quantities of clotted blood were aspirated through a catheter. A permanent catheter was fixed in the bladder. The patient was much relieved, but bleeding continued. Various internal hemostatics were employed without effect. The patient refused operation. Rectally the prostate was found to be of enormous size, particularly for a man of only 45. After several days without relief from lesser measures, he was prevailed on to submit to cystotomy.

April 18, 1912, the bladder was opened and the bleeding was seen to come from a large adenomatous prostate. The prostate was then enucleated. Recovery was slow and after six weeks the patient continued his journey to Carlsbad. I had made no examination of the urine for sugar after the operation. The patient returned to America in the fall of 1912 and come to report to me that he was entirely well and that he had lost all his sugar in Carlsbad.

In view of the cases reported by Miller, Joslin and Manges, I am disposed to contest the benefits of the Carlsbad cure in this case.

In our present knowledge of diabetes it is futile to attempt an explanation for the disappearance of sugar from the urine after operation. At best we can only continue to observe and to extend our knowledge of such instances, accepting the facts as pure empiricism. To dismiss the matter as a coincidence is absurd.

Spontaneous cure in diabetes is known, according to Naunyn, although very rarely, and then only after traumatic or syphilitic diabetes of short duration.

The instances cited are all cases of advanced and pronounced diabetes. Whether hyperglycemia was present in any of the cases, or whether it persisted after the disappearance of the sugar in the urine, is unknown.

Von Noorden refers to the marked improvement or cure of diabetes in cases which develop chronic granular nephritis, and are marked by hypertension and cardiac hypertrophy. So far as is known, neither Manges' cases nor mine were accompanied by granular nephritis.

In one of Manges' cases the disappearance of the sugar was incomplete; in all the others it was complete. In my first case it is noteworthy that the operation of cystotomy had no effect on the sugar output, although all symptoms of irritation were removed thereby.

The wide anatomic distribution of the organs that are known to cause glycosuria in their pathologic conditions, that is, the medulla, the pituitary body, the pancreas, the liver, and the adrenals, might suggest that also in the pelvis there exist organs which, by their internal secretion in pathologic states, disturb the glycogenetic function.

The temptation is great to venture further in the field of speculation, but in our present knowledge of glycosuria it is wiser to study more carefully the nature of these diseases when associated and to reserve our conclusions for some future time.

One important and fortunate inference can be drawn, however, and that is that diabetes must no longer be viewed as an absolute surgical barrier, at least for hysterectomy and prostatectomy, and that at least in some cases a cure of the diabetes may be looked for.

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THE RESPONSIBILITY FOR THE FAILURE TO DIAGNOSE TUBERCULOSIS IN ITS EARLY STAGES *

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Having had under observation recently a large number of patients undergoing sanatorium treatment for pulmonary tuberculosis, I was impressed with the frequency with which the diagnosis of tuberculosis was made only long after the patient had first presented himself to a physician with symptoms suggestive of the disease. On further inquiry I found that in but twelve cases out of a total of sixty-six was the diagnosis of pulmonary tuberculosis made immediately, or within a few weeks after the patient first sought a physician. These figures would not necessarily indicate any lack of diagnostic skill or thoroughness on the part of the physicians concerned, for, as is well known, the early diagnosis of pulmonary tuberculosis is frequently a matter of the greatest difficulty. I decided to determine, however, as far as possible, what means had been employed by the physicians to establish the diagnosis in the fifty-four instances in which the diagnosis had been made only after from three months to as long as five years after the patient had first sought a physician presenting symptoms suggestive of, and undoubtedly referable to a tuberculous pulmonary infection.

Of the measures to be employed in establishing the existence of pulmonary tuberculosis, the three most important — and, in fact, the indispensable ones — are the physical examination of the chest, the determination of the existence or non-existence of fever, and the examination of the sputum for the presence of tubercle bacilli. To this list might be added a careful history, and some might be inclined to add also the performance of one or more of the various diagnostic tuberculin tests.

To my mind, these tests are too variable, and as yet their significance too difficult of interpretation, except by the most experienced, to warrant their general employment as diagnostic measures. I have consequently directed my efforts toward determining how frequently in the cases cited these three measures, the determination of temperature, the physical examination of the chest and the examination of the sputum were employed in attempting to establish the diagnosis. A number of the fifty-four patients whose histories were studied visited more than one physician; several of them, in fact, convinced that they were subjects of an early tuberculous infection, in spite of the attempt of physicians to reassure them, visited almost every practitioner in the community in which they lived. I have thus collected the records of the examinations performed as a result of the visits of these fifty-four patients to

* Dr. Lavenson died July 4, 1913, at Los Angeles, from tuberculosis. The article gains interest from the fact that he wrote from the point of view of the physician and his responsibility as well as that of the patient.

seventy-two different physicians. Summarized, they are as follows:

In 13.8 per cent. of the cases neither physical examination nor sputum examination was made, nor was the temperature taken.

In 52.7 per cent. of the cases a physical examination alone was made.

In 12.8 per cent. the temperature was taken and a physical examination made, but the sputum was not examined. (In one of the cases included in this group the patient had no sputum at the time the other examinations were made.)

In 8.3 per cent. the temperature alone was taken.

In 4.1 per cent. a physical examination was made and the sputum was examined, but the temperature was not taken.

In 5.5 per cent. of the cases the patient, referring the complaint to the larynx, sought a laryngologist, and in these cases only a laryngeal examination was made.

One patient had the sputum examined, but neither was physical examination made nor was the temperature taken.

In but one instance in which the diagnosis was not made were physical and sputum examinations made and the temperature determined.

It may seem entirely unnecessary to remark on statistics so obvious as these, yet I feel that it is necessary in the interest of a matter of the greatest importance in the attitude of the physicians of this country toward the public health. The fact that when subjects with symptoms of pulmonary tuberculosis presented themselves for medical care, but one physician out of seventy-two performed the three absolutely essential tests before denying the existence of tuberculosis, denotes a deplorable lack of thoroughness in the professional attitude of physicians toward patients presenting themselves with the early symptoms of tuberculosis. Moreover, in 13.8 per cent. of the cases, not one of these measures was performed, even though in almost all of the patients the symptoms were sufficient to justify more than a suspicion of the existence of pulmonary tuberculosis, and in all were such as to justify an examination for its possible existence.

In the remaining cases the examinations performed denote that the attending physicians appreciated the fact that the symptoms pointed toward the possible existence of pulmonary tuberculosis, and measures directed toward its detection were instituted. Yet they were, as the results show, in the majority of cases, so deficient as to be almost useless. In 52.7 per cent. of the cases a physical examination alone was made. In considering the significance of these statistics, it must be noted that the patients from whose records they are derived belong in great part to those who visit general practitioners. There is no doubt that, in a fairly large percentage of the early cases of pulmonary tuberculosis, the diagnosis can be made from the physical examination by a competent clinician or a specialist in tuberculosis. I do not believe, however, that the same is true concerning the average general practitioner. A recognition of the slight changes in physical signs which characterize the earliest stages of pulmonary tuberculosis requires a degree of proficiency in physical diagnosis that the general practitioner does not command. It may be that in the peculiar position to which he is subjected by the economic conditions surrounding him, the general practitioner cannot be held entirely to blame for his lack of diagnostic skill. Be that as it may, one

thing is certain—either he must become more proficient in physical diagnosis, or he must call to his aid those whose larger experience in this work has endowed them with greater skill. Moreover, in some of the instances in which the physical examination was made, it is the examiner's thoroughness rather than his ability that must be impeached; for in six cases the examination was performed through all or a portion of the clothing, a procedure which makes a negative result absolutely worthless; in three other instances the physical examination consisted of percussion alone, and in four instances auscultation was performed by direct application of the ear to the chest, a method that, except in rare instances, scarcely insures sufficient recognition or localization of signs to justify much dependence on the findings resulting therefrom.

Finally, it must be taken into consideration that in a certain number of cases of incipient tuberculosis, even the most expert physical diagnostician cannot discover physical signs sufficiently distinctive to justify a diagnosis. In the majority of such instances, however, further investigation along the lines suggested in connection with a careful consideration of symptoms and history will reveal the true nature of the condition. Suffice it to say that under no conditions is a physician justified in denying the existence of an incipient tuberculosis on the basis of a physical examination alone.

A somewhat greater degree of diagnostic thoroughness is indicated by those instances in which, in addition to a physical examination, either the temperature was taken or the sputum was examined. I have included as instances in which the temperature was taken all of those cases in which it was taken even though but once, and unfortunately the greater number of cases come within this group; in most of the cases the temperature was taken only on the patient's visit to the physician, regardless of the time of day. It is generally recognized that a temperature record of less than two or three times a day for a period of at least a week cannot be considered as of much diagnostic importance in early pulmonary tuberculosis.

The sputum examination, if positive, at once establishes the diagnosis, but unfortunately a negative result does not possess the same significance in proving the non-existence of a pulmonary tuberculosis, and by a proper consideration of the other diagnostic features a fairly large percentage of cases of early pulmonary tuberculosis can undoubtedly be diagnosed before bacilli appear in the sputum.

The fact that in 5.5 per cent. of the cases the patients were subjected to a laryngoscopic examination only emphasizes the fact that unless a patient's laryngeal symptoms are fully accounted for by the existence of a local non-tuberculous condition, he should be subjected to a complete general examination for the existence of a pulmonary infection.

I do not attempt to maintain that were the proper diagnostic measures employed in these fifty-four patients the diagnosis would have been established at once in all of them, but it is fair to assume—and this assumption is justified by the subsequent histories in many of the cases—that in a large percentage of them the diagnosis could have been made. We have gone to much trouble to acquaint the masses of the people with the early signs of tuberculosis, but does our obligation cease there? When patients present themselves to us with symptoms of early tuberculosis, is every possible measure employed to determine if the disease actually exists? Judging from the

few statistics that I have collected, it is not, and if these statistics are representative of conditions existing throughout the country, there must be a radical change in the attitude of the general practitioner toward the early diagnosis of pulmonary tuberculosis before we can begin to think of successfully combating the disease.

I believe that the first step in this change must be a general adoption of the plan to subject every patient presenting himself with symptoms even remotely suggestive of tuberculosis to a thorough physical examination; to have his temperature taken morning, afternoon and evening for at least a week; and to have the sputum examined several times, unless bacilli should be found in one of the earlier examinations. If the latter examination should be negative and the physical examination and temperature record should present findings of a doubtful nature, either the assistance of a physician of greater diagnostic skill or experience should be obtained or the patient kept under more or less constant observation until the physician is thoroughly satisfied that no active tuberculosis exists. This may result in the production of a certain amount of what might be termed "objective phthisiophobia" on the part of physicians, and possibly more or less "subjective phthisiophobia" among laymen, but I believe that this would not be an undesirable and certainly not a serious state of affairs.

I am convinced that only when physicians in general assume this attitude of suspicion toward every patient presenting himself with symptoms in any way suggestive of tuberculosis will a much larger percentage of incipient tuberculosis be recognized than is at present. It is much pleasanter to perform some superficial examination to ease the professional conscience, and then happily inform the patient that his fears are unfounded and that nothing can be determined to warrant a diagnosis of tuberculosis, but the physician who performs the more unwelcome task of advising his patients that, though nothing definite can be found, further observation or a visit to a more experienced physician is necessary, performs his duty better by his patients and by humanity.

As to another phase of the early diagnosis of pulmonary tuberculosis that I noted in my observations, it is somewhat more difficult to comment. It may be unjust to draw conclusions from eight or nine instances, but in collecting the preceding data I met at least that number, indicating a deplorable lack of what might be called text-book knowledge of the significance of the signs and symptoms of tuberculosis. In several cases frank pulmonary hemorrhages were regarded as of no significance whatever, and the patients were assured that they absolutely did not have tuberculosis. It cannot be said too emphatically that, except in the rarest instances, the expectoration of blood is a definite and unmistakable sign of the existence of pulmonary tuberculosis. The assurance of a physician that the expectoration of several mouthfuls of blood must have come from the nose is very consoling, but it is very seldom based on fact. In several cases the consolidation of almost an entire lung associated with an afternoon temperature of 99.4 to 100 for a period of more than five months was diagnosed as pneumonia. In several instances the significance of a continued afternoon temperature of 99.4 or slightly higher was entirely ignored. In the one instance in which both physical and sputum examinations were made and the temperature was taken, a daily afternoon temperature of 99.2 to 99.4 was observed over a period of many weeks, and in spite of this, neurasthenia was diagnosed. Another common fallacy appears to be for

physicians to ignore the existence of closed cases, and flatly to deny the existence of pulmonary tuberculosis when the sputum examination is negative, despite the very positive nature of other signs and symptoms.

In this connection, a rather humorous incident was related to me by one patient illustrating how the significance of so-called diagnostic tests can be misinterpreted. The patient presented himself to a physician, fearing that he had contracted tuberculosis. After some preliminary examinations had been performed, the patient asked that his sputum be examined, but was informed by the physician that the sputum examination was an "old-fashioned" method of recognizing pulmonary tuberculosis, and that the new method consisted in the performance of the ophthalmo-tuberculin test. Incidentally, the result of the performance of the test was negative and the patient was told that he did not have tuberculosis; a short time later he was found to have advanced pulmonary tuberculosis.

It is possible that in some of the cases I have collected the physician has recognized the existence of tuberculosis, and out of a mistaken sense of kindness to the patient or a desire to avoid the painful task of acquainting him with his condition has not informed him of his findings. I believe that nothing can justify such a course. Not only is the patient unable properly to strive as he should to improve his health, but if his sputum contains bacilli, unless he be fully acquainted with the dangers to which he subjects others by promiscuous expectoration, he also becomes a constant source of danger to his associates.

I feel that I must emphasize that this is not intended as an attack on the general practitioner. It is but a plea that the general practitioner, who is, and will continue to be the most important factor in the fight against tuberculosis, shall recognize and perform his duty toward his patients and humanity, and a plea for the sufferer with tuberculosis. His only hope lies in the early recognition of his condition, and I feel confident that the proper course shown him there is no physician worthy of the name who would hesitate to perform any task within the bounds of his professional activities to give the tuberculosis patient that which is to him at least greater than the preservation of health, the restoration to health and the activities of life.

THE PROTECTION OF GRANULATIONS

A NEW DRESSING MATERIAL

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It is my desire to call attention to the advantages of certain modifications in the management of large granulating areas resulting from extensive burns and mechanical injuries, and to offer some suggestions that will greatly simplify the task, mitigate the suffering and not violate the surgical principles involved.

The surface of a granulating wound is usually covered with an albuminous material which exudes from its vascular elements and consists of serum, fibrin, red cells and leukocytes. Closely adherent to the surface cells is a thin layer of fibrin enmeshed in which is an enormous number of white cells. This exudate is not offensive and purulent, but in function defensive and protective to the underlying embryonic tissue.

When collected in quantities under favorable conditions this exudate, being an excellent medium, is easily infected. The result of infection is usually disastrous to the reparative phenomena, since a purulent process necrotizes the advancing embryonal cells and seriously retards healing.

A wound of the type under discussion, whether infected or non-infected, is usually dressed with dry gauze, a moist occlusive, or a moist evaporating or ointment dressing. I am inclined to believe that generally there is too much confidence placed in the antiseptic qualities of the chemical used and not enough consideration given to the character of the dressing applied.

Careful clinical observation of occlusive dressings applied to wounds of this nature will convince one that they are irrational and unsurgical. An occlusive dressing, whether it be an antiseptic ointment, moist antiseptic gauze covered with some impervious material or what not, does not drain the wound surface. If the wound is not infected the normal wound products are held in increasing quantity. The presence of heat and moisture converts this medium into septic material on the admission of pyogenic organisms, since no wound, however carefully guarded, remains strictly aseptic for more than twenty-four hours.

If the wound be infected, conditions are made decidedly worse by the application of this type of dressing, since the infection is induced to spread to surrounding tissues, which are macerated and thereby lowered in resistance. The antiseptic action of the chemical component is negligible when compared to the ill effects of the poultice-like dressing. It has been demonstrated many times that bacteria actually increase rapidly in the meshes of antiseptic gauze if evaporation be prevented. An antiseptic to be potent under these conditions would be of germicidal strength and would then kill the delicate tissue-cells as well as the flora in the wound.

A dry dressing such as plain or chemically treated gauze or antiseptic powder is safer both in theory and in practice than the occlusive dressing, but requires most careful attention and frequent change, since it has the disadvantage of permitting early inspissation of the wound discharges. The drying of the exudate in the powder or in the gauze forms a crust with the result that either dressing thereby becomes occlusive.

The moist evaporating dressing overcomes in large measure the disadvantages of the other forms. Capillary drainage of the excess of wound exudate or of seropurulent material is induced. Not only may antiseptics be used successfully in this type of dressing, but desirable chemical solutions may be safely and conveniently applied to stimulate flagging granulation growth.

There is a distinct need for improvement in our efforts to protect granulations during the change of dressings. With copious use of aqueous solutions or hydrogen peroxid and the most painstaking layer-by-layer removal of the gauze, there still remains a traumatized granulation bed. The mechanical difficulties to be overcome arise from two sources: First, the inspissation of the exudate in the layers of the gauze forms a glue-like mass that attaches the dressing to the wound margin and, in patches, to its surface. This air-dried crust-like mass as effectually resists the solvent action of solutions as would an ointment. Secondly, the rapidity of growth of the granulation-tissue permits its tiny buds to project through the meshes of the gauze, where they firmly attach themselves, with the result that on removal of

the dressing the surface is left torn and bleeding. These conditions are most undesirable for the following reasons:

1. The raw and bloody surface more readily and firmly becomes adherent to the subsequent dressing.
2. The broken tissues offer new avenues for the spread of infection if present.
3. The epithelial margin of the wound is torn and often stripped off, thus seriously retarding its advance.
4. The removal of a dressing under such conditions is attended with great pain, and when repeated day after day often reduces the patient to a nervous wreck.
5. The fibrous tissue is greatly increased in certain areas by reason of the irritation of this repeated trauma. The surface being rough and irregular, the resultant scar is uneven and puckered instead of being smooth and elastic, which would be a condition much to be desired.

To obviate these serious objections to the usual dressing, I sought to develop a dressing material and technic that would insure a desired result without violating surgical principles. Obviously such a dressing must fulfil the following requirements:

1. It must not allow granulations to become attached in its substance.
2. It must permit drainage through it.
3. It must not conflict with any other form of dressing desired by the surgeon.
4. It must be capable of sterilization.
5. It must be adaptable to the conformation of the part.
6. It should be readily procurable.
7. It should be cheap.

The dressing as at present developed entirely conforms to these requirements. It consists of ordinary white mosquito-net which has been infiltrated with a mixture of paraffin and petrolatum, of each two parts, and stearin one part. This prepared net will permit the granulations to grow through its mesh, but not intimately into its threads, and removal is not attended by the usual accidents. Drainage through its interstices into the superimposed dressing is unobstructed and free.

Other elements of the dressing desired or habitually used by the surgeon do not conflict with its application. It was not designed to replace any one dressing, but to be used in conjunction with any other form. The materials may be sterilized before preparation or the preparation may precede the sterilization.

The technic of preparation and sterilization employed for my use is as follows: The mosquito-net is cut into pieces of suitable size for convenient handling. The paraffin, petrolatum and stearin in proper proportion are placed in a porcelain or metal bowl and heated to the boiling-point. In this heated liquid a double thickness of the net is immersed for three minutes. It is then removed, the excess of the mixture allowed to drain off and the surfaces separated to clear the meshes. The pieces are then folded and wrapped in oiled paper. Several of the packages are wrapped together in a towel or dressing-cap and sterilized in an autoclave.

The oiled paper prevents the absorption by the dressing-cap or towel of the mixture liquefied during sterilization. It is obvious that after immersion the steps of draining and separation must be accomplished rapidly, before the cooling is sufficient to congeal the mixture in the meshes so that they appear as tiny window-panes.

The dressing may be rendered antiseptic by the addition of phenol (carbolic acid) to the heated mixture to make it 0.5 per cent. strength.

When ready for application the net may be cut into such shapes or sizes as may be desired. It is nearly as flexible as the naked cloth and conforms readily to the surface of the part. The materials for its preparation are everywhere procurable, and all the component parts of the dressing are extremely cheap.

The technic of application and removal as used in our clinic is as follows: After the wound is cleansed a single or double layer of the prepared net is cut, of sufficient size and shape to cover the wound and allow ample margins to extend over the sound skin beyond the wound edge. The material is then fastened with adhesive strips or with tapes and the superimposed dressing of gauze applied and held in place with a roller bandage.

There is a distinct advantage in its use when it comes to the removal of the gauze, as there is no gluing of the dressing to the wound edge, and when hydrogen peroxid is applied here it readily finds its way beneath the entire dressing and the gauze may be lifted off *in toto*. The net is next carefully lifted from the surface.

The material is almost ideal for use in the primary dressing after skin grafting, as the grafts are held in place and do not adhere to the dressing so as to jeopardize them when the dressing is removed. It is my custom to cover the grafted wound with a double layer of the net and then lay on a few thicknesses of gauze moistened with normal salt water and hold in place with a gauze roller.

I am fully aware that the principle involved in the dressing is not new, as wire mesh has been used in like manner and there is on the market a rubber mesh for similar purposes. The former is for most obvious reasons clumsy and unmanageable and almost wholly undesirable, while the latter is not easily procurable and is prohibitive in price for the usual case that requires large quantities to be replaced daily.

This material has been in use for more than a year and has given me no cause to regret its addition to my armamentarium. When other dressings are made on patients accustomed to the use of this material, they ask that it be again made a part of their dressing. To such patients it gives more relief than any single step in their treatment.

667 North High Street.

DISTINCTION BETWEEN THE CORPUS LUTEUM OF OVULATION AND THE TRUE CORPUS LUTEUM OF PREGNANCY

PRELIMINARY REPORT *

FREDERIC FENGER

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The present investigation was conducted to determine the differences, if any, in size and chemical composition of the corpus luteum of ovulation and the true corpus luteum of pregnancy. The active principle of this gland has not been separated or identified, and it is, therefore, difficult to standardize the drug for medicinal purposes. Clinical evidence alone will in time lead to

more definite knowledge regarding the true therapeutic value of the two varieties of the corpus luteum, but until the desiccated gland can be standardized chemically or physiologically, real progress cannot be expected. Such methods have been worked out in the case of the thyroids, the pituitary body and the adrenals, and their therapeutic value has naturally increased accordingly.

The ovaries from 700 non-pregnant and 689 pregnant cows were collected twice a week during the late fall months, when cattle as a rule are in excellent health and all stages of pregnancy plentifully in evidence. The total number of corpora lutea obtained from non-pregnant animals were 316, while those from pregnant cows totaled 692. In the pregnant cows one of the ovaries invariably showed a well-developed corpus luteum, and in three instances a single ovary contained two separate corpora lutea of equal size. Less than half of the non-pregnant cows possessed corpora lutea. The color and shape of the two varieties are identical and it would be impossible, therefore, to make any classification by external appearance only. A thorough examination of the uterus of each individual female animal was made in order to determine whether or not it was pregnant. In this investigation the glands from pregnant cows represent uniformly the entire period of gestation. Non-pregnant cows include an equal number of virgin animals (heifers) and primiparae or multiparae.

In examining the uteri from approximately 1,500 pregnant cows, partly for this investigation and partly for other purposes, some observations were made which may be of interest in this connection. In three instances the uteri were found to be strongly contracted and exceptionally hard to the touch. The largest of these uteri was completely filled with a dark brownish-red substance of a consistency resembling that of asphalt. The surface of the mass was slimy and in the process of being digested, while the interior was of a somewhat lighter color and consisted largely of muscle and skeletal parts.

The next largest of the uteri contained the entire skeletal parts of a fetus 3 to 4 months old, all the softer organic substances having been absorbed.

The third and smallest uterus contained a viscous yellow emulsion with a few fragments of disintegrated bones, hoofs, etc., and evidently represented the final stage of digestion. There was no sign of inflammation or putrefaction present in any of these uteri, and it is very evident that certain conditions necessitated this course of eliminating the fetus instead of complete abortion. The corpora lutea from the ovaries of these three cows were well developed and of normal size and appearance.

These observations demonstrate clearly that when the fetus dies during gestation the uterus itself is capable of disposing of the fetus by other means than simple abortion.

One corpus luteum, weighing 2.6 gm., from a non-pregnant cow, contained a hard yellowish substance. Chemical analysis showed this material to contain besides nitrogenous material and some calcium carbonate, large quantities of organic and inorganic phosphates, especially calcium phosphate. Cluster-shaped masses of a similar chemical composition have on several occasions been observed by me in the pituitary body of cattle. In such instances, the space between the anterior and the posterior lobes was enlarged and contained a

* From the Research Laboratory in Organotherapeutics of Armour & Co.

yellowish, viscous fluid in which the clusters were suspended. These incidents are mentioned here as suggestive of the similarity in the apparent disturbing results produced by certain factors, both in the pituitary body and in the corpus luteum.

The usual procedure for collecting the raw material was followed. The ovary containing the corpus luteum was removed from the animal shortly after slaughtering and while still containing the animal heat. The corpora lutea were then carefully dissected out and trimmed free from all adherent tissue, weighed and stored at freezing temperature until the entire lot had been collected. The glands were finely minced, dried on agate-ware trays at a temperature not exceeding 65 C. (149 F.) to constant weight and extracted in the Soxhlet apparatus with petroleum benzin. The loss of moisture and petroleum-benzin-soluble material were noted, and the desiccated fat-free substance powdered in a tube-mill to pass a 60-mesh sieve.

The total number of glands, the maximum, minimum and average weights, together with the moisture and petroleum-benzin-soluble material on the fresh glands and yield of desiccated material are given in the accompanying tabulation. On the desiccated fat-free glands the moisture, ash, total nitrogen and total phosphoric acid were determined and the figures calculated to dry basis for comparative purposes.

COMPARISON OF THE CORPORA LUTEA OF PREGNANCY AND OF OVULATION

| | Corpora Lutea from— | |
|---|---------------------|-------------------|
| | Pregnant Cows | Non-Pregnant Cows |
| <i>Fresh Glands:</i> | | |
| Total number of corpora lutea | 692 | 316 |
| Average weight of corpora lutea, gm. . . | 4.8 | 4.1 |
| Maximum weight of corpora lutea, gm. . | 18.2 | 10.0 |
| Minimum weight of corpora lutea, gm. . | 0.9 | 0.8 |
| Moisture in fresh glands, per cent. . . . | 77.0 | 78.9 |
| Petroleum-benzin-soluble, per cent. . . . | 4.5 | 4.5 |
| <i>Desiccated Fat-Free Glands:</i> | | |
| Yield of desiccated fat-free glands, per cent. | 18.5 | 16.6 |
| Moisture, per cent. | 4.9 | 5.6 |
| Ash, per cent. | 5.33 | 6.0 |
| Total nitrogen, per cent. | 13.1 | 13.2 |
| Protein (N×6.25), per cent. | 81.88 | 82.5 |
| Phosphoric acid (P ₂ O ₅), per cent. . . . | 2.6 | 2.84 |
| Ash, dry basis, per cent. | 5.6 | 6.36 |
| Nitrogen, dry basis, per cent. | 13.77 | 13.88 |
| Protein, dry basis, per cent. | 86.06 | 86.75 |
| Phosphoric acid, dry basis, per cent. . . | 2.73 | 3.01 |

The tabulated results show that the corpus luteum of pregnancy is larger and shows a greater variation in size than the corpus luteum of ovulation.

When the figures on the dry basis are compared it will be noted that the nitrogen, and consequently the protein as well as the ash and total phosphoric acid contents, are slightly higher in glands from non-pregnant animals than in the true corpora lutea of pregnancy. It is, however, very doubtful if these slight differences are of any significance in judging or determining the therapeutic value of the two varieties of the corpus luteum. The active principle undoubtedly is present in the glands in organic combination and closely associated with the protein complex. Much more extensive work will be required, therefore, before this problem can be solved. It is the intention to continue investigation along these lines.

It may be mentioned here that tests for epinephrin were negative in both varieties, and that the glands did not give more than a very faint indication of the presence of iodine, as would naturally be present in ordinary animal tissues.

THE FREQUENCY OF PREGNANCY IN SLAUGHTER-HOUSE CATTLE IN RELATION TO THE SUPPLY OF CORPUS LUTEUM

CAREY PRATT McCORD, M.D.

DETROIT

With the advent of corpus luteum to therapeutic importance, we are confronted with the question as to the superiority of extracts from corpus luteum from pregnant animals (corpus luteum verum) over extracts from non-pregnant animals (corpus luteum spurium). In his recent paper, Dannreuther¹ asserts that only corpora lutea vera bear the substances that are efficacious in gynecologic conditions, and he would explain some of the failures attending the use of this material on the grounds of the material not being obtained from pregnant animals.

There is no anatomic basis for the alleged difference in the two types; the structure is identical. As a rule, the corpus luteum of pregnancy attains a much larger size than the spurious type, but this does not serve to distinguish, for the corpus luteum in the non-pregnant has frequently been found to occupy four fifths of the entire ovary, and in pregnancy the corpus luteum is at times smaller than the average size for non-pregnancy. It has also been suggested that variations in color of corpora lutea stand in some fixed relation to pregnancy and non-pregnancy. The variations in color are merely differences in amounts of blood and lutein cells. Such variations in color usually stand in relation to the age of the corpus luteum. Just after ovulation the blood predominates and gives the dark red color to the corpus luteum; later the blood is absorbed and the yellow color is prominent from the predominance of the lutein cells. Whatever differences there may be, giving rise to greater efficacy from treatment with corpus luteum verum, they probably involve the chemical constituents rather than the structure of the two types of corpus luteum.

In connection with this confronting situation it seemed advisable to determine the frequency of pregnancy in cattle in the packing-houses, inasmuch as this is the source of supply of corpus luteum for pharmaceutical houses. The cattle slaughtered in the larger abattoirs are usually range cattle, the males and females being together at all times. The greater number of the cows of such herds are at some stage of pregnancy. An examination of the ovaries and uteri was made on forty cows appearing consecutively on the killing floors, but of two lots from different parts of the country. The cows so examined were all within the calf-bearing period, but of various ages. Of the forty cows, thirty-five yielded ovaries containing corpora lutea of such size as permitted dissecting out. Of these thirty-five, twenty-nine, or 83 per cent. (72 per cent. of the entire number), were pregnant. The corpora lutea from these pregnant cows were not uniformly large; many were identical in size and general appearance with those from the non-pregnant animals. Others were so large as to occupy five-sixths of the entire ovary.

From this examination it may be inferred that numerically 83 per cent. of corpus luteum is derived from pregnant cows. On account of the larger yield of corpus luteum from a pound unit of ovaries from pregnant animals than from the same unit of ovaries from non-

1. Dannreuther, Walter T.: Corpus Luteum Organotherapy in Clinical Practice, THE JOURNAL A. M. A., Jan. 31, 1914, p. 359.

pregnant animals, because of the larger average size of the former, the proportion by weight may run as high as 50 to 95 per cent. of corpus luteum verum.

These figures may vary on an examination of a larger number of cattle, and furthermore, a seasonal variation may alter the percentage of pregnancy. If the foregoing figures at all approximate the general condition, all corpus luteum preparations are derived in a high percentage from pregnant cattle.

960 Waterloo Avenue.

A SIMPLIFICATION OF THE GRAM STAIN

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Having been impressed with the importance of the Gram stain as a routine laboratory procedure in bacteriologic examinations, and with the fact that, as ordinarily performed, it is time-consuming (involving from five to ten minutes), and comparatively laborious, I evolved the following simple technic, with the idea of eliminating the time element as far as possible without impairing its reliability:

Six wide-mouthed, 4-ounce bottles are numbered from 1 to 6 and labeled according to the following ingredients: Bottle 1 contains alcohol-saturated gentian-violet with distilled water in the proportion of 1 part stain to 3 parts water. Bottle 2 contains plain distilled water, Bottle 3 Gram's solution, Bottle 4 absolute *methyl* alcohol, Bottle 5 plain distilled water and Bottle 6 dilute Ziehl-Neelsen carbolfuchsin (about 1:10), whose speedv and penetrating staining properties are well known. The elements of the stain differ from the original technic in two essential details, namely, the employment of plain water for the gentian solution in place of anilin-water (this may be used nevertheless), and most important, the substitution of absolute *methyl* alcohol for *ethyl* alcohol, as the destaining agent. The reason for this substitution is that the former acts far more quickly and efficaciously, thereby featuring a desirable time-saving phase.

In performing the Gram stain, the slide is dipped into Bottle 1 for from five to ten seconds with constant stirring, is transferred to Bottle 2 for a few seconds, excess water being shaken off, then to Bottle 3 for five seconds with constant agitation of slide, thence to Bottle 4, where it takes but a few seconds to destain, especially if stirred, then transferred to Bottle 5 to wash (if it is not yet destained, the slide is returned to Bottle 4 again), and lastly to Bottle 6 for a couple of seconds. It is washed off in tap-water. The staining and counter-staining, it will be seen, have been performed in about one minute.

It will be noticed that after staining with gentian-violet the slide is washed in water. According to good authorities, washing the slide with water, before destaining, is permissible in the employment of the Gram stain. My reason for using Bottle 2 is that by washing off excess stain the precipitation of the Gram solution is minimized. Finally, the only frequent change necessary is that of the wash-water, since the gentian stain itself, I have found, does not deteriorate rapidly.

32 North State Street.

Therapeutics

THE TUBERCULOSIS PROBLEM

(Continued from page 1169)

TREATMENT OF SYMPTOMS

Fever.—Nothing tends to diminish the temperature more than the rest, quiet and fresh-air treatment already outlined. The patient who has high fever should not be given too much food at any time of day, even if the disease is tuberculosis; and most of what he does receive should be given during an afebrile period if possible. If he is suffering from acute tuberculosis, the nutrition should be much the same as for any other serious fever.

Sponging with hot water will often give these patients comfort, and, if they have profuse sweats, it keeps the skin clean. The frequency of such sponging will, of course, depend on the height of temperature and its continuance. Antipyretics are rarely indicated.

Cough.—The treatment of the cough depends on whether it is dry or moist, and whether expectoration is easy or difficult. If the cough is dry and hacking, much of it may be prevented by the will-power of the patient. It should not be forgotten that many dry, irritating coughs are due to a lingual tonsil or throat irritation. Soothing, alkaline gargles, non-irritating inhalations of simple steam or steam medicated with some non-irritant drug, as a small amount of a pine oil, will give relief. Many coughs of this kind are relieved by swabbing the lingual tonsil with boroglycerid. These dry, irritating coughs should be relieved without giving medicine by the stomach.

If there is considerable bronchitis with insufficient expectoration, or the cough is frequent without expectoration, no cough mixture is any more soothing or behaves better in the stomach than the following:

| | Gm. or c.c. | |
|----------------------------|-------------|--------|
| R Codeinae sulphatis | 20 | gr. iv |
| Ammonii chloridi | 5 | ʒ iss |
| Syrupi acidi citrici..... | 25 | flʒ i |
| Aquae.....q. s. ad | 100 | flʒ iv |

M. Sig.: A teaspoonful, in plenty of water, every two, three or four hours, as needed.

Heroin may be used in place of codein if desired, but we believe that codein is the best sedative preparation of the opium series to meet the indication. The action of all other expectorants is inferior to that of ammonium chlorid, and ammonium chlorid as prescribed above is not very disagreeable. The dose may be taken in Vichy or other sparkling water if desired. None of the multiple sweet, sickish, syrupy preparations offered by proprietary firms should be used in the bronchitis and catarrh of tuberculosis, or in any other kind of bronchitis. It is not necessary to cause nausea or vomiting because a patient has a cough. The success of some of these syrups or malt preparations in dry cough is due to the fact that they soothe the throat and lingual tonsil. Such irritation can be allayed without the patient swallowing a mixture. If the cough is loose, and if expectoration is profuse, the stimulating effect of ammonium chlorid and the sedative effect of codein are not needed, and terpin hydrate becomes the best drug to use, as an expectorant. To meet this indication of profuse bronchorrhea it will not ordinarily be necessary to combine it with either codein or heroin. It should never be given in solutions, as not enough of it to be of advantage will be dissolved in any solution. It may be given in tablet, powder or capsule, and the

usual dose is 30 eg. (5 grains), given with plenty of water four or five times in twenty-four hours.

If there are cavities in the lungs, the patient should occasionally, by lying over the edge of the bed, allow gravity to aid him in expectorating the fluid and pus. Elevation of the foot of the bed is often of advantage. Sometimes inhalants containing creosote, oil of pine and perhaps benzoin are valuable. When there are large cavities which continue to fill up and cause septic fever, with the debility and loss of appetite that goes with it, or when there is danger of serious hemorrhage, it may be wise to inject air or nitrogen into the pleural cavity and compress the diseased lung. Such treatment should be given only in hospitals or sanatoriums, and then by an expert, as very unpleasant symptoms may occur; the heart may be unpleasantly pressed on, with a serious outcome. On the other hand, the treatment is sometimes very satisfactory.

Pain.—Pain in the chest is most frequently due to localized pleuristics, but it may be a neuralgia, or referred pain caused by disturbances of the more deeply seated nerves. Nothing is of more advantage in easing such pain than temporary strapping of the part of the chest affected. This is especially true of pain in the lower part of the thorax. Sometimes a hot-water bag will ease the pain; rarely a sedative may be indicated, but generally it is not needed. Mild counter-irritation by a liniment or ointment is sometimes advisable over these regions of pain; blisters are rarely expedient, though the thermocautery may be used. Dry cupping may give relief.

Hemoptysis.—Blood-tinged sputum or very slight pulmonary hemorrhages as evidenced by small clots or streaks of blood require no special treatment. Expectoration of pure blood, or coughing up a little blood repeatedly, requires attention. Such a patient should rest, and should undergo no exertion. The diet should be light, and hot soups or hot drinks should not be taken for a day or two, until the hemorrhage ceases. For this kind of bleeding little other treatment is necessary. If the bleeding is more severe, the patient should immediately be placed in a semirecumbent position, with loosened clothing and should be assured that there is no danger, as there rarely is danger from hemorrhage during all the early stages of pulmonary tuberculosis. In the late stages, with cavities, a large blood-vessel may rupture and the hemorrhage be fatal. It is well to have the patient lie on the side which is bleeding. This tends to prevent the blood from flowing into the bronchi of the other lung.

Besides reassuring the patient, it is often well, if there is a troublesome, irritating cough, to administer an hypnotic of morphin in just sufficient dose to quiet the irritability of the bronchial tubes and larynx so that the cough will be only sufficient for expectoration. (It is unnecessary to give a large dose which later will cause prostration; hence from 1/10 to 1/8 of a grain will be sufficient.)

The more rest the bleeding part has, the quicker will the blood coagulate in the bleeding vessels, but as above stated, mere capillary oozing should not be taken seriously. With a real hemorrhage from the lungs, the rest must be absolute; the patient should not even speak, at least not above a whisper. For some hours he should receive no food or drink. It is exceedingly doubtful if an ice-bag over the region of the bleeding is at all efficacious. The long-used remedy of eating salt may reflexly, by irritation, increase the vasomotor tension

and thus may occasionally stop a hemorrhage, but most of the remedies used and said to be satisfactory in hemorrhage from the lungs are drugs that increase the blood-pressure more or less, which is undesirable. As the blood-pressure is lowered the hemorrhage will generally cease, usually without medication, so that whatever has been given has been supposed to be the cause of such cessation. If the patient becomes faint, blood-pressure is lowered, coagulation in the open vessel or vessels takes place, and the unpleasant symptom is cured by Nature's methods; therefore we should aid the natural cure of the condition by giving the patient nitroglycerin to lower the blood-pressure. Amyl nitrite is very frequently advised, but its action is so sudden, and for a few minutes so intensely disagreeable, that it is hardly advisable to use this powerful drug. Nitroglycerin on the tongue or hypodermatically will act as efficiently and almost as rapidly without causing the faintness and throbbing head that amyl nitrite will cause. It is a mistake to give ergot, caffeine, suprarenal preparations, or digitalis, as these tend to increase the heart activity and raise the blood-pressure.

If there is a tendency to repeated, more or less serious hemorrhages, the daily administration of calcium in some form, either as lime-water, calcium lactate, or calcium glycerophosphate, and the feeding of gelatin are indicated. Also, if there seems to be a general tendency to the oozing of blood and to hemorrhage, injections of aseptic horse-serum is advisable; one or two subcutaneous injections will generally be sufficient. Inhalations of steam impregnated with some astringent such as tannic acid may be of value, if there is oozing of blood from the larger bronchial tubes, but such inhalations are of no value in bleeding from deeper portions of the lungs, as the astringent could not reach the region of trouble.

The patient should generally remain in bed for a week after a real hemorrhage. If the heart is impaired and some dilatation exists, if the expectorated blood is venous; and there are other signs of passive congestion of the lungs and of cardiac weakness, digitalis may be the best treatment for the condition; but for ordinary hemorrhages in pulmonary tuberculosis it is better, as above stated, to administer nitroglycerin in sufficient amount distinctly to lower the blood-pressure temporarily.

It has been repeatedly noted that constipation increases the tendency to hemorrhage in pulmonary tuberculosis, and that the higher blood-pressure caused by constipation is readily lowered by the administration of even simple laxatives. Because of this, it has been recommended¹ that when pulmonary hemorrhages occur, the patient should receive a dose of magnesium sulphate as well as nitroglycerin. Such immediate treatment of hemorrhage from the lungs seems hardly advisable. It might cause vomiting, and the mere increased exertion caused by bowel movements at this time, might cause more bleeding. The fact remains, however, that in pulmonary tuberculosis the patient should not be allowed to become very constipated.

If the hemoptysis occurs late in the disease and is dangerous in amount, the patient may quickly succumb, whatever the treatment adopted. The most efficient treatment of this serious condition is to place elastic bandages high up on the legs, or even all the extremities, to shut off their blood from the general circulation. It

1. Burns, Newell Bly: The Treatment of Hemoptysis in Pulmonary Tuberculosis, THE JOURNAL A. M. A., Dec. 20, 1913, p. 2207.

would be inadvisable, even if the hemorrhage was severe, to transfuse immediately, as anything that raises the blood-pressure will be likely to cause a return of the hemorrhage from the open vessel. Later, after the hemorrhage has ceased and sufficient time for thorough coagulation has passed, the extremities, one at a time, may be released and the blood contained in them allowed to return to the general circulation.

Continued bleeding from the lungs (especially when cavities exist and a serious hemorrhage has taken place, or seems likely to occur) is one of the most important indications for the use of lung compression. Other indications, as previously suggested, are the presence of pus in a cavity in the lungs, and bronchiectasis. For either of these conditions lung compression is becoming more and more popular with specialists in tuberculosis. It is also wise, perhaps, to compress a lung when, in spite of some weeks of proper treatment, the disease continues to spread in it, the other lung being normal.

The gases that may be injected into the pleural cavity are nitrogen, oxygen and nitrogen, oxygen and air, or air and nitrogen. If only temporary compression is desirable, air, or a gas rich in oxygen seems indicated, as its absorption is more rapid. If a prolonged compression is desired, nitrogen should, perhaps, be used, as it is less readily absorbed, and therefore the compression is longer continued. A mixture of air and nitrogen is perhaps a good combination when a brief compression is desired, and being more rapidly absorbed than nitrogen, will allow a decision as to the ability of the patient to stand this compression before using the longer compression by nitrogen. It has also been urged that air compression is safer than that by nitrogen from the fact that if gas bubbles enter the circulation, the air bubble is more quickly absorbed than the nitrogen bubble. Good technique with proper instruments, however, should preclude such an accident.

If compression is once done and its continuance is desired, more gas should be injected before all of that previously injected is absorbed, as after an injection has once been made, and the pleural surfaces have come together, they become more or less adherent and it is difficult to inject the gas again into this pleural cavity.

Night-Sweats.—This debilitating symptom is very characteristic of tuberculosis, and may occur even without much afternoon or evening fever; generally, however, it follows such increase of temperature. Therefore, the rest and fresh-air treatment that prevents a rise in temperature will also ameliorate or prevent the night-sweats. If, however, typical cold night-sweats occur, nothing in the way of medication more successfully prevents them than atropin, 1/200 to 1/100 of a grain, given dry on the tongue at bedtime. The hydrotherapeutic measures already advised, that is, the warm water, and later cold water morning spongings are of value as preventives. If the patient is at rest and is getting no exercise, good massage followed by an alcohol rub is an excellent method of stimulating a more healthy circulation in the skin and muscles, and diminishing the tendency to profuse perspiration. The avoidance of constipation, a healthy circulation and good activity of the kidneys, all prevent night-sweats and the accumulation of toxins in the blood. If there is much circulatory weakness, several doses of strychnin sulphate a day, or digitalis, may also prevent night-sweats.

Diarrhea.—Simple diarrhea occurring in tuberculosis patients generally means either that the patient becomes chilled, or that the diet is incorrect. Correction of these

conditions will soon stop such a diarrhea. Tuberculous diarrhea is a serious complication not only of pulmonary tuberculosis, but also of any other form. It often occurs in the last stage of the disease. Rest in bed and a carefully selected diet should be the treatment. Whether the diet consists of milk alone, or of a little meat and eggs with milk, should depend on the patient. Generally, vegetables, fruit and even much cereal should be temporarily withheld.

Bismuth subcarbonate may stop the diarrhea, but bismuth should not be long continued. Lime-water may be of benefit. If the kidneys are normal and there is no albuminuria, phenyl salicylate (salol) is good treatment. At times, one of the creosote combinations is valuable. The administration of opium in some form may be necessary before diarrhea can be checked, and in the last stages of tuberculosis diarrhea may not be preventable. Colon washing with warm physiologic saline solutions is sometimes markedly sedative and of value. The bowels should always be kept especially warm, and the patient with diarrhea should not be subjected to intense cold.

Dyspnea.—If the patient is in the last stages of pulmonary tuberculosis and must soon die, there is no excuse for not preventing the air-hunger, and morphin administered in properly selected, small doses, will often relieve the dyspnea. In the very last stages, if the patient cannot be out of doors to get an increased amount of oxygen, he may be given oxygen inhalations. But oxygen inhalations as a curative procedure are useless and may even do harm.

The Pneumonic Type of Pulmonary Tuberculosis.—Such a condition is likely to occur as a part of acute miliary tuberculosis, but it may develop in a lung as an acute exacerbation of a chronic tuberculosis. The disturbance may be ushered in with a chill, high, irregular temperature, frequent, short cough, considerable dyspnea, at first without physical signs of gross consolidation, but later showing in a part of a lobe, or even the whole lobe, the usual pneumonic signs, even with rusty sputum. The rusty expectoration soon disappears, however, and yellowish, greenish sputum, perhaps blood-streaked and loaded with tubercle bacilli, occurs. The prognosis is very serious, but the acute exacerbation may cease. The treatment is not dissimilar from that of an ordinary pneumonia.

Laryngeal Tuberculosis.—The prognosis of this condition has, up to recent years, been considered very bad indeed, but with more skillful treatment by throat specialists, with the added rest-cure and with tuberculin treatment, many such cases are aborted and the lives of the patients saved. The instances of tuberculosis of the larynx are rare in which, preceding or subsequent to the beginning of the laryngeal disease, some portion of the lungs will not be found affected.

The exact local treatment of a tuberculous larynx depends, of course, on the location of the ulcer or ulcers. If they are so situated that swallowing is very painful, anesthetizing sedatives must be used. Various preparations of silver, lactic acid and menthol are used by different clinicians to aid in healing the ulcers, but the tuberculin treatment, properly used, is probably always advisable.

(To be continued)

Work for All.—Preventable diseases are problems for all the people, and all the people should aid in finding an economic solution.

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THE MECHANISM OF THE TRANSMISSION OF PLAGUE BY FLEAS

The epidemiologic importance of the flea in the transmission of the plague is now generally recognized. The Commission for the Investigation of the Plague in India indicated as the result of its work during 1906 and 1907 that, when control of the experimental conditions had once been obtained, transmission of plague from one animal to another could readily be brought about by fleas; and it further made the very important observation that only in the presence of fleas did an epizootic among rats or guinea-pigs ensue. Close contact with infected animals, including the devouring of infected carcasses, was occasionally followed by a case of plague, but no spread of the disease occurred. In a number of experiments animals allowed to remain in animal-houses in which epizootics had occurred and in plague-infected native quarters became infected; but no infection resulted if the simplest measures were taken to prevent the access of fleas—indicating that the infection was resident in the flea population.

Among the various methods suggested whereby the flea may transmit plague have been: ingestion of the infected fleas by animals; mechanical conveyance of the bacilli from the infected to the healthy animal by the proboscis of the flea; infection of the salivary glands of the flea, inoculation with the bacilli then occurring through the deposition of the saliva; infection of the feces of the flea, which, after being deposited on the skin of the host, may be injected by the pricker or rubbed into wounds made by the pricker. It is admitted that animals may be inoculated with plague by means of the dejecta from infected fleas. The hair of the flea-infested rat, especially in the areas from which the animal cannot dislodge the parasites, such as the back of the neck and root of the tail, is often sprinkled with the dried excrement of the fleas, and the animal is frequently seen scratching itself. Bacot and Martin,¹ who have been engaged at the Lister Institute for Preventive Medicine in London in researches on the mechanism of transmis-

sion of plague by fleas, state that they have long felt dubious as to whether the procedure just described was the only, or even the principal, method by which infection is conveyed. In comparison with the masses in the fleas' stomachs, the feces do not as a rule contain many bacilli, and soon dry up. These investigators also believe that bacilli which have grown in the stomach of the insect are not of a high degree of virulence. On behalf of the advisory committee appointed by the Secretary of State for India, the Royal Society, and the Lister Institute, the British investigators set out to ascertain whether or not the flea could infect during the act of sucking, and found that, under conditions precluding the possibility of infection by dejecta, two species of rat-fleas, *Xenopsylla cheopsis* and *Ceratophyllus fasciatus*, fed on septicemic blood, could transmit plague during the act of sucking, and that certain insects suffering from a temporary obstruction at the entrance of the stomach were responsible for most and probably for all of the infections obtained.

How complicated the conditions leading to the transmission of disease by insects may be is well illustrated by the foregoing facts. Only an expert entomologist can succeed in discovering the essential details of bodily structure and function on which the transference of the bacilli depends. Bacot and Martin found that in a proportion of infected fleas the bacilli developed to such an extent as to occlude the alimentary canal at the entrance to the stomach. The growth of the pest begins, apparently, in the intercellular recesses of the proventriculus, and is so abundant as to choke this organ and extend to the esophagus. Fleas in this condition are not prevented from sucking blood, as the pump is in the pharynx; but they only distend an already contaminated esophagus, so that some of the blood is forced back into the wound on the cessation of the pumping. Such fleas are persistent in their efforts to feed, and this renders them particularly dangerous. A flea suffering from obstruction does not necessarily perish, and in the course of some days its alimentary passage may again become pervious. It is, however, incapable for the time being of imbibing fresh fluid and is therefore in danger of drying up if the temperature is high and the degree of saturation of the atmosphere low. The British investigators are led to wonder whether this fact may not to some extent explain why epidemic plague in India is confined to the cooler and moister seasons, and particularly why in northern and central India the epidemics are abruptly terminated at the onset of the dry, hot weather.

DIFFERENTIATION OF GAUCHER'S DISEASE AND OTHER DISEASES OF THE SPLEEN

Among the large group of diseases attended by splenomegaly is a specific form presenting a definite clinical and pathologic picture and known as Gaucher's disease. Fourteen authentic cases have been reported,

1. Bacot, A. W., and Martin, C. J.: Observations on the Mechanism of the Transmission of Plague by Fleas, Jour. Hyg., Plague Supplement 111, 1914, p. 423.

the first by Gaucher in 1884, after whom it has been suggested that the disease be named. N. E. Brill and F. S. Mandelbaum,¹ in a recent review of the literature, have brought together the chief facts concerning this condition, a brief summary of which may be helpful.

It is a primary, chronic disease of unknown origin, characterized by progressive enlargement of the spleen, hence also called primary splenomegaly, and is followed by enlargement of the liver, brownish-yellow discoloration of the skin, conjunctival thickening, persistent leukopenia, a tendency to hemorrhages and the absence of marked discomfort. It is of familial occurrence and has been ascribed to the influence of an endogenous toxin, of an enzyme manufactured by the spleen, of infection by protozoa, tubercle bacilli, etc. It has been asserted also that it is a form of malignant disease, but evidence to establish any one of these possible factors as the cause is wanting.

A characteristic of the disease is the presence of peculiar large cells throughout the hemopoietic system. These cells are round or oval, from 20 to 40 microns in diameter, and contain from one to four or more nuclei. The spleen always retains its normal shape, but varies in size and weight according to the duration of the disease. Scattered throughout the pulp are the typical cells. Large round or irregularly shaped alveolar spaces, whose walls are formed by connective tissue lined by endothelium, displace the normal splenic structure. The liver is also enlarged proportionately to the duration of the disease and there is a great increase in the interlobular connective tissue, in the meshes of which are found numerous typical cells, similar to those seen in the spleen. In the lymph-glands the typical cells are found in the lymph-sinuses and between the pulp-cells. The bone-marrow is always red, usually soft, and the typical large cells are found either singly or in groups. There may be hypertrophy of the lymphadenoid tissue in the lower ileum and cecum; the intestinal, uterine, and thigh muscles have been found to contain pigment granules.

The disease is insidious in its onset and may be unattended by subjective symptoms. It usually begins early in life, appearing before 12 years of age in the majority of cases reported. Females are more frequently affected than males, and often more than one child in the same family is affected. In addition to the slowly progressive splenic enlargement causing protrusion, there is a peculiar brownish-yellow pigmentation of the skin of the face, neck and hands early in the disease, and a tendency to hemorrhages (epistaxis, bleeding from the gums and ecchymoses in the skin). A slowly growing brownish-yellow wedge-shaped thickening of the conjunctiva, affecting first the nasal and later the temporal sides, is another characteristic change. Persistent leukopenia is present. Early in the disease the red count

is normal; later, however, a mild anemia of the chlorotic type develops. As the disease becomes more advanced, emaciation is a noticeable feature. The absence of any great pain is striking. The disease is slowly progressive in its course, the average duration of reported cases being 19.3 years; death is usually due to some inter-current affection.

Splenic enlargement being a characteristic feature, Gaucher's disease must be differentiated from other conditions attended by splenomegaly, and especially those running a chronic course. Banti's disease and Gaucher's disease have many features in common, but the former is characterized by jaundice, pallor of the skin, ascites, less enlargement of the spleen and liver, absence of conjunctival lesions, and a shorter duration. The characteristic blood-picture of chronic splenomegalic acholuric jaundice with its normoblastic and megaloblastic crises, serves to differentiate this condition from Gaucher's disease. Hanot's disease is differentiated by the presence of jaundice, leukocytosis and a moderate enlargement of the liver and spleen. Hodgkin's disease associated with an enlarged spleen may occasion difficulty in diagnosis, but in this are seen the enlarged lymph-glands and the periods of fever. The definite blood-changes in pernicious anemia and the leukemias are quite diagnostic. In no one of these diseases is the enlargement of the liver and spleen as a rule so pronounced as in Gaucher's disease.

There is no specific treatment yet known. Splenectomy has given better result than anything else. Roentgen-ray treatment has been tried, and although the spleen is temporarily reduced in size, the disease is not checked. Arsenic has been the most important drug used, but it has very little influence on the progress of the disease, concerning the real nature of which we are in the dark.

RURAL SCHOOL CONDITIONS IN THE UNITED STATES

One of the most important committees appointed by the Council on Health and Public Instruction of the American Medical Association is that on cooperation with the National Education Association. This committee, appointed two years ago, has been working with a similar committee appointed by the National Education Association on the subject of school hygiene. The first year of the committee's existence was devoted largely to a survey of the field and a consideration of what activities should be first undertaken. After careful discussion, the committee decided that the rural school was more in need of attention and assistance than the city school. Then the question arose as to the amount of available information concerning rural schools and schoolhouses. Surprising as it may seem, it was found that little was known of the actual conditions of rural schools in the different states. A preliminary survey was accordingly undertaken with a view to

1. Brill, N. E., and Mandelbaum, F. S.: *Am. Jour. Med. Sc.*, December, 1913.

remedying this defect. Through the United States Bureau of Education, Professor Dressler of Nashville, Tenn., made a careful study of a large number of country school districts in the South. Special surveys in Connecticut, Vermont and New York, as well as general investigations which gathered statistics from every state in the Union, and special studies of rural conditions in Idaho, Massachusetts, Pennsylvania, New Jersey and Virginia, resulted in the accumulation of a large mass of information which is now being digested and drawn up in the form of a report. Professor Dressler's work will be made public through a special report issued by the United States Bureau of Education. While the work of the committee is only begun, enough has been learned to show that the sanitary condition of rural schools is not by any means so satisfactory as was generally supposed. In the *New York Times*, March 8, appeared a lengthy article based on a statement by Dr. T. D. Wood of Columbia University, chairman of the education committee.

After describing the organization of the committee and the work which it has undertaken, Dr. Wood said: "We grew up with the notion that the schoolchildren in the country were bound to be much healthier than the children of the cities. Our parents always credited the little red schoolhouse for their excellent constitutions. Of late years, however, there has been a good deal of suspicion cast on that same little red schoolhouse. We have begun in this day of sanitation and medical inspection to have our doubts about those unqualified benefits."

Dr. Wood then gives a few specific instances in proof of the general proposition that the country schoolchild is from 15 per cent. to 20 per cent. more defective than the city child. In Pennsylvania, a study of 1,831 rural school districts was made and the health of the children in these districts was contrasted with the health of the schoolchildren in Harrisburg, Pittsburgh and Altoona. The percentage of defective children in Altoona was 69 per cent., in Pittsburgh 72.2 per cent., while in the rural districts studied, the aggregate of defective children amounted to 75 per cent. This means that three-fourths of the 294,427 country schoolchildren in Pennsylvania are in need of special care and treatment, while even in New York City only 72 per cent. of the children are at all defective.

The investigation of specific defects gives the same results. For instance, a comparison of the schoolchildren of Orange County, Virginia, with those of New York City, shows that with all of the surroundings and disadvantages of city life, the number of New York schoolchildren with lung trouble amounts to only a fraction of 1 per cent., while 3.7 per cent. of all the schoolchildren in Orange County, Virginia, suffer from some affection of the lungs. When the nutrition of rural schoolchildren was considered, it was supposed that here, of course, the country child would greatly surpass the child in the city, yet the average of malnutrition among the

schoolchildren of New York City is 23.3 per cent., while that of rural schoolchildren in the districts investigated is 31.2 per cent. The same startling result is found when the figures for mental defectives are compared. Statistics from twenty-five cities and from rural districts in Pennsylvania, Massachusetts, New Jersey, Idaho and Virginia were compared, showing that the average of mental defects among city children was 0.2 per cent., while the average among rural schoolchildren was 0.8 per cent. Heart-disease is twice as prevalent among country children as among city schoolchildren. City schoolchildren have only 0.13 per cent. of curvature of the spine, while rural schoolchildren have 3.5 per cent. Ear troubles are five times and eye troubles are four times as frequent among country children. Adenoids are found in city schoolchildren in 8.5 per cent., but in the country the percentage is 21.5. The children in twenty-five cities showed an average percentage of enlarged tonsils of 8.8, while a similar number of country children showed over 30 per cent., and in Idaho the percentage ran up to 43.9.

Discussing the causes for these amazing and startling conditions, Dr. Wood finds that even in the slums, where the pinch of poverty is the sharpest, the food is better prepared than it is in the country, while the distance from dentists, oculists and clinical advantages accounts for the large number of defects of sight, hearing and teeth. Country houses are often drafty and overheated. The chances for house infection are greater and children are more exposed to cold, heat and dampness. The schoolhouses are often old and carelessly built and have insufficient equipment. In seven states there is no regulation of the sanitation of country schools. Heating is generally by means of a stove, and bad ventilation is usually the result. Seating accommodations are bad and general sanitary conditions often unspeakable. Frequently the only provisions for cleanliness are a pail of water, a dirty basin and a common towel. Drinking arrangements are bad and drinking-water often contaminated. Dr. Wood sums up the situation thus: "Now take into consideration the many other contingencies which the country child has to meet — physical labor, chores before he starts for school in the morning, a badly assorted breakfast, a long walk over bad roads — then subject him to direct infection, to bad water, and it is small wonder that he falls prey to a dozen maladies more readily than the city child."

The results of this survey of rural schools cannot fail to shatter some of our previously conceived views regarding rural conditions, and at the same time to point out the remedy. Not one state in five to-day provides for its country schoolchildren. In most of the cities some kind of supervision and care of schoolchildren is maintained, but rural schools have so far been left very largely to shift for themselves. "The welfare of our country," says Dr. Wood, "depends on no factor more indispensable, more vital, than the welfare of our rural

life. Our finest crops are our children. The farmer does not see this truth. If he did, he would rise up and demand state protection for his youngsters — a more important matter than tariff regulation.”

A few days after the publication of Dr. Wood's article in the *Times*, the New York *Evening Post*, in a long editorial, discussed his statement, which it characterized as of exceptional interest. “It is not often,” says the *Post*, “that so striking a survey of statistical results in the domain of health bears such clear marks of trustworthiness and sobriety.” After reviewing the article and Dr. Wood's conclusions, the *Post* indulges in some general optimistic reflections. It says: “Just as surely as the child of the city is more free from defects and ailments than the child of the country, just so surely is the city child of the present in better case than the city child of the past. If in spite of crowded homes, impure city air, lack of recreation facilities, in spite often of the poverty into which he is born and perhaps the vice with which he is environed, the city child makes a better showing than the country child, it is because of the multitude of benefits which have been bestowed on him by the progress of science and the steady advance of civic care, enlightenment and responsibility.”

In the improved condition of the city child as contrasted with the country child, the *Post* finds reason for believing that the condition of the child in the country will be speedily corrected now that attention has been brought to the situation.

The work of the joint committee of the American Medical Association and the National Education Association has proved already of the utmost value and its activities have only begun. These two powerful organizations representing the organized professions of teaching and medicine can, during the next five years, effect a marked improvement in the health conditions of American schoolchildren.

THE ENTRANCE OF THE INTERNAL SECRETION OF THE PANCREAS INTO THE CIRCULATION

How the specific products of the ductless glands or so-called glands with internal secretion reach the circulation is by no means as yet definitely ascertained. Two possibilities are open: one, by the indirect route of the lymph-stream whereby they are ultimately discharged from the lymphatics into the blood; the other, by direct transference from the gland-cells to the blood itself. Inasmuch as we have not as yet learned how to test for many of the peculiar products of internal secretion in the blood or lymph, it has been necessary to find the evidence on the point under discussion in somewhat indirect ways. In the case of the adrenal bodies alone is it at present possible to detect their product, epinephrin, by reliable methods; and here the experiments point to the blood as the immediate recipient thereof.

Some years ago Biedl reported the frequent occurrence of glycosuria in animals in which, either by drainage to the exterior or by the obstruction of the thoracic duct, the lymph was prevented from reaching the general circulation. In apparent harmony with this are reported cases of chyluria, due to a rupture of the chyle-duct or cistern, combined with glycosuria. Such observations have readily suggested the conclusion that some secretory product of the pancreas essential for normal carbohydrate metabolism is carried into the blood-stream by way of the thoracic duct lymph-flow, and that when the latter is diverted or interfered with, glycosuria results as the most prominent symptom of the lack of the pancreatic product.

Here, then, was something that could be interpreted in favor of the lymphatic path for the internal secretion of the pancreatic gland. It is not the only interpretation possible, however. Nervous factors might also be drawn into the explanation of the glycosuria as the result of operative interferences. Carlson and Drennan¹ of the University of Chicago have further remarked that ligation of the thoracic duct may cause a temporary hyperglycosuria owing to injury of the liver by the edema from the back-pressure of the lymph; and the fistula experiments do not exclude a temporary glycosuria due to the operation and the anesthesia. Furthermore, Carlson and Drennan have carefully repeated, with negative results, Biedl's experiment in which a fistula of the thoracic duct was produced. By ligation of the jugular vein and anastomosis with the thoracic duct the lymph supposed to contain the pancreatic product was discharged into the external jugular, which was slit open and secured to the skin, allowing free escape of the lymph. The urine showed no sugar at any time.

Inasmuch as extirpation of the pancreas brings on diabetes in from six to ten hours, while complete elimination of the thoracic lymph for from thirty-two to thirty-three hours does not induce even mild glycosuria, it is evident that the internal secretion of the pancreas enters the blood direct and not via the thoracic duct.

ORGANISMS IN CONDENSED MILK

It may come as a distinct surprise to many persons to learn that the process of manufacturing condensed milk has not yet passed the stage of crudest empiricism. Certain general rules of technical procedure and manufacturing operations are followed as closely as the experience of factory superintendents or others in charge of the plants will permit; but the art of preparing a uniform product can scarcely be said as yet to rest on anything like a scientific basis. Regarding one feature of condensed milk, namely, its cytology and

1. Carlson, A. J., and Drennan, F. M.: The Alleged Discharge of the Internal Secretion of the Pancreas into the Lymph, *Proc. Soc. Exper. Biol. and Med.*, 1914, xi, 71.

bacteriology, almost nothing was known until quite recently.

Natural milk containing all of the original constituents of the mammary secretion is such a favorable medium for the development of bacteria that it must be thoroughly sterilized if it is to be preserved sweet for any length of time. Accordingly, it is said that the more liquid brands of preserved milk, which are found on the market in small numbers, are bacteriologically sterile. Condensed milk, on the other hand, represents a product that is concentrated to a quarter or more of its original volume, with an addition of sugar. Such a viscid, saccharine medium is relatively unfavorable to bacterial growth and will therefore keep for a long time even though not free from living organisms. Not only is it unnecessary from a commercial point of view to sterilize it, but the exposure to temperatures requisite for effective destruction of bacteria tends to deteriorate the condensed product in other ways. It becomes brownish and solid. Milk is usually condensed by evaporation under diminished pressure at a temperature considerably below the boiling-point of water.

A British investigator¹ at St. Bartholomew's Hospital in London, who has lately conducted an extensive examination of the fluid or semisolid products ordinarily termed "condensed milk," corroborates the experience of his predecessors in stating that he has never found milk of this type sterile. It is only fair to state that these milks are not as a rule sold as sterile any more than is market-milk even of the certified grade. The lack of sterility is no reason for condemning them; they must be judged by "the potential harmfulness of their bacterial count."

With regard to the cytology of the condensed milks obtained in London, Andrews¹ concludes that none of the samples ought to be condemned as containing pus. It is quite as possible for an abundance of body-cells to be present in such products as in market-milk. As a matter of fact, there appears to be a comparative paucity of cells in the cheap machine-skimmed condensed milks. The explanation of this unexpected improvement over what may be expected from inferior products is probably to be sought in the mode of preparation now very common both in this country and abroad. In passing through the centrifugal separators universally found in dairy establishments, not only is the cream removed, but a considerable deposit including much of the cellular content of the milk is withdrawn along with other debris and dirt.

Condensed milks may contain the types of bacteria commonly found in fresh milk — *Bacillus coli*, streptococci, a few staphylococci and *B. enteritidis sporogenes* — together with ordinary air contaminations such as *B. subtilis* and *mesentericus*. Even a good and popular brand of Swiss condensed milk yielded a moderate num-

ber of colonics of *Staphylococcus albus*. Thirty-one samples of cheaper brands yielded almost pure cultures of staphylococci, among which *Staphylococcus pyogenes aureus* was conspicuous. Inasmuch as these organisms can multiply in tins of condensed milk, the actual numbers present will depend largely on the age of the sample.

The proper attitude for the hygienist to take in the face of the facts may fairly be debated. Dr. Andrews reasonably argues that inasmuch as every one who takes fresh milk consumes in bulk the same bacteria found in small quantities in condensed milks without suffering any ill effect, these may be regarded as comparatively unobjectionable. But when the question of the sanitary significance of the almost pure cultures of staphylococci is raised, the subject cannot be passed over quite so lightly. Condensed milks are used largely among the poor, and hence their harmful consequences fall on the classes most susceptible. Quoting Andrews: "Even granting the blameless nature of the original milk, can we view without concern the circumstances which convert the tin of condensed product into an almost pure culture of pyogenic coccus? Is a culture of *Staphylococcus aureus* in condensed milk, numbering more than a quarter of a million cocci per cubic centimeter, a wholesome and desirable food for an adult, much less for an infant?" Whatever the answer to this may be, it seems likely that efficient pasteurization before the condensing process would prevent the presence of such organisms in the final product. Fortunately, they are absent from the majority of condensed milks, or present in only small numbers.

THE BEHAVIOR OF LEVULOSE IN THE BODY

The sugar levulose is commonly associated, in the minds of those to whom the name has any definite import, with the extremely uncommon anomaly known as levulosuria, or with the use of this carbohydrate as a test for the functional efficiency of the liver. Alimentary levulosuria, in the sense in which it was first applied by Strauss, is supposed to be an expression of a decreased tolerance for levulose manifested in conditions such as cirrhosis of the liver, phosphorus poisoning, extreme stagnation of the bile, etc. A true spontaneous excretion of levulose alone, although known to occur, belongs to the rarities of clinical experience and has not been demonstrated to bear any relation to the familiar type of diabetes. In the latter disease levulose has been described as accompanying the eliminated glucose in very severe cases. This is, however, a condition quite different from the pure levulosuria just referred to.

It is surprising that levulose should so long have been comparatively neglected by both physiologist and physician. This sugar is not a stranger to the alimentary tract of man; on the contrary, it is a component of one of the commonest of foodstuffs — cane-sugar — and it

1. Andrews, F. W.: The Cytology and Bacteriology of Condensed Milks, Jour. Path. and Bacteriol., 1913, xviii, 169

likewise finds its way into the diet in the form of invert sugar (honey) and fruit-sugar. When not furnished pre-formed, it is speedily liberated from cane-sugar in the digestive tract by the activity of the inverting enzyme sucrase abundantly present in the small intestine.

A familiar indication of the capacity of the organism to assimilate and utilize any particular type of sugar is found in its ability to function as a producer of glycogen. Glucose is, of course, par excellence, a source of the deposition of glycogen in the liver; but it is now well known that cane-sugar (sucrose), which yields a mixture of glucose and levulose (fructose) by alimentary digestion, and levulose itself, are likewise quite efficient in promoting the storage of glycogen. Despite the fact that levulose has a chemical structure somewhat unlike that of glucose, the glycogen from these two sugars is in every respect identical, so far as present knowledge permits a final conclusion in the matter. The carbohydrate stored in the liver is in every case a polysaccharid of glucose, into which it is readily converted on demand in the body.

Here lies a problem. How is the invariable conversion of levulose into glucose-yielding glycogen to be explained? The old-time physiologist might perchance be content to pass over the apparent anomaly here presented, in the little-comforting belief that all sugars are essentially alike. But the modern biochemist, trained to recognize stereochemical as well as ordinary structural differences among isomeric compounds, is not satisfied with such slipshod explanations. He realizes that structurally related, though not identical sugars like glucose and fructose — dextrose and levulose — readily experience molecular rearrangements and can become transformed into each other outside of the body under the influence of alkalies. The possibility of a similar conversion in the organism is thus established. One wonders, therefore, whether the daily intake of levulose, either free or in the potential form of cane-sugar, is converted directly into glycogen by the liver, or whether the immediate product is glucose which is then deposited as glycogen in the conventional way.

Perfusion of the isolated surviving liver with levulose-containing fluids has now shown that they experience a decrease of levulose with a simultaneous increase in the content of glucose.¹ This fact not only has a considerable theoretic interest, but also explains the clinical observations made in the past, which indicate the possibility of an increased output of glucose when levulose is fed to diabetic patients. It further substantiates the current view that all glycogen is essentially glucose-yielding in character, whatever the sugar antecedent from which it is derived. The possible mechanism of spontaneous levulosuria is likewise thereby elucidated as an upset in the intermediary conversion of levulose to glucose.

Current Comment

THE NON-FORMATION IN LEUKEMIA OF AGGLUTININS FOR TYPHOID BACILLI

We recently commented on the fact that in a very small percentage of cases of typhoid fever there seems to be no formation of agglutinins for typhoid bacilli.¹ In a case of chronic leukemia with typhoid fever Moreschi² failed to find any indications of agglutinin formation during the entire course of the fever. Taking his cue from this observation, he studied the effects of the intravenous injection of typhoid vaccine in eight leukemics. In two the leukemia was lymphatic, in six myelogenous. In normal persons and in patients with certain other diseases the quantity of vaccine injected led to the production of agglutinins in considerable quantities; but in the leukemic patients there was absolutely no response in six, while in two, both of whom were being treated with the Roentgen ray, with improvement, there was only a minimal response. It appears then that in leukemia the introduction of typhoid bacilli does not produce agglutinins. This may be accounted for by assuming that, owing to the excessive number of leukocytes, the antigen is destroyed or modified so rapidly that it has no chance to exercise its usual antigenic functions, or that in leukemia the power to produce antibodies is lost through changes in the hematopoietic organs; for there is good reason to believe that they are directly concerned in antibody production. The fact that the power to form agglutinins is lost in both forms of leukemia would seem to speak against the first assumption, because we do not regard the different kinds of leukocytes in lymphatic and myelogenous leukemia as equivalent. Moreschi made an additional observation in the course of this work, namely, that in the leukemics the injection of the typhoid vaccine caused no rise of temperature, whereas in the controls a slight fever occurred regularly. This raises the question whether or not febrile reaction is essential to the formation of antibodies. Further studies with other antigens are necessary to answer these questions. The fact that in leukemia the power to produce typhoid agglutinins is lost stimulates interest also in the question whether or not the function of forming antibodies is lost or modified in other diseases.

ABOLITION OF SPECIAL TAX ON PHYSICIANS

After many years of effort the physicians of Virginia have finally won in the fight to abolish the professional tax levied on doctors in that state. A bill doing away with the collection of this tax after the present year passed both houses of the legislature and recently became a law without the governor's signature. Virginia was one of five states to impose such a tax, the others being Delaware, Louisiana, Georgia and North Carolina. This law has been in force in Virginia for many years. Just why it was enacted in the beginning is difficult to say. Its repeal was opposed only on the

1. Isaac, S.: Ueber die Umwandlung von Lävulose in Dextrose in der künstlich durchströmten Leber, Ztschr. f. physiol. Chem., 1914, lxxxix, 78.

1. Inagglutinable Typhoid Bacilli, Current Comment, THE JOURNAL A. M. A., April 4, 1914, p. 1099.

2. Moreschi: Ztschr. f. Immunitätsforsch., 1914, xxi, 410.

ground of loss of revenue to the state of \$43,000, the amount paid by physicians under this law. Commenting on the passage of the repeal bill, the *Richmond Leader* said:

Virginia has demanded services of physicians and has then taxed them for performing it. We have required our physicians to attend emergency cases regardless of compensation. We have ordered them to report promptly the cases of communicable disease that appeared in their practice. We have given them responsible duties in enforcing the vital statistics law, and in return for this—the most extensive public service demanded of any private citizen—we have coolly exacted of the physician a heavy annual tax. A more anomalous situation and one more discreditable to the state could hardly be imagined.

The *Roanoke News* says:

Roanoke and the rest of Virginia will have to stagger along without it [the professional tax]. Roanoke has eighty-seven doctors, and the income derived from them by the city is approximately \$1,500. The license is \$15 where a doctor has practiced here two years or under, and \$25 for two years and over. . . . While we may groan at losing that \$1,500 and wonder where the contraction of Roanoke's income is going to stop, few of us will grieve that the doctor's vocation is to be held as a service to mankind rather than as a business strictly speaking.

Regardless of the conditions which gave rise to such a special burden, there are to-day no reasons which justify the levying of a special occupational tax on physicians, unless a similar tax is levied on all other occupations and professions. The physicians of Virginia are to be congratulated on the successful outcome of their long struggle against injustice. Their example should stimulate the physicians of the other four states to secure the repeal of this unfair tax.

PARALYSIS AGITANS AND THE PARATHYROIDS

The statement has been made that just as forty years ago medicine was dominated by pathologic anatomy and twenty years ago by bacteriology, so to-day is the era of the ductless gland with its internal secretion. The pendulum of opinion tends at times to swing too far, first in one direction and then in the opposite. We are reminded of this by the alleged relationship between the parathyroid glands and paralysis agitans. Some of the symptoms of the latter resemble, it is true, the peculiar muscular behavior noted in animals after removal of the parathyroids. The interrelation appears to go no farther than this analogy, however, when the factors involved are critically analyzed. The reports as to the therapeutic effects of parathyroid medication in paralysis agitans are too conflicting to contribute anything of value to the controversy regarding the etiology of the disease. Examination of the parathyroid glands removed at necropsy from cases of paralysis agitans has revealed no characteristic deviation from the normal. Equally negative is the chemical evidence presented by Dr. Greenwald¹ of the Montefiore Home in New York City. He has previously shown that after parathyroidectomy in dogs there is a marked diminution in the

excretion of phosphorus.² This persists until tetany appears and even longer. At the same time the blood and serum show an increase in the content of phosphorus above the normal, which can readily be demonstrated before marked tetany has developed. This increased phosphorus content consists almost entirely of those compounds of phosphorus not soluble in acetone, alcohol or ether. Greenwald has argued that if the symptoms of paralysis agitans are due to parathyroid insufficiency one might, in view of the preceding experimental records, expect to find that the amount of acid-soluble phosphorus in the serum of patients suffering from the disease is greater than in that of other individuals. His observations show that this is not the case; and accordingly they do not support the suggestions of Lundberg³ and of Berkeley⁴ that parathyroid insufficiency plays a rôle in the etiology of paralysis agitans. We need scarcely add that negative results of this character do not necessarily vitiate entirely the usefulness of a hypothesis.

PUBLIC EDUCATION BY UNIVERSITIES

A striking illustration of the changing conditions in educational ideas may be found in the growing appreciation on the part of leading universities of their responsibility to the public. In former generations a university was regarded as a thing apart, and a college professor was looked on, not only by the humorous paragraphers of the newspapers, but also by the mass of people, as a man living in a world of ideas, without any connection with practical affairs. To-day our leading universities are recognizing not only the opportunity, but also the duty of making available their knowledge for the benefit of the masses. This tendency is highly commendable, especially in the field of public health and prevention of disease. The Harvard Medical School has a standing committee on public lectures which arranges each year for a course of Sunday afternoon talks by members of the faculty. These talks are open to the general public and are on topics of general interest. For instance, last year the course of twenty lectures included such topics as "Preventive Medicine in Relation to Industrial and International Concord," "The Care and Feeding of Young Children," "What the State Board of Health is Doing to Protect the Health of Its Citizens," "The Dangerous Effects of Patent Medicines" and "The Preservation of the Natural Teeth." This year's course includes talks on "Rational Baby Feeding," "Bodily Effects of Rage and Fear," "Spectacles and Eye-Glasses, Their Use and Abuse," and other subjects of practical interest. The lectures given in the past have proved of value and so popular that they are now being issued in little pocket-sized volumes at popular prices under the title of "Harvard Health Talks." In Minnesota the daily press is cooperating in the same kind of work. A series of articles on disease and its prevention by Dr. E. P. Lyon, dean of the University of Minnesota Medical School, recently

1. Greenwald, I.: The Supposed Relation Between Paralysis Agitans and Insufficiency of the Parathyroid Glands, *Am. Jour. Med. Sc.*, 1914, cxlvii, 225.

2. Greenwald, I.: *Am. Jour. Physiol.*, 1911, xxviii, 103; *Jour. Biol. Chem.*, 1913, xiv, 363.

3. Lundberg: *Deutsch. Ztschr. f. Nervenhe.*, 1904, xxvii, 217.

4. Berkeley: *Med. News*, 1905, lxxxvii, 1060.

appeared in the *Minneapolis Journal*. The University of Missouri is one of the few state universities that have recognized the growing tendency by the organization of a distinct department on public health. A series of bulletins for public reading and distribution are being issued. The five so far completed are on "Bacteria and Disease," "The Prevention of Typhoid Fever," "The Prevention of Contagious Diseases in Schoolchildren," "Resuscitation" and "The Relation of Sight and Hearing to Early School Life." Each of these universities has apparently worked out its plans in accordance with the needs of its own particular field. In Boston, popular Sunday afternoon lectures, in Minnesota, newspaper articles, and in Missouri, pamphlets on specific subjects seem to meet existing conditions. The significant fact, however, is that our universities are recognizing their responsibilities to the public and are making serious, intelligent and practical efforts to meet them.

THE PRODUCTION OF CIRRHOSIS OF THE LIVER AND CHRONIC NEPHRITIS BY REPEATED PROTEIN INTOXICATION

Longcope observed that sometimes in the course of chronic nephritis acute attacks of fever occur with edema, urticaria and eosinophilia—attacks that resemble serum disease. This led him to wonder if some cases of nephritis might not depend on a condition resembling anaphylaxis or protein intoxication. In order to determine the effect of repeated protein intoxications on the structure of the organs and tissues, he gave several injections of small quantities of horse-serum and egg-white to dogs, cats, rabbits and guinea-pigs previously sensitized to these proteins. Marked cellular injuries resulted with inflammatory reactions of a subacute and chronic nature, which were observed in the heart-muscle and kidneys of all the animals and in the liver of the cats and dogs injected intravenously. The changes in the kidneys were those of a well-marked nephritis: degeneration and necrosis of the cells in Henle's loops, less marked elsewhere, with extensive round-cell infiltration and formation of connective tissue as well as acute and chronic alterations in the glomeruli. Well-marked necrosis developed in the liver, mostly in the outer portions of the lobules with chronic inflammatory processes, resembling the portal type of cirrhosis. After intraperitoneal injections chronic inflammatory changes developed in the peritoneum.¹ These results are highly interesting because they suggest the possibility that in certain instances at least degenerative and cirrhotic processes in man may result from protein intoxication. We might expect this to occur especially in persons who are susceptible to certain foods, notably egg-white, and who on that account would be subjected to repeated intoxications. Certainly the possibility of such a genesis of some cases of chronic nephritis and cirrhosis of the liver merit thorough consideration. In this connection it is of interest to note that Bürger and Dold² find that bacterioproducts and also homologous protein, after being altered in various ways, attract leukocytes, espe-

cially after having been treated with unheated serum. This indicates that the fluids of the body may so act on proteins as to produce leukotactic products.

A COMPARISON OF LEUKOCYTES AND LYMPHOCYTES

Aside from the genetic and morphologic distinctions between the usual leukocytes and lymphocytes found in the body, other evidences of functional differences are not wanting. The two types of cells are endowed in quite unlike measure with an outfit of enzymes. Although proteolytic ferments have frequently been described for the polymorphonuclear leukocytes, and an important rôle has been assigned to them in relation to certain pathologic processes, such enzymes seem to be lacking in the lymphocytes. The latter are also described as being deficient in oxidases which are easily demonstrated in the leukocyte accumulations represented by pus. These facts have suggested the possibility of finding some more specific chemical differentiation between the two types of colorless blood-cells. Iron is a constituent of many cells of the organism aside from the red blood-cells in which it is found in relative abundance. This element has often been looked on as one of the carriers of the fermentative properties of cells, and particularly the function of oxidation. In view of the apparent dissimilarity of the leukocyte and lymphocyte in respect to this very feature, as exhibited in the relative abundance of oxidase, it seemed not unlikely at one time that the two types of cells would be found to carry a decidedly unlike content of iron. According to the recent investigations of Saneyoshi¹ in the medical policlinic at Freiburg in Germany, there is, however, no essential difference in this respect. The leukocytes are no richer in iron than their companion lymphocytes. It will be necessary, therefore, to seek other evidences for the chemical basis of the differentiations between them in physiologic processes.

AN ANTIDOTE FOR "BICHLORID" POISONING

In a recent issue of a prominent medical journal, the statement is made that mercuric chlorid poisoning can be treated by the use of sodium phosphate with excess of sodium bicarbonate. Thus, editorially, the journal says: "This solution, it is claimed, instantly converts the bichlorid to the mild chlorid, which can be removed by a dose of castor oil. It is very necessary that the sodium phosphate shall be chemically pure." Attention should therefore again be called to the fact that the names "sodium phosphate" and "sodium phosphite" are so similar that a serious error can be made by the misprinting or misinterpretation of a single letter. Sodium phosphite has been suggested as an antidote to mercuric chlorid because it acts as a reducing agent to convert mercuric chlorid into calomel—mercurous chlorid—while the phosphite is changed to phosphate. Sodium phosphate will have no such action on mercuric chlorid because it is already as highly oxidized as possible.

1. Longcope: *Jour. Exper. Med.*, 1913, xviii, 678; *Tr. Assn. Am. Phys.*, 1913, xxvii, 497.

2. Bürger and Dold: *Ztschr. f. Immunitätsforsch.*, 1914, xxi, 378.

1. Saneyoshi, S.: Vergleichende Untersuchungen über den Eisengehalt von Leukocyten und Lymphocyten. *Biochem. Ztschr.*, 1914, lx, 339.

Medical News

DISTRICT OF COLUMBIA

Personal.—Dr. Cressy L. Wilbur, chief statistician of the Vital Statistics Bureau of the Census, has been granted a leave of absence in order that he may assume the directorship of vital statistics in the New York State Department of Health.—Health Officer William C. Woodward gave the seventh and last lecture of the community health series at the Y. M. C. A. Building, Washington, April 3, on "Why a Health Department?"

ILLINOIS

New Officers.—Warren County Medical Society at Monmouth, April 3: president, Dr. Philo B. Conant, Roseville; secretary-treasurer, Dr. Harold M. Camp, Monmouth.

New Secretary of State Board of Health.—The State Board of Health at its meeting April 15, elected Dr. C. St. Clair Drake, secretary, vice Dr. James A. Egan, deceased. Dr. Drake is a graduate of the Chicago Homeopathic Medical College in 1890, and has been an official of the Department of Health of Chicago for twenty years and is at present assistant chief of the Bureau of Vital Statistics.

Personal.—Dr. Rawson J. Pickard has returned to Maywood after nearly five years of work in the government hospitals in the Canal Zone.—Dr. John R. Tobin, Elgin, has been appointed chief surgeon of the Aurora, Elgin and Chicago Railway, and Dr. Frederick C. Schurmeier, Elgin, assistant chief surgeon.—Dr. Robert Clements entertained the Danville Physicians' Club in his offices, April 2.—Dr. Arthur W. Swift, Belvidere, who was operated on at Rochester, Minn., March 31, is reported to be doing well.—Drs. William C. Robert and Harry E. Kerch have been appointed directors of the Kane County Antituberculosis Society.

Chicago

Baby Week.—Four thousand persons interested in baby welfare will make a thorough canvas of the city next week for funds needed to aid the Infant Welfare Society.

Physicians Organize Glee Club.—The Chicago Medical Society has followed the lead of Baltimore and organized the Chicago Medical Society Glee Club, for which recruits are solicited. Dr. Arthur C. Kleutgen, 903 West Garfield Boulevard, is medical director and soloist of the club.

Ladies' Night at Physicians' Club.—The Physicians' Club of Chicago has provided an attractive program for its annual ladies' night, May 1. After the dinner a lecture will be given by Miss Helen Keller and her teacher, Mrs. Macy, on "The Heart and the Hand," or "the Right Use of Our Senses."

Personal.—Dr. Liston H. Montgomery has been appointed local surgeon of the Pere Marquette.—Dr. Frank J. Novak, who was operated on recently for hernia, has recovered and resumed practice.—Dr. and Mrs. A. Gaebler sail for Europe April 25.—Dr. Alexander A. Goldsmith fractured his right fore-arm while cranking his automobile.

Chicago a Healthier City.—The report of the Commission of Health for the first quarter of 1914 shows a material falling off in the number of cases of and deaths from communicable diseases. During the quarter there were 7,773 fewer cases of measles and 113 fewer deaths; 3,813 fewer cases of scarlet fever, and 353 fewer deaths; 926 fewer cases of diphtheria and 225 fewer deaths; 25 fewer cases of small-pox, and no deaths. There were, however, 1,423 more cases of whooping-cough; 259 more cases of chicken-pox; 251 more cases of mumps, and 56 more cases of typhoid fever. During the quarter there were 9,756 deaths from all causes, equivalent to an annual death-rate of 16.5 per 1,000.

INDIANA

Contract for Sanatorium.—The contract for the construction of the St. Joseph's County Tuberculosis Sanatorium, South Bend, was let March 30 for \$7,725.

New Officers.—Twelfth District Medical Society at Fort Wayne, April 8: president, Dr. James W. McKinney, Bluffton (reelected); secretary-treasurer, Dr. Miles F. Porter, Jr., Fort Wayne.

Intern Examinations.—The Indianapolis City Health Board announces that it will hold examinations for applicants for appointments as interns in the City Hospital and City Dispensary, at the office of the Board of Health, April 23 and 24.

Personal.—Drs. W. H. Willis and Walter R. Cleveland have been reelected directors of the Evansville Anti-Tuberculosis

Society.—Dr. Herman G. Morgan, city sanitary officer, Indianapolis, was presented by the office force of the Board of Health with a Shriner's pin and a Masonic watch charm, April 4.—At the Huntington County Medical Society meeting, April 1, resolutions were adopted congratulating Dr. William C. Chaffee, Huntington, on reaching his seventy-ninth birthday anniversary.

IOWA

Clean-Up Bulletin.—The first of a series of bulletins on spring clean-up work has been issued by Dr. L. S. Husted, health officer of Muscatine. It is chiefly concerned with the pernicious house-fly.

Personal.—Dr. William A. Benadom, Davenport, was seriously injured by the overturning of his automobile, April 6.—Dr. Charles W. Burt has been elected mayor of Valley Junction.—Dr. Walter L. Bierring, Des Moines, has been reappointed president of the State Board of Health and Medical Examiners for a term of five years.—Dr. and Mrs. George H. Stanger, Boone, have returned from Cuba.—Dr. Martha H. Welpton, Des Moines, who has been ill in St. Luke's Hospital, Chicago, has recovered and returned home.—Dr. Louis F. Cummings, Hopkinton, was seriously injured by the overturning of his automobile, recently.

Special Bulletin, Iowa State Board of Health.—From the quarterly bulletins of the Iowa State Board of Health for the last three quarters of 1913 a special bulletin has been compiled and issued in the interest of the embalmers of Iowa. It contains the laws of the state concerning embalmers, requirements for license, preparation of bodies for shipment and burial, requirements of undertakers in the way of permits for burial, handling of bodies of persons who have died of quarantinable diseases, methods of disinfection and manner of preventing the dissemination of infection, a description of the infectious and contagious diseases, information with reference to reporting venereal diseases and the laws with reference to vital statistics and blanks on which death certificates and burial permits are to be made. The bulletin also contains a list of the licensed embalmers of Iowa with their addresses. Numerous illustrations of methods of disease prevention are also included.

LOUISIANA

Religion and Medicine.—April 19, the day before the session of the Louisiana State Medical Society, a symposium will be held in the Tulane Theater on "Religion: Its Relation to Hygiene and Medicine."

Conference of Health Officers.—A conference of state health officers will be held April 20 in New Orleans, at which local problems and those relating to joint efforts of the local health officers and the state department will be discussed.

Health Status of the Negro.—The Louisiana State Board of Health has called a conference of health and educational leaders throughout the state, that agreement may be reached concerning immediate practical measures for the betterment of the negro. This meeting will be held in New Orleans, April 24-25.

Personal.—Dr. O. P. Dailey, first assistant at the East Louisiana Hospital for the Insane, Jackson, has resigned, and April 2 his associates and the employees of the institution presented him with a gold Masonic fob, suitably inscribed.—In the case of Dr. E. M. Ellis, Crowley, who was sued for \$35,500 by a Greek restaurant keeper for alleged malpractice, the case was decided March 20 in favor of Dr. Ellis, and an additional judgment was given him for professional fees.

MARYLAND

Personal.—Dr. Thomas W. Koon has been elected mayor of Cumberland.—Dr. J. McPherson Scott, secretary to the State Board of Medical Examiners, has been elected mayor of Hagerstown for the third time.—Dr. Paul Wegefarrth, formerly assistant to Dr. Harvey Cushing at the Peter Bent Brigham Hospital of Boston, has returned to Baltimore where he will be one of the resident physicians at the Church Home and Infirmary.—Dr. J. Charles G. Macgill, who has been confined to his home at Catonsville with an attack of influenza, is improving.

Measles Ward at Sydenham.—Plans for a building for measles at Sydenham have been laid before the board of awards. The plans call for a one-story structure with provision for fifteen to twenty patients, the cost to be about \$25,000. The new building and the edifices now standing at Sydenham can be made to fit into the scheme for a general hospital to be provided out of the \$750,000 loan authorized by the legislature. There are about 12 acres of land at

Sydenham and this is declared to be sufficient for a large hospital such as it is proposed to establish.

Legislative Enactments and Appropriations.—The bill requiring the state lunacy commission to remove all criminal insane from the penal institutions has been passed by the legislature and signed by the governor. The following appropriations were made to the state hospitals for the insane and feeble-minded. The maintenance appropriations for the next two years are as follows: Springfield State Hospital \$160,000, \$160,000; Spring Grove State Hospital, \$79,000, \$86,000; Crownsville State Hospital, \$60,000, \$60,000; Eastern Shore State Hospital, \$30,000, \$30,000; Rosewood State Training School, \$115,000, \$125,000.

The bond issue of \$418,000, authorizing new buildings at the five state institutions, is divided as follows: Springfield State Hospital, \$110,000; Spring Grove State Hospital, \$80,000; Crownsville State Hospital, \$100,000; Eastern Shore State Hospital, \$100,000; Rosewood State Training School, \$28,000. A special appropriation of \$2,500 a year was made to the lunacy commission for the purpose of prevention and after-care in connection with the Mental Hygiene Committee.

Doctors Discuss Press.—Medical and newspaper men met April 7 to discuss a plan for closer cooperation between the medical profession and the newspapers of the city. Physicians gave their views of what they called the exploiting of the ills of private patients, of garbling the accounts of private operations, of distorting and sensationalizing important but intricate discoveries and inventions, of getting back-door news from hospitals and of giving undue publicity to the deeds of certain physicians. It was suggested that the unmeasured power of the newspapers as public educators had been almost wholly neglected by the physicians and that means should be brought about to utilize this power for the welfare of the people of the city. An agreement was approved that a definite method of cooperation between the two professions be formed and a central authority established to assist actively the newspapers in getting accurate and educative information before the public.

MASSACHUSETTS

Small-Pox in Boston.—The Spanish steamer *Inez*, arriving from Barcelona, April 1, was held in quarantine on account of a case of small-pox in the crew.

College Physician at Harvard.—Freshmen at Harvard University hereafter will be under the supervision of a physician, will undergo periodical physical examinations, and will receive advice as to the best means of retaining their physical vigor.

Cooperative Suburban Board of Health.—The towns of Wellesley, Belmont, Framingham, Weston, Needham, Melrose, Winchester and Canton have completed the first year of their health work under a cooperative system. Service has been rendered by the Cooperative Suburban Board of Health, with laboratories and headquarters at Wellesley Hills, under the administrative management of Robert N. Hoyt. The total cost of the service for the eight towns during the year was \$6,300, and has been so successful and economical that the service is to be continued.

Personal.—Dr. John E. McGrath, Hudson, has been appointed medical examiner of Middlesex County, vice Dr. Eugene G. Hoitt, removed from the state; Dr. Edward J. Mahoney, Springfield, medical examiner for the second Hampton district, vice Dr. Simon J. Russell, Springfield, resigned, and Dr. John J. Kelly, Marlboro, associate physician of Middlesex County, vice Dr. John E. McGrath, Hudson, promoted. —Drs. Hugh Williams, Hugh Cabot, Fred B. Lund and Harry H. Germain have been appointed consulting surgeons; George Van Ness Dearborn has been appointed consulting physician, and Dr. William E. Chenery, rhinologist and laryngologist of the Forsythe Dental Infirmary for Children, Boston. —Dr. John J. Dowling has been appointed a trustee of the Boston City Hospital. —Dr. William J. Brinkley of the Haymarket Square Relief Hospital, has been granted a six-months' leave of absence to study hospitals abroad, and sailed from Boston, April 9. —Dr. Hugh Cabot has become one of the owners of the *Boston Journal*. —Dr. Howard Hamblen has been appointed a school committeeman of Maynard.

NEW YORK

New Editor of Bulletin.—Dr. Fred M. Meader has been elected editor of the *Bulletin* of the Syracuse Bureau of Health, the first number of which is to appear this month.

Medical Examination of Employees.—The Public Health Committee of the Chamber of Commerce of Rochester voted,

March 21, to ask the trustees of the chamber to urge manufacturers to adopt the medical inspection of employees in their factories.

New Club House.—Physicians of Rochester are planning to purchase, for about \$25,000, a building to be used as a club house. The associations which are fostering this enterprise are the Monroe County Medical Society, the Rochester Pathological Society, the Rochester Academy of Medicine, the Rochester Hospital Medical Society, the Rochester Homeopathic Medical Society, the Rochester Hahnemann Medical Society and the Blackwell Medical Society. Dr. William B. Jones is president, and Dr. David B. Jewett secretary of the temporary executive committee, which is in charge of the matter on hand.

New York City

Typhus Suspects Escape Quarantine.—Fourteen steerage passengers said to have been exposed to typhus infection on the *Cameronia*, are said to have been accidentally released from quarantine without inspection, and to have left for the interior.

Two More Small-Pox Cases.—Two more cases of small-pox have recently come to light, making in all six cases that have occurred in this city during the past month. The finding of these last two cases had led Dr. Sigismund S. Goldwater to reiterate his warnings urging vaccination on all.

In Memory of Dr. Le Fevre.—The students and members of the faculty of New York University and Bellevue Medical College held a memorial service in honor of Dr. Egbert Le Fevre on April 5. Addresses were made by Drs. George Alexander, Elmer Ellsworth Brown, Abram A. Smith, George D. Stewart, Edward D. Fisher and Prof. John A. Mandel. Resolutions were passed in recognition of the high esteem in which Dr. Le Fevre was held.

Prominent Foreign Surgeons Arrive.—The *Imperator* which arrived April 9, had on board forty-nine prominent surgeons who came to attend the International Congress on Surgery in this city. Among these were Professor Sonnenburg, Berlin; Prof. Ludwig Rehn, Frankfurt-on-the-Main; Prof. H. Kümmel, Hamburg; Dr. Hans Schlange, Hannover; Dr. Bergmann, the surgeon of Emperor Frederick; Dr. Charles H. A. Fairbank, London; Dr. Oscar Bloch, Copenhagen, and Dr. Maurice Robineau, Paris.

Club Entertains Physicians.—The University Club of Brooklyn set apart the evening of April 11 as "Physicians' Night." Many prominent members of the profession in New York and Brooklyn were present as well as a number of visiting surgeons from abroad and from other cities. The guests of the evening included Dr. Charles H. Mayo and Dr. William J. Mayo, Rochester, Minn.; Dr. Alexis Carrel, New York; Prof. Henri Hartmann, Paris, France; Dr. John B. Murphy, Chicago; Dr. Lewis S. Pilcher, Dr. J. Richard Kevin, Brooklyn, and the Rev. Nehemiah Boynton.

Personal.—Dr. Joseph M. Creamer of Riverside Hospital, Dr. William T. Jenkins of Willard Parker Hospital and Dr. Cyrus J. Strong have resigned from the Board of Health. Dr. Jenkins was formerly health commissioner and health officer of the port. —Dr. Haven Emerson has been appointed sanitary superintendent and deputy health commissioner at a salary of \$5,000 per annum. —Dr. Milton Schaie, first assistant surgeon at the Montefiore Home Country Sanatorium, Bedford Hills, has resigned, to become medical director of the Jewish Home for Chronic Invalids and Consumptives, St. Louis, Mo.

The Cancer Campaign.—The American Society for the Control of Cancer held a meeting at the New York Academy of Medicine on the evening of April 10, which was presided over by Dr. Clement Cleveland, the vice-president of the organization. The meeting was addressed by Dr. Cleveland, Dr. William J. Mayo of Rochester, Minn., and Dr. Francis Carter Wood of the Crocker Research Laboratory. The society held a third meeting on the morning of April 11. It is announced that \$7,000 has been raised to carry on the work but that \$3,000 more is needed to meet the requirements of the campaign up to Jan. 1, 1915. The society has a membership of 2,000.

Results of Tuberculosis Campaign.—The committee on prevention of tuberculosis of the Charity Organization Society has issued a report of its work during the past three years. This report regards as its most important and far reaching work the campaign to secure additional tuberculosis hospitals. It is stated that there are only 2,051 hospital beds, though the records of the Health Department show some 40,000 known consumptives, large numbers of whom are in need of immediate

hospital treatment. Of the 11,000 patients treated in the city's tuberculosis hospitals each year 45 per cent. have to be kept waiting before they gain admission. As a result of this campaign \$2,000,000 was appropriated by the city for the erection of additional hospitals, which will add 1,300 additional beds. The committee has done much work among schoolchildren, establishing fresh-air classes and providing better ventilation. Other features of the campaign have been lectures, moving picture demonstrations, the traveling tuberculosis exhibit and the wide distribution of instructive leaflets and pamphlets. It is further stated that the death rate of Greater New York from pulmonary tuberculosis has fallen from 2.25 in 1898 to 1.66 in 1912.

Advise Change in Autopsy Law.—The hospital investigating committee of the Board of Estimate in a report just made to the Board of Aldermen recommends that the state law regarding autopsies be changed so as to enable hospitals to perform a much larger percentage of autopsies than is permitted at present. The proposed law would allow hospitals to perform autopsies in cases in which there is no objection within forty-eight hours from husband, wife or next of kin. Bellevue Hospital has built and equipped the finest pathologic building in the United States and is provided with every modern facility for performing autopsies and following up such autopsies by experimental work, but it is practically unable to use this plant because of the inability to secure permission to perform autopsies. It was shown that during the period of investigation 47.7 per cent. of the autopsies did not confirm the clinical diagnosis. The conclusions drawn from this large percentage of errors in clinical diagnosis were not that the findings of the attending physicians of Bellevue were carelessly made, but rather that too great reliance was placed on the inexperienced house physician and interns and also that the current knowledge necessary to make clinical diagnoses, which should approach accuracy, was insufficient.

OHIO

Health Conservation Problems.—March 30, Dr. E. F. McCampbell, secretary State Board of Health, addressed the members of the Commercial Club of Springfield, on the subject of "Health Conservation Problems in Ohio."

Public Health Exhibit.—The tentative schedule of the Public Health Exhibit of the Ohio State Board of Health is as follows: Salem, April 6-11; Alliance, April 15-21; Bellaire, April 25-May 1; Columbus, May 5-7; London, May 11-16; Springfield, May 20-26; Xenia, June 1-6, and Hamilton, June 10-16.

Personal.—Dr. William B. Van Note, Lima, sails for Europe May 1.—Dr. and Mrs. Ralph A. Bunn, Oakwood, Dayton, sailed from New York for the Mediterranean, April 4.—Dr. Edward J. Wheatley, National Military Home, has assumed his new duties as surgeon of the Soldiers' Home Hospital, Danville, Ill.

Prohibition of Common Drinking Cup and Common Towel.—The State Board of Health, at a meeting held in Cincinnati, March 19, amended its regulations regarding the use of the common drinking cup and common towel, to include a number of places, such as telephone exchanges, telegraph offices, etc., which had not been previously mentioned.

Clinicians Elect Officers.—At the annual meeting of the Ohio State Clinical Association, held in Toledo, April 6 and 7, the following officers were elected: president, Dr. Charles C. Bonifield, Cincinnati; vice-presidents, Drs. Frank Winders, Columbus, and Mark D. Stevenson, Akron; secretary-treasurer, Dr. Frank E. Fee, Cincinnati; and trustee, Dr. George M. Todd, Toledo.

Medical Fakes and Fakers.—The Department of Physiology, Ohio State University, is presenting a series of lectures open to all students of the university, on Thursday afternoons. The lecturer on April 2, was Dr. George H. Matson, Columbus, secretary of the State Board of Medical Registration, and his topic was "Medical Fakes and Fakers." The lecturer praised the campaign of exposure of medical fakes and fakers.

Municipal Clinics in Dayton.—Health Commissioner Light announces that free dispensaries for the worthy poor will be conducted by the health department in the Cappel Building, under the supervision of Miss Elizabeth Fox; Mondays, Wednesdays and Fridays baby clinics will be held; Tuesdays and Thursdays general clinics and on Saturdays a tuberculosis clinic. In addition to these, daily clinics for diseases of the eye, ear, nose and throat will be held at St. Elizabeth's Hospital, and on Tuesdays, Thursdays and Saturdays at the Miami Valley Hospital.

Why Not a Public Health Exhibit?—The Sandusky Board of Health recently requested the city council to put aside a certain sum of money for a Public Health Exhibit. This the council refused to do, giving as an excuse the fact that the duties of a board of health were not educational, and that the board would be better occupied in cleaning up the city than in attempting to place an exhibit before the people. A number of physicians and the Board of Health of Sandusky were so much impressed by the Public Health Exhibit of the State Board of Health that they decided to continue the campaign of education along public health lines by means of a local exhibit. It was planned to have the engineer in charge of the filtration plant show how the system operates, and give a practical demonstration of the examination of water, and many other features of great local interest and importance were to be added to the exhibit. It is to be regretted that an intelligent campaign of this character should meet with failure.

Typhoid Outbreak at Circleville.—An outbreak of typhoid fever in Circleville during the months of January and February, 1914, attracted considerable attention. In all forty-five cases were reported and two deaths occurred. An epidemiologic investigation showed that the infection was due to a temporary pollution of the water-supply in all but a few cases, which were due to contact. The water-supply is drawn from an infiltration gallery in the valley of Big Darby Creek, and laboratory examinations have shown it to be free from pollution on many occasions. Investigation by the Division of Sanitary Engineering of the Ohio State Board of Health revealed the fact that a connection to the distributing system of the city existed, by means of which the American Strawboard Company was furnished city water for fire protection. The regular water-supply of this company is drawn from the Scioto River, which receives all sewage from the city of Columbus at a point twenty-five miles above the intake and is otherwise seriously polluted. The polluted river water was able to leak through the check valve separating the two supplies, and contaminated the general water-supply. Such contamination can reach only those mains supplying the southern part of Circleville, and it was to this part of the city that the outbreak was confined, only one case being reported from any other part of the city. Steps have been taken to prevent the recurrence of such an event in the future and its occurrence should prove a warning to other municipalities in which such a condition of affairs is allowed to exist. An outbreak of typhoid fever in Springfield in 1911 was traced to a similar connection.

PENNSYLVANIA

Medical Scholarship Founded by Women's Clubs.—Two medical scholarships for women, to be known as The Congress of Women's Clubs of Western Pennsylvania Medical Scholarships, have been endowed by gifts and pledges, and have been formally presented to the University of Pittsburgh.

Lecture on Typhus Fever.—Surg. John F. Anderson, U. S. P. H. S., director of the Hygienic Laboratory, Washington, D. C., lectured before the Biologic Society of the University of Pittsburgh recently on "Our Present Knowledge of the Etiology and Distribution of Typhus Fever."

Floating Hospital.—The Pittsburgh Academy of Science and Art has announced plans for a floating hospital for tuberculosis patients, which will have a full crew of doctors and nurses. It will be used especially for patients awaiting admission to the state and county hospitals. Considerable money has been subscribed, and moving picture shows throughout Allegheny County are to be asked to set aside a day when pictures showing ravages of the white plague will be shown, the proceeds to go toward the maintenance of the hospital.

Philadelphia

Personal.—Dr. Arthur Dare has just returned from a four months' trip to the Orient.—Dr. Samuel S. Woody has been reappointed chief resident physician to the Philadelphia Hospital for Contagious Diseases.

Medical Lecture.—The annual address of the Philadelphia Pathological Society will be delivered at the College of Physicians, Twenty-Second and Chestnut Streets, by Dr. Richard P. Strong of Harvard University, on "Bubonic Plague."

Memorial Meeting.—At a meeting of the College of Physicians of Philadelphia held April 1, Dr. Edward B. Meigs read a memoir of the late Dr. Arthur V. Meigs, and Dr. Henry W. Stelwagon a memorial of the late Dr. Louis A. Dühring.

Medical Examiners Meet.—The Field Medical Examiners of Philadelphia life insurance companies held their monthly meeting and dinner at the Hotel Walton, April 7. Addresses were made by Drs. Elmer B. Kyle, Thomas H. Bradford, Foster K. Collins and Ernest W. Kelsey.

Physicians Honor Railroad Officials.—The Medical Club of Philadelphia gave a reception April 17, in honor of Mr. A. T. Dice, vice-president and general manager of the Philadelphia & Reading Railway; Mr. S. C. Long, general manager of the Pennsylvania Railroad, and Mr. George H. Campbell, assistant to the president of the Baltimore & Ohio Railroad.

Medallion Presented to Hospital.—A bronze medallion of the late Dr. John S. Musser was unveiled in the University Hospital April 15. The medallion is in low relief, and was designed by Dr. R. Tait McKenzie. The medallion, the gift of the Social Service Department, was placed in the wall of the corridor to the left of the entrance. Dr. George E. deSchweinitz made the presentation address.

German Measles Epidemic.—German measles, which last year afflicted more than ten thousand children in this city, is again epidemic. Last month 1,791 cases were reported to the Bureau of Health, an increase from 854 in February, and 414 in January. The Department of Health will make vigorous efforts to check the spread of the disease by requiring as strict a quarantine as the law provides.

Examinations.—The Civil Service Commission will hold an examination for the position of chief resident physician, Philadelphia General Hospital; salary, \$4,000 per year. No provisional appointment will be made to this position.—The Civil Service Commission will hold an examination April 30, 1914, for assistant chief medical inspector, Bureau of Health, Department of Health and Charities; salary, \$2,400 per year.

Medical College Society Banquet.—The James M. Anders Medical Society of the Medico-Chirurgical College held its twenty-first annual banquet April 3, at which also was celebrated the twenty-fifth anniversary of Professor Anders' association with the college. The annual address was made by Prof. Hobert A. Hare of the Jefferson Medical College. Among other speakers were Drs. David Riesman, Ernest LaPlace, and James M. Anders.

City's Baby-Saving Plans.—On March 30 a meeting was held in the mayor's office and plans were proposed for the organization of the Division of Child Hygiene. Of the 125 organizations in this city interested in children's welfare, 89 have been enrolled as members of the Babies' Welfare Association in Philadelphia. This association intends not only to prevent duplication of the various lines of work, but will enable the different organizations to formulate a program of action to be carried out in Philadelphia during the year, thus to work out the welfare of babies from a standpoint of civic betterment. Each institution will know just what other institutions are doing, thus eliminating wasted efforts.

Dealers Oppose Pasteurization of Milk.—A meeting was held in City Hall, April 2, by the Board of Health and the milk men of the city to confer on the revised rules on the sale of milk. President John A. Vogelson of the Health Board conducted the meeting. The small dealers are fighting the rule for the pasteurization of milk, and read letters from physicians in favor of raw milk. The new rules, which go into effect July 1, also provide that all persons handling milk shall be subject to examination by the Health Department to detect anyone having a communicable disease. Every can of milk should have a label stating its contents and from what farm it came. The score card system will also be provided.

TENNESSEE

Personal.—Drs. James H. Atlee and James A. Smith, Chattanooga, have gone abroad.—The offices of Drs. W. M. Wilson and James E. Adkisson in the W. J. Birdsong Building, Medina, were destroyed by fire recently.—Dr. Benjamin D. Caldwell, Milan, while making a professional call was struck and seriously injured by a freight train which demolished his buggy and threw him on the tracks.

New Hospital Staff.—The following is the staff of the new Baroness Erlanger Hospital, Chattanooga: chief of the summer staff, Dr. John S. Dye; surgical department—Drs. Edwin B. Anderson, John B. Haskins and Daniel N. Williams; medical department—Drs. Thomas E. Abernathy, Martin A. Meacham, and William E. Anderson; obstetrical department—Dr. Julius C. Brooks; genito-urinary department—Dr. G. Victor Williams; eye, ear, nose and throat department—Drs. Benjamin F. Travis and J. McChesney Hogshead; children's

disease department—Dr. Jose M. Selden, and superintendent of the hospital, Dr. W. E. Raht.

State Society Meeting.—The eighty-first annual meeting of the Tennessee State Medical Association was held in Memphis, April 8-9. The following officers were elected: president, Dr. Samuel M. Miller, Knoxville; vice-presidents, for middle Tennessee, Dr. Hilliard Wood, Nashville, east Tennessee, Dr. John M. Claek, Rockwood, west Tennessee, Dr. Samuel T. Parker, Lexington; secretary, Dr. Olin West, Nashville; treasurer, Dr. Charles N. Cowden, Nashville; trustee, Dr. George E. Pettey, Memphis; delegates to the American Medical Association, Drs. Perry Bromberg, Nashville, and Edward C. Ellett, Memphis; alternates, Drs. Andrew F. Richards, Sparta, and William T. Black, Memphis; councilors, first district, Dr. Claude P. Fox, Greenville; second district, Dr. Andrew F. Richards, Sparta; fifth district, Dr. Frank B. Reago, Shelbyville; seventh district, Dr. Luther E. Wheat, Brick Church, and ninth district, Dr. Tazwell B. Wingo, Martin.

GENERAL

Pediatric Society Meeting.—The next meeting of the American Pediatric Society will be held at the Red Lion Inn, Stockbridge, Mass., May 26-28.

Health Conference.—A health conference of city officials of every municipality of northern Indiana and southern Michigan convened at South Bend, Ind., April 15.

Railroad Hygiene.—The Pennsylvania System has made more rigid the rules governing the inspection of the dining, buffet and kitchen cars of that line, as well as the examinations for communicable diseases of its employees in that branch of service.

Child Welfare Convention.—The third International Child Welfare Convention is to be held in Washington, D. C., May 22-27, under the auspices of the National Congress of Mothers and the Parent-Teacher Association. Among the topics to be discussed will be child welfare as regards home, school, church and state.

Surgeons Elect Officers.—At the annual meeting of the American Surgical Association in New York City, April 8-11, Rochester, Minn., was selected as the next place of meeting, and the following officers were elected: president, Dr. George E. Armstrong, Montreal; vice-presidents, Drs. Lewis S. Pileher, Brooklyn, and Frank E. Bunts, Cleveland; secretary, Dr. Robert G. Le Conte, Philadelphia; treasurer, Dr. Charles L. Gibson, New York City; recorder, Dr. Archibald MacLaren, St. Paul; councilors, Drs. William J. Mayo, Rochester, Minn., Arpad G. Gerster, New York City, and Charles A. Powers, Denver.

Appointments in Canal Zone.—Passed Asst. Surg. Marshall Guthrie, U. S. P. H. S., has been appointed chief quarantine officer for the Panama Canal Zone.—Lieut.-Col. George D. Deshon, M.C., U. S. Army, detailed as superintendent of the Ancon hospitals, has been given permission to report for duty on May 1, instead of April 1, as originally ordered.—Senior Surg. Joseph H. White, U. S. P. H. S., now stationed in New Orleans, has been given a leave of absence for one year. He will take up for the Rockefeller Commission, the important work of the eradication of hookworm throughout Central and South America.—Dr. D. W. Herman has been appointed medical officer of the Canal Zone, and has arrived at Colon.

Bequests and Donations.—The following bequests and donations have recently been announced:

For the establishment of a Home for Convalescents and Incurables at Dorechester, Mass., 40 acres of land and \$50,000 by the will of Frank Wood, Boston, Mass.

Mount Sinai Hospital, New York City, \$100,000; St. Luke's, German, Manhattan Eye and Ear and Lincoln Hospitals each \$25,000, by the will of Benjamin Altman.

Columbia Research Work on the causes and cure of cancer, \$5,000; Home for Aged and Infirm Hebrews, \$2,000; St. Rose's Home for Incurable Cancer, Montefiore Home and Mount Sinai Alumnae Association, each \$1,000, by the will of Leonidas A. von Praag.

McGill University, Montreal, \$20,000, and Samaritan Hospital for Women, \$1,000, by the will of Miss Mary A. Cramp, Montreal.

Mount Sinai Hospital, New York City, New York Society for the Ruptured and Crippled; Home for Aged and Infirm Hebrews; Montefiore Home and four other philanthropic institutions a share in an estate of \$87,729, by the will of Lewis Sampson Levy.

FOREIGN

Renvers Endowment.—The friends and pupils of the late professor of internal medicine at the University of Berlin, R. von Renvers, have presented the municipal authorities of Berlin with an endowment fund of \$4,225 (17,000 marks) as a memorial.

International Congress for Neurology and Psychiatry.—Dr. L. Schnyder, of Berne, Monbijoustrasse 31, states that all announcements of articles designed for this congress must be in his hands by July 1. The meeting is to be held at Berne, Switzerland, Sept. 7-12, 1914.

More Plague in Havana.—It is reported that four more cases of bubonic plague have developed in the infected zone in Havana. The sanitary department has now depopulated three entire blocks of the zone, removing those individuals who are unprovided for to the Trisconia Quarantine Station, to be under observation for a period of ten days.

CANADA

Health Officers to Meet.—The third annual conference of the Ontario Health Officers' Association will be held in Convocation Hall, University of Toronto, May 7 and 8.

Board Will Issue Bulletins.—The Victoria (B. C.) Board of Health will commence the issuing of quarterly bulletins. They will be distributed to each household throughout the city. The health department is to receive wider powers.

Manitoba Medical College News.—The Manitoba Medical College will begin to issue a medical college journal next August.—The new addition to the Manitoba Medical College which has just been opened cost \$50,000. The total value of the present college is estimated at \$125,000 and the site at \$200,000.

Hospital News.—The King George Isolation Municipal Hospital is now in working order in Winnipeg. It cost \$400,000. There are 176 beds and the accommodation can be extended to 200 in case of need. Dr. A. B. Alexander is superintendent with Dr. Alvin T. Mathers as assistant. The city will erect a residence for the superintendent.—The Hon. Dr. Young of British Columbia has introduced a bill into the legislature to amend the Act of the Royal Jubilee Hospital, Victoria. It will accord to medical practitioners the right to sit on the board of governors, which under the present act is specifically denied.—At Onoway, near Edmonton, Alta., a country hospital has been established to be known as the St. Barnabas Nursing Home.—On its last year's operations the Toronto General Hospital had a deficit of \$70,000.—Dr. J. Alexander Hutchison has been appointed senior surgeon of the Montreal General Hospital in succession to Dr. Francis J. Shepherd, resigned. The hospital faces a deficit of \$67,014 as reported at the ninety second annual meeting held recently.

Personal.—Dr. Walter A. Wilkins, Montreal, has left for Germany.—Dr. William R. Jaffray of the provincial board of health of Ontario at Kingston, has been appointed assistant physician at the Post-Graduate Hospital, New York.—Dr. S. M. Asselstine, Marlbank, Ont., has been appointed lecturer in pharmacology and therapeutics at Queen's University, Kingston.—Dr. Duncan MacLennan, Toronto, will sail for Europe the last week in April.—Dr. J. J. Middleton has returned to Toronto after six months' graduate work in London, Edinburgh and Dublin.—Dr. W. E. Deeks, formerly lecturer in zoology and demonstrator of anatomy in McGill University, Montreal, but for several years chief physician in the Ancon Hospital at Panama, is on his way to Europe for a holiday.—Dr. Walter Bapty, Victoria, B. C., has been appointed secretary to the British Columbia Board of Health. Dr. Charles J. Fagan having retired.—Dr. Frank F. Westbrook, Vancouver, president of the University of British Columbia, has returned from Europe and the United States where he has been securing a strong staff for the university. The announcement of the appointments is to be made in the immediate future.

LONDON LETTER

LONDON, March 27, 1914.

Inauguration of an Ambulance System in London

Strange as it may appear, London has been without any centralized ambulance system up to the present. In cases of accident the police remove injured persons to the hospital by means of hand ambulances. The subject has been under the consideration of the London County Council for some time, but motives of economy have prevented the adoption of any scheme. In the months of September, October and November, 1913, there were 4,434 accidents and 1,309 cases of sudden illness in which the assistance of the police was required for conveying the patients to the hospital. This does not take into account patients conveyed by the police to local doctors, of whom no statistics are available, or accidents in factories and workshops, which are estimated to be from eight to ten thousand a year. The council has now decided on an ambu-

lance system sufficient to provide for 27,770 cases of accidents and illness a year. The service will be available for cases of accident and illness in the streets and for accidents in factories and private premises, but not for the conveyance of sick persons from private houses. The scheme will be under the control of the fire department, subject to the advice on medical questions of the health officer. Six stations will be created, three north and three south of the Thames. The motive power will be gasoline, as electrically propelled ambulances would not be suitable where the neighborhood is hilly or the distance is long. After consideration of various types of stretcher appliances, the collapsible doolee as used in Glasgow—canvas supported by removable poles—was adopted. Each ambulance will also carry a plain board stretcher for cases such as fractured pelvis in which a collapsible stretcher might cause harm. In the ambulance itself there will be a spring mattress covered with air beds. The annual expenditure for maintenance is estimated at \$50,000.

The Falling Birth-Rate in Scotland

Scotland exhibits the same phenomenon of a falling birth-rate as has been reported from time to time in THE JOURNAL for England. The rate for 1913 was 25.5 per thousand, the lowest yet recorded, being 28 per cent. less than the rate for 1876. The excess of births over deaths was 47,476, being 2,903 less than in the previous year, 4,487 less than the mean of the natural increases of the preceding five years, and 6,199 less than the mean of those of the preceding ten years.

Surgeon-General Gorgas in London

Surgeon-General Gorgas has returned to this country from South Africa, where he went at the invitation of the Johannesburg Chamber of Mines and the British South Africa Company, accompanied by Dr. Darling (chief of the Research Laboratory of the Panama Canal Commission) and Major Noble (general inspector of the Sanitary Department of the Panama Canal Commission), to examine the sanitary conditions in the mines in view of the prevalence of pneumonia and tuberculosis and to inspect the valleys of southern Rhodesia. At the Royal Society of Medicine, Gorgas lectured on the measures adopted in combating malaria and yellow fever in Panama. He and his colleagues were also entertained at a complimentary dinner over which presided Sir Thomas Barlow, president of the Royal College of Physicians, and which was attended by a distinguished company of physicians and others, including the Archbishop of Canterbury, the Lord Chancellor and the American ambassador.

Cooperation of the Government with the American Health Commission

The government is cooperating with the American commission appointed to institute a campaign against ankylostomiasis and other tropical diseases. Mr. Wickliffe Rose, the director of the commission, visited several of our West Indian islands at the end of last year, and has made satisfactory arrangements with the local authorities there for a similar campaign. For the last week Mr. Rose has been in London conferring with a special committee appointed by the colonial office which, it is proposed, will work in conjunction with the American commission. Mr. Rose, accompanied by Dr. Sandwith of the London School of Tropical Medicine, has left London for Egypt, Ceylon, the Federated Malay States and the Philippine Islands, where he hopes to carry out similar work. The London School of Tropical Medicine, when asked to furnish a man to accompany Mr. Rose on his mission, suggested Dr. Sandwith, its senior physician and lecturer, whose experience of this disease is unrivaled. It is also probable that future workers in this new field, as far as the British Empire is concerned, will have to undergo a special course of training at the London School of Tropical Medicine. At present Dr. R. T. Leiper of the London School of Tropical Medicine is in China studying another tropical disease, bilharziasis, and it is understood that he will also investigate the ravages of ankylostomiasis among the coolies on the tea estates. Dr. Leiper has the active assistance of the admiralty and the colonial office in his research work.

Royal Commission on Venereal Diseases

At the twenty-second meeting of the Royal Commission on Venereal Diseases, evidence was given by Mr. D'Arcy Power surgeon and lecturer on surgery at St. Bartholomew's Hospital, and one of the representatives before the Commission of the Royal College of Surgeons and the Royal Society of Medicine. He looked on gonorrhea as the more serious dis-

ease for the individual and syphilis for the race. In general surgery the effects of gonorrhea were far-reaching, and it was an error to teach that it was a local and curable disease. Syphilis was more dangerous to the state than to the individual. The expectation of life was materially shortened. The immediate danger extended to the second generation, and the vitality of the stock seemed diminished for several generations. Syphilis gave surgery a large amount of work. It predisposed, Mr. Power thought, to cancer and tuberculosis. A diminution in the incidence of syphilis would best be brought about by better instruction of the medical student; each general hospital ought to establish a special department under the control of the senior medical officer. The department should be chiefly an outpatient clinic and should be held in the afternoon or in the evening. A few beds might be provided, but the essence of successful treatment in syphilis was early diagnosis and prolonged attendance. The department should be thoroughly equipped with a sufficient staff of pathologists with the necessary remedies. The expense would no doubt be considerable, but the state would be more than repaid. The establishment and use of such departments would gradually educate the public to appreciate the danger and thereby diminish the risk. Mr. Power did not think that any organized attempt to educate the public with regard to venereal diseases was desirable; he would rather trust to the gradual growth of education through the medical profession. He was not in favor of notification of venereal diseases, at any rate for the present.

PARIS LETTER

PARIS, March 27, 1914.

Investigation of the Sanitary Conditions of the Army

About a month ago, the Chamber of Deputies, after questions on the sanitary condition of the army, ordered an investigation into the condition of the barracks, the causes of morbidity and mortality and the hygienic measures required, giving full power of investigation to the committee of hygiene, the chairman of which is Dr. Lachaud, deputy from the Department of la Corrèze. The committee immediately began work and has now finished. It gave particular attention to the food of the army. After making a comparison of the food in the various European armies, Dr. Lachaud established that, after Great Britain, France is the country in which the soldiers are best nourished. On the other hand, it appears that owing to insufficient clothing, especially shoes, diseases have often resulted from exposure. Bedding is also insufficient. The greater number of avoidable diseases which have occurred during the past winter might have been prevented if the superior officers had exercised a more careful oversight of the naturally improvident soldier. In short, it appears to the commission that the high morbidity and mortality in the army are due to the classes of recruits recently added, to the excessive congestion of the troops in the barracks, which should be put in more sanitary condition, and to the unsatisfactory footwear of the men.

Old Age Relief

The expense of assistance given to the aged, infirm and incurable increases each year, as shown by the following figures:

| | | Francs |
|------------|-----------------|---------------|
| 1908 | \$16,014,246.80 | (80,071,234) |
| 1909 | 18,010,810.60 | (90,054,053) |
| 1910 | 18,641,625.60 | (93,208,128) |
| 1911 | 19,179,127.80 | (95,895,639) |
| 1912 | 20,954,703.60 | (104,773,518) |

Abuses are manifest, and the central committee protests against the facility with which local authorities are led to give aid. The municipal councils sometimes have restored the names of those whom the central committee had ordered removed from the list of those entitled to relief, or have erased names which the central committee had ordered added. The central committee fears that similar abuses will attend the administration of the new law of aid for numerous families.

Bacillus-Carriers and Amebic Dysentery

March 24, Dean Landouzy of the Faculté de médecine de Paris drew the attention of the Académie de médecine to the importation into Europe, especially France, of amebic dysentery by bacillus-carriers. He reported the case of a patient who died of a large abscess of the liver due to amebic dysentery which was unrecognized, partly because the symptoms were obscure and partly because the patient had never left the north of France. The patient, therefore, had been infected

in France in some as yet unknown manner. Other cases of the same kind have already been reported in France in the last ten years, and there is no doubt that amebic dysentery is being imported into our country. Presumably, the number of cases of amebic dysentery contracted in France will increase in proportion to the number of returned colonial troops from Africa and Asia. To lessen the danger, Landouzy suggests that, on their return to the barracks in France, the men should be examined repeatedly in order to detect germ-carriers. Professor Vaillard, while recognizing the danger of the constant introduction of convalescent or half-cured dysentery patients, believes that the danger is not so great as might be feared. Many infected men return from colonial service to France, and still there is no great increase in amebiasis contracted in this country. Apparently, the climatic and hygienic conditions are not favorable to the diffusion of the ameba.

Peritoneal Congestion of Appendicular Origin

At the same session of the Académie de médecine, Dr. Mignon, medical inspector of the military hygiene service, made an interesting report on a dramatic complication of appendicitis which he observed three times and which consists of diffuse peritoneal lesions which cause extremely sharp abdominal pain with light fever, peritoneal facies, greenish vomiting, tympanism, etc. In presence of this striking syndrome, a peritonitis might be suspected, except for two symptoms, the slight rise of temperature (from 38 to 39 C., or from 100.4 to 102.2 F.) and the regularity of the pulse, which does not exceed 90 or 100. These symptoms last only forty-eight hours or three days at most, and then all recede. The treatment of this peritoneal congestion consists in the application of ice-bags to the abdomen without surgical intervention, which might result fatally. Operation is indicated, however, some weeks after the disappearance of the symptoms.

The Income Tax and the Liberal Professions

The Chamber of Deputies and the Senate are at present disputing over the subject of the income tax, which has just been adopted by the Chamber. This fiscal reform has brought numerous protests from members of the liberal professions. The lawyers were the first to protest, arguing that merchants and manufacturers were taxed only on their net profits, and that the principal grew greater and greater as the annual profits increased; that, on the contrary, a lawyer's practice had no commercial value, that the income generally decreases with the advancing age of the incumbent, and that the fees form a gross profit, from which it is only fair to deduct professional expenses, rent, etc. The Syndicat des médecins du département du Rhône, presenting arguments of the same sort and emphasizing the steadily growing demands on physicians for free services and the application of social laws, unanimously passed a motion presented by its president, J. Teissier. The syndicat asks that (1) in deciding the professional income of physicians, the total submitted for taxation be diminished by those expenses peculiar to the profession, and that (2) their quota shall be less than that fixed for business men and merchants, since the physician accumulates nothing with his income, or annual profits, which can be compared to the principal which a commercial enterprise or a manufacture builds up, but, on the contrary, sees his profits diminish as he is weakened by age, and disappear the day he is no longer able to practice.

Internship and Foreign Students

Following a request made by a delegation of physicians and surgeons of the hospitals of Paris (THE JOURNAL, March 21, 1914, p. 946), the minister of the interior has just decided that the internships in the hospitals shall remain accessible to foreign students.

Death of Dr. Launois

Dr. Pierre-Emile Launois, physician at the Lariboisière Hospital, and agrégé professor at the Faculté de médecine de Paris, has just died, aged 58 years.

BERLIN LETTER

BERLIN, March 27, 1914.

Personal

Professor Ludloff of Breslau has been offered the position of director of the University Orthopedic Clinic to succeed the late Professor Joachimstal. As Ludloff recently was called to Frankfort-on-the-Main, it is not yet known which call he will accept.

March 13, Professor Aufrecht, the former director of the department of internal medicine at the Old City Hospital at Magdeburg, celebrated his seventieth birthday. Although he never worked at a university institute, still he has published a number of monographs that are worthy of notice. Of these his work on Pneumonia in Nothnagel's Encyclopedia is the best known.

Sickness Insurance and Contracts with Physicians

The carrying into effect of the Berlin agreement, that is, the agreement entered into under the auspices of the government between the Leipsic League and the authorities of the Krankenkassen, has made but slow progress in the last few months. (It was described in THE JOURNAL, March 28, 1914, p. 1039.) Peace has now been consummated in Breslau where previously the Krankenkassen officials had rejected, with peculiar obstinacy, all the advances of physicians and the representatives of the government. Meanwhile the number of places open to insurance physicians which are still under the ban of the Leipsic League is considerable. By this is meant the advertised list of places which the league warns physicians against accepting without consulting with the league officials. The number according to the last advertised list is 273.

Balneologic Congress

The thirty-fifth annual meeting of physicians in Germany specially interested in balneology was held at Hamburg in March.

BACILLI CARRIERS IN HEALTH RESORTS

Among the addresses of general practical importance was one by Ritter of Geesthacht on tuberculosis and influenza-bacilli carriers in public health resorts and sanatoriums. He stated that the influenza-bacilli carriers are more objectionable than the tuberculous, first because influenza itself is by no means an insignificant disease, but chiefly because other diseases, especially pulmonary tuberculosis, are very often started up into renewed activity under the influence of infection with influenza bacilli. To this must be added the facts that no appreciable immunity to influenza develops, and that numerous clinically healthy people are bearers of virulent influenza bacilli, especially in the upper air passages. In regard to tuberculosis, even if notification were strictly enforced, it would not be possible to distinguish the so-called open tuberculous, who are capable of communicating infection, so as to exclude them from health resorts for the non-tuberculous.

There remains no other measure but to limit as far as possible the danger of infection by instruction in hygiene, not only of the patients but particularly of those engaged in renting rooms and keeping boarders. In sanatoriums which are under the control of a single physician, this is possible, but it is more difficult in public health resorts. Here police regulations must be adopted with reference to the beds (washable coverings for the beds), the treatment of the expectoration (antisputting ordinance), the preservation and preparation of foodstuffs and the handling of dirty linen (to be transported only in washable sacks). It is especially to be desired and necessary that there should be supervision of the smaller boarding and lodging-houses, in which the sanitary conditions are often quite unsatisfactory. Public water works and sewerage naturally assist the sanitation of a health resort but they are not absolutely necessary. A disinfection apparatus and a trained disinfecter should be available in every large health resort.

THE DESERT CLIMATE

The well-known superintendent of the sanatorium at St. Blasien, Professor Determann, gave his experience with reference to desert climates. The character of the desert climate is determined by the peculiar combination of the high temperature of the air with extreme dryness and bright sunlight. The evaporation through the skin is so great that one might speak of a greater metabolism of liquids in the skin which perhaps relieves the kidneys. The number of blood-corpuscles seems to be increased but the amount of hemoglobin is decreased. Important investigations of the blood plasma were made. There occurred a transference of all the processes of oxidation of the foodstuffs from the muscles to the skin. The desert climate is chiefly suitable for debilitated and elderly people with poor regulation of the heat in the skin but with healthy hearts, and also for rheumatic diseases of the muscles and joints, neuralgias, lancinating pains and for some forms of nephritis. In arteriosclerosis, caution should be used.

TREATMENT OF PULMONARY TUBERCULOSIS

Professor Brauer, director of the Eppendorf Hospital, spoke on the treatment of diseases of the lungs. He gave an account of his experience and that of his associates with the

Friedmann remedy, which, he stated, in no way encouraged further trials. Citing the experience with Koch's tuberculin he repeatedly and expressly emphasized the grave responsibility which clinics and hospitals assume when they even seem to support the propaganda for a new remedy which has not received the support of a thorough experimental trial on animals.

Brauer then discussed the surgical treatment of various diseases of the lungs, especially severe cases of bronchiectasia, and showed by several cured patients and a large series of highly instructive Roentgen-ray pictures what fine results are often obtained by operative measures. In connection with this, however, he expressly emphasized the fact that the operation, in view of the danger of air embolism, is by no means harmless and should never be undertaken until after the most careful investigation of every factor which influences the condition.

CHRONIC KIDNEY DISEASE

Professor Volhard, director of the municipal hospital at Mannheim, discussed clinical experience and views with reference to Bright's disease. The speaker criticized the present-day nomenclature which hinders the understanding of the clinical forms of disease of the kidney, and proposed a classification and systematization of diseases of the kidney which seems to be equally satisfactory both to clinicians and to pathologists. In connection with this, he described the individual forms and their treatment, and especially called attention to the fact that the degree of insufficiency of the kidney depends on the amount of kidney tissue which remains capable of function. He also showed that acute diffuse glomerular nephritis possesses a great tendency to heal, and it is very important to secure the healing of nephritis in the earliest stage of the acute disease in order to prevent the development of a chronic nephritis that will lead to insufficiency of the kidney in the course of months, years or decades.

He further discussed the different forms of uremia. Only those forms should be regarded as genuine uremia which occur exclusively in cases of renal insufficiency and are characterized by azotemia, i.e., a marked increase in the residual nitrogen in the blood. Cases of eclamptic uremia and their equivalents occur, on the other hand, without renal insufficiency and should be sharply distinguished on this account from genuine uremia. The same holds good for the pseudo-uremic transitory symptoms of renal sclerosis. In conclusion the speaker voiced the hope that it might be possible by timely discovery and supervision of benign hypertonic conditions to postpone the development of a severe degree of arteriosclerosis and to prevent the occurrence of the malignant form, i.e., the combination of sclerosis with nephritis.

DIATHERMIA

Laqueur of Hamburg reported his experience in treatment with diathermy. After some general remarks on the theory, technic and apparatus of the method he discussed the therapeutic successes and failures of diathermy. Deserving of notice first of all is the analgesic action in acute joint diseases; this almost never fails, whatever the etiology. Diathermy has also a favorable action in chronic arthritis, neuritis, myalgia, epididymitis, prostatitis and paresthesias. No success was obtained in tabes, paralysis agitans or otosclerosis; moreover, in the treatment of diseases of the heart and blood-vessels as well as other diseases of the internal organs such as the lungs, the intestines or the liver, diathermy is of no great importance. On the other hand there is a future for it as a method of surgical treatment and for sensitizing before roentgenotherapy. Laqueur warns against unsuitable application and extending the indications too far.

VIENNA LETTER

VIENNA, March 25, 1914.

Neutralization of Health Resorts in Time of War

It is just fifty years since the present imperial councilor, Dr. Kisch of Marienbad, suggested that in time of war all health resorts should be declared neutral, and that this sentence should be added to the Convention of Geneva. In spite of the interest it had evoked when it was formulated for the first time, the idea fell into oblivion. Recently Kisch has once more taken up his old idea and explained in several letters to the press how much could be done if all wounded men and officers could be cared for in the Austrian health resorts. These alone could provide more than 100,000 beds for wounded soldiers. The Austrian foreign office has taken the matter up, and efforts will be made for the acceptance of this plan by all nations.

Sickness Insurance and Health of the Insured

The Union of the Krankenkassen of Vienna (Verband der Krankenkassen) which has 435,000 members, of whom 315,000 live in Vienna itself, reports that 12,063 members were unfit for work for more than three days during January. Tuberculosis was diagnosed in 963 cases, and other diseases of the air-passages in 1,834 patients except 533 cases of acute tonsillitis and 37 of pneumonia. Influenza was found in 703 patients, diseases of the circulatory system in 453, diseases of the alimentary canal in 690, and rheumatic affections in 1,059, while 1,971 accidental injuries were reported. During the month 279 members died, 101 deaths, or 38 per cent., being due to tuberculosis, 29 to other diseases of the air-passages, 43, or 15 per cent., to circulatory disorders, 24, or 9 per cent., to new growths, 5 to accidents and 14 to suicide. In comparison with the same period of the preceding year, a marked decrease in morbidity and mortality is notable, amounting to 20 per cent. in morbidity and 12 per cent. in mortality.

Proposed Fee for the Use of Outpatient Departments

The constant lack of funds under which our state hospitals are laboring owing chiefly to red tape as well as lack of liberality on the part of the government—has prompted the officials controlling the management of these institutions to suggest the payment of a small fee by every patient treated in the outpatient departments and the "ambulances" of our clinics and hospitals. The ridiculous sum of one cent has been suggested, but even this has been received with scorn by both the profession and the public. The latter do not want to pay anything at all, since they pay rates and taxes, from which the hospitals are kept (or have to be kept) going, while the profession justly contends that it cannot ask for payment from those who are so poor as to come to hospitals. Anyhow, the amount collected from this small fee would be so insignificant that it is not worth while to bother the patients. The idea itself is a sound one, however, and could be easily worked out in such a way that for the first consultation and for operations (minor surgery) an appropriate, though modest fee could be demanded. Hospitals would have to be conducted not only under humanistic, altruistic notions, but also on business terms, partly at least. The idea has come to stay.

Veterinary Students Strike

The conditions prevailing in our veterinary schools are far from ideal. They are controlled and owned by the ministry of war, and the freedom enjoyed by the students of other universities is a luxury unknown to those taking up their curriculum in the veterinary university. Nevertheless, until a short time ago, the managing board of the latter institute maintained the privileges of the academic students. But quite recently, instruction in horseshoeing was given to men of no academic standing in this university and the indignation of the students at what they termed lowering the standard of the institute grew so intense that an actual uprising took place. The students struck work, prevented the classes given to other persons in the building, and refused to study any further until substantial satisfaction should be given them for the offense done them by degrading the university to a simple horseshoeing school. Needless to say, this occurrence is due to the attitude of military circles toward students and schools in general and the university was closed as answer to the demands of the students. Meanwhile, negotiations are going on to settle the affair.

The Proposed Successor of von Noorden

The vacant clinic of von Noorden, who preferred to leave Vienna because of unpleasant occurrences of a private nature (not medical), proves a real problem to those responsible for the administration of the board of teaching. The splendid equipment of this institute necessitates for its head a man of the very first class, but there are not many of this kind who would be willing to give up their present position. After long deliberation, the committee of the medical faculty of Vienna recommended that negotiations be begun with Professor Wenkebach of Greifswald. This scientist, who is well known for his researches in metabolism and physiology, although not so renowned as von Noorden, would be an excellent acquisition for Vienna owing to his teaching abilities. He is also not German but a native of Holland, which is another advantage in the eyes of our men, who have been none too well pleased with their experiences with the professors hailing from Germany. The esteem paid to Wenkebach is clearly shown, as he was recommended *primo et unico loco*.

Marriages

SAMUEL DUFF ANDERSON, M.D., Elvaston, Ill., to Mrs. Lena Everhart of Littleton, Ill., at Quincy, Ill., recently.

SURGEON RAYMOND SPEAR, U. S. Navy, to Miss Eleanor Coppinger Smith, in Washington, D. C., April 1.

HONORE D. VALIN, M.D., St. Peter, Minn., to Miss Frances Louise Powell of Kasota, Minn., March 28.

CHARLES EDWARD GILLILAND, M.D., Austin, Tex., to Miss Olive Wiley of Cameron, Mo., March 16.

ERNEST MILTON WATSON, M.D., Boston, Mass., to Miss Alice M. Wright of Worcester, Mass., April 2.

ORTON EUGENE WHITE, M.D. Buffalo, N. Y., to Miss Gertrude M. Shean of Syracuse, N. Y., March 28.

ALBERT VIRGIL FRANKLIN, M.D., to Miss Racine Olcott Curtis, both of New York City, March 25.

FRANK V. McCONKEY, M.D., to Miss Grace M. Lindermuth, both of York, Pa., March 31.

FRANK MONROE WELDY, M.D., to Miss Rose Aurelia Seifried, both of Chicago, April 4.

Deaths

John D. McCleary, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1867; a Fellow of the American Medical Association; and for some time a member of the Board of Regents of the Iowa State University; for thirty-eight years a member of the Board of Commissioners for Insanity of Warren County, Ia.; and for fifty-two years a practitioner of Indianola, Ia.; assistant surgeon of the Thirty-Fourth and Forty-Sixth Iowa Volunteer Infantry during the Civil War; for forty-one years local surgeon of the Rock Island System; died at his home in Indianola, April 2, aged 84.

Gustavus Pierrepont Davis, M.D. College of Physicians and Surgeons, New York City, 1869; a member of the Connecticut State Medical Society, and formerly its president; for more than quarter of a century a visiting and consulting physician to the Hartford Hospital; for many years medical director of the Travelers' Insurance Company, Hartford; secretary and a member of the executive committee of the Connecticut Humane Society; died at his home in Hartford, April 1, aged 69.

Robert Cameron McDonald, M.D. McGill University, Montreal, 1880; a Fellow of the American Medical Association; for two years president of the Nebraska State Medical Association and formerly president of the Dodge County Medical Society; local surgeon at Fremont, Neb., for the Burlington System; a leader among the physicians of the state; died suddenly in Fremont, Neb., April 3, from cerebral hemorrhage, aged 54.

Herbert Otto Statler, M.D. University of Michigan, Ann Arbor, 1892; a member of the Michigan State Medical Society, and Kalamazoo (Mich.) Academy of Medicine; local surgeon at Kalamazoo for the Michigan Central Railroad; for four years a member of the medical staff of the Kalamazoo State Hospital; died suddenly at his home, March 29, from heart disease, aged 46.

Samuel Patterson Tipton, M.D. Rush Medical College, 1902; adjunct professor of clinical surgery in Southwestern University Medical College, Dallas, Tex.; a member of the State Medical Association of Texas, and a member of the staff of St. Paul's Sanitarium, Dallas; was instantly killed, March 26, when his automobile fell forty feet into a ravine near Dallas.

Elihu Brittin Silvers, M.D. College of Physicians and Surgeons, New York City, 1852; for several terms a member of the common council of Rahway; formerly superintendent of schools, and a member of the board of education; died at his home in Rahway, N.J., April 2, from heart disease, aged 85.

Edward Walter Pahl, M.D. Keokuk Medical College, College of Physicians and Surgeons, 1907; a Fellow of the American Medical Association; formerly of Cantril, Iowa; died at his home in Milton, Iowa, March 27, aged 29.

Orange H. Russell, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1866; for half a century a practitioner of medicine; died at his home in Lomax, Ill., from senile debility, March 31, aged 74.

William Henry Dearing, M.D. University of Iowa, Iowa City, 1882; a member of the Nebraska State Medical Association; at one time state senator from Cass County, and formerly superintendent of the State Hospitals for the Insane at Lincoln and Norfolk, and the State Institution for the Feeble-Minded, Beatrice; died at his home in Lushton, Neb., March 28, aged 54.

Thomas A. Rex, M.D. Georgetown University, Washington, D. C., 1865; University of Pennsylvania, Philadelphia, 1866; a member of the Medical Society of the State of Pennsylvania; a practitioner of Pittsburgh for more than forty years; surgeon in the federal service during the Civil War; died at the home of his son in Los Angeles, March 31, aged 76.

Herman Fred Lange Ziegel, M.D. College of Physicians and Surgeons, New York City, 1901; a Fellow of the American Medical Association; assistant in the children's department of Mount Sinai Hospital, and a member of the staff of Beth Israel Hospital, New York City; died at his home in New York, March 27, from heart disease, aged 37.

Lafayette Woodruff, M.D. Starling Medical College, Columbus, O., 1852; a Fellow of the American Medical Association; formerly a member of the board of censors of his Alma Mater; a veteran of the Civil War; for forty-eight years a practitioner of Alton, O.; died at his home in Columbus, April 2, from cerebral hemorrhage, aged 83.

Samuel H. Gault, M.D. University of Nashville, Tenn., 1874; of Rogersville, Tenn.; surgeon in the Federal service during the Civil War; once postmaster of Rogersville and representative in the Legislature from Hawkins County; died March 31, at a sanatorium in Battle Creek, Mich., from pneumonia, aged 71.

Mordecai Hiatt Fletcher, M.D. Miami Medical College, Cincinnati, 1884; a Fellow of the American Medical Association and Cincinnati Academy of Medicine; a dentist and oral surgeon of high repute in Cincinnati; died at his home March 26, from cerebral hemorrhage, aged 64.

John Waldo Johnson, M.D. Harvard Medical School, 1877; in 1893 a member of the Boston city council, and three years later a member of the House of Representatives; a member of the Massachusetts Medical Society; died recently at his home in Boston, aged 57.

Edgar de Mott Stryker, M.D. College of Physicians and Surgeons, New York City, 1901; formerly of Pine Bush, N. Y.; but for the last four years in charge of a Hospital in Holkol, Korea; was shot and killed, March 29, by a Japanese, said to have been insane.

Leila Gertrude Bedell, M.D. Boston University, 1878; for many years a practitioner of Chicago and for ten years a resident of Tryon, N. C.; from 1885 to 1888, president of the Chicago Women's Club; died at her home in Tryon, N. C., March 28, aged 76.

Albert Brown Kruidenier, M.D. College of Physicians and Surgeons, Chicago, 1909; formerly an intern in Cook County Hospital; of Aberdeen, S.D.; died in St. Luke's Hospital in that city, April 2, three days after an operation for appendicitis, aged 31.

Thomas J. Ellis, M.D. Medical College of the State of South Carolina, Charleston, 1874; formerly of Amherst, Va., but for the last four years resident physician at the Telfair Sanatorium, Greensboro, N. C.; died in that institution, March 25, aged 52.

James Perrin Smith, M.D. Medical College of Georgia, Augusta, 1885; for two terms a member of the city council of Augusta, Ga., and for seventeen years a member of the board of education; died in the Augusta City Hospital, March 17.

J. Thor Rohm, M.D. College of Physicians and Surgeons, Baltimore, Md., 1880; for thirty years a practitioner of Redding, Cal.; once mayor of that city; and for one term coroner of Shasta County; died at his home, March 31, from nephritis, aged 62.

Francis Delmont, M.D. University of California, San Francisco, 1874; a member of the Medical Society of the State of California; and a pioneer practitioner of San Francisco; died in St. Winifred's Hospital, San Francisco, April 1, aged 73.

Warren H. Horton, M.D. Kansas City (Mo.), Homeopathic Medical College, 1891; city physician of Florence, Neb.; a veteran of the Civil War; was found dead in his automobile near Florence, Neb., April 4, from heart disease, aged 70.

George W. Brumley (license, Ark., 1903); a pioneer practitioner of Randolph County; died at his home near Biggers, Ark., March 23, aged 68.

Martin Hagen, M.D. Chicago College of Medicine and Surgery, 1908; a Fellow of the American Medical Association; of Viroqua, Wis.; was thrown from his buggy by a collision with a runaway team, March 22, and was instantly killed, aged 41.

Payson Jonathan Flagg, M.D. Jefferson Medical College, 1885; a member of the Massachusetts Medical Society; and chairman of the board of health of West Springfield, Mass.; died at his home in Mittineague, Mass., March 22, aged 55.

Patrick Sheedy Byrne, M.D. Bellevue Hospital Medical College, 1884; a member of the Washington State Medical Association; at one time mayor of Spokane, Wash.; died in Spokane, Wash., March 23, from cerebral hemorrhage, aged 58.

Horace E. Seastrunk, M.D. Barnes Medical College, St. Louis, 1896; local surgeon for the Southern Pacific Railway at Orange, Tex., and health officer of Orange County; died at the home of his father in Orange, Tex., March 25, aged 39.

Charles Emery Rowell, M.D. New York Homeopathic Medical College, New York City, 1875; mayor of Stamford, Conn., 1910 to 1913; a member of the Connecticut Legislature in 1897; died at his home in Stamford, Conn., March 29, aged 64.

Wells S. Jones, M.D. Starling Medical College, Columbus, Ohio, 1866; a veteran of the Civil War, in which he served as colonel of the Fifty-Third Ohio Volunteer Infantry; died at his home in Waverly, Ohio, March 21, aged 83.

William E. Easter, M.D. Western Reserve University, Cleveland, 1853; formerly president of the Ashley County (Ark.) Board of Health; a Confederate veteran; died at the home of his son in Hamburg, Ark., March 23, aged 82.

Burvia A. Houser, M.D. Medical College of Indiana, Indianapolis, 1890; a director of the Farmers' and Merchants' National Bank, Wabash, Ind.; died at his home in that city, March 25, from disease of the kidney, aged 47.

Ninian Calvin Smillie, M.D. University of Bishop's College, Montreal, 1882; for fifteen years port physician at Gaspé Basin, Que., and afterward a practitioner of Montreal; died at his home in Ottawa, Ont., February 12, aged 55.

Anabel McGaughey Stuart, M.D. Cooper Medical College, San Francisco, 1878; a Fellow of the American Medical Association; an Army nurse during the Civil War; died at her home in Santa Rosa, Cal., March 19, aged 73.

George Frederick Newcombe, M.D. College of Physicians and Surgeons, New York City, 1877; for five years coroner of Passaic County, N.J.; died at his home in Pompton Plains, N.J., April 1, from heart disease, aged 64.

Frank Schilcher, M.D. University of Munich, Germany, 1857; for several years a surgeon in the Bavarian Army; for nearly forty years a practitioner and druggist of Pennsylvania; died at his home in Freeland, Pa., aged 80.

John D. Wood (license, Lawrence County, Pa., 1881); a practitioner of New Castle, Pa., for forty-seven years; a veteran of the Civil War; died at the Home for Soldiers and Sailors, Erie, Pa., March 24, aged 71.

John Herbert Cory, M.D. Eclectic Medical College of the City of New York, 1878; for many years a member of the Board of Education and Health Officer of Geneva, Ill.; died at his home in that city, about March 25, aged 62.

William J. Bartholomew, M.D. Northwestern Medical College, St. Joseph, Mo., 1887; a Fellow of the American Medical Association, and a druggist and physician of Gothenburg, Neb.; died at his home, March 31, aged 52.

A. Otto Hardenstein, M.D. Hahnemann Medical College, Philadelphia, 1881; of Vicksburg, Miss.; died in the Presbyterian Hospital, New Orleans, La., March 22, a week after an operation on the stomach.

Isaac B. Burrell, M.D. Leonard School of Medicine, Raleigh, N. C., 1893; one of the best-known colored practitioners of Roanoke, Va.; died in the Freedmen's Hospital, Washington, D. C., March 21, aged 46.

Elisha C. Dunn, M.D. American Eclectic Medical College, 1888; at one time secretary of legation at Constantinople; and once alderman of Rockford, Ill.; died at his home in that city, March 23, aged 74.

John E. Lopp, M.D. Barnes Medical College, St. Louis, 1898; formerly health commissioner and a member of the city council of Jefferson City, Mo.; died at his home in Lupus, Mo., March 23, aged 39.

Robert Funk, for more than thirty years a practitioner of Tacoma, Wash.; died at his home in that city, Dec. 14, 1913, from carcinoma of the stomach, aged 79.

Bliss S. Thorne, M.D. New York University, New York City, 1864; a member of the New Brunswick Medical Society; died at his home in Butternut Ridge, N.B., January 25, from diabetes, aged 71.

Harry Barlow Cartwright, M.D. Rush Medical College, 1891; a Fellow of the American Medical Association; died at his home in East Liberty, Pittsburgh, Pa., March 29, from pneumonia, aged 50.

Thomas William Gallion, M.D. University of Tennessee, Nashville, 1885; formerly of Dandridge, Tenn.; died at his home in Mariposa, Cal., about March 28, from cerebral hemorrhage, aged 58.

Harvey Henderson Chase, M.D. College of Physicians and Surgeons, New York City, 1872; for thirty-seven years a practitioner of Linden, Mich.; died in Shelbyville, Ind., March 29, aged 65.

William A. Metcalf, M.D. Jefferson Medical College, 1884; of Steelville, Mo.; a member of the state Legislature in 1889; died in Josephine Hospital, St. Louis, March 17, from paralysis, aged 63.

Kay A. Sweet, M.D. University of Buffalo, N.Y., 1880; for twenty years a practitioner of Frewsburg, N.Y.; died at the home of his sister in Bradford, Pa., April 1, aged 61.

William T. Shrout, M.D. Eclectic College of Physicians and Surgeons, Indianapolis, 1891; died at his home in Waldron, Ind., March 28, from cerebral hemorrhage, aged 68.

Burt Leander Eastman, M.D. Chicago Medical College, 1892; a specialist in gynecology and abdominal surgery; died at his home in Kansas City, Mo., March 18, aged 43.

Eugene G. West, M.D. Hahnemann Medical College, Chicago, 1884; formerly of Effingham, Ill.; died at his home in Orange, N. J., March 29, from scarlet fever, aged 49.

James Clinton Baird, M.D. Vanderbilt University, Nashville, Tenn., 1882; Tulane University, New Orleans, 1883; died at his home in Los Angeles, Mach 22, aged 60.

John B. Wurtz, M.D. Hahnemann Medical College, Philadelphia, 1876; died at his home in Germantown, Philadelphia, April 3, from cerebral hemorrhage, aged 60.

Erwin G. Beckwith, M.D. Pennsylvania Medical College, Philadelphia, 1860; died at his home in Fostoria, Ohio, March 5, from cerebral hemorrhage, aged 85.

Mary Cobb Stacy Hodgson, M.D. New England Female Medical College, Boston, 1867; died at her home in Stoneham, Mass., February 18, aged 72.

Alexander Sangster, M.D. Victoria University, Coburg, Ont., 1884; died at his home in Stouffville, Ont., March 23, from Addison's disease, aged 55.

Charles T. Hunter, M.D. University of Tennessee, Nashville, 1878; died at his home in Springerton, Ill., March 18, from heart disease, aged 74.

Vincent Gilbert Hamill, M.D. University of Buffalo, N. Y., 1884; died at his home in New York City, March 25, from heart disease, aged 51.

William Peach, M.D. Cleveland University of Medicine and Surgery, 1877; of Pittsburgh, Pa.; died in Elizabethtown, Pa., February 12, aged 76.

Harvey James Sullivan, M.D. University of Toronto, Ont., 1902; died at his home in Chatham, Ont., March 18, from pneumonia, aged 38.

Emery C. Whitaker, M.D. University of Louisville (Ky.) 1875; of Maysville, Ky.; died in Cincinnati, March 6, from pneumonia, aged 61.

Albert Waldo Forbush, M.D. Eclectic Medical College of the City of New York, 1881; of Somerville, Mass.; died about March 22, aged 60.

Robert J. McMichael, M.D. Wooster (Ohio) Medical College, 1881; died at his home in Eau Claire, Wis., February 6, aged 63.

Benjamin F. Spencer, M.D. University of Louisville, Ky., 1874; died at his home in Weston, Tex., March 25, aged 61.

J. Thornton Smith, M.D. Baltimore (Md.) University, 1890; died at his home in Chaneyville, Pa., January 31, aged 64.

George Harrison, M.D. Trinity Medical College, Toronto, 1890; died at his home in Clifford, Ont., March 7, aged 55.

Marshall R. Glenn, M.D. Jefferson Medical College, 1909; died at his home in Asheville, N. C., January 24, aged 31.

Samuel B. Swavely, M.D. Jefferson Medical College, 1877; died at his home in Pottstown, Pa., March 4, aged 62.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

HYPEROL

Report of the Council on Pharmacy and Chemistry

The Purdue Frederick Company, exploiters of Gray's Glycerine Tonic, have recently been advertising to the medical profession a nostrum called Hyperol. The following report to the Council, by the referee, was adopted and its publication authorized.

W. A. PUCKNER, Secretary.

According to the label, Hyperol is "A Utero-Ovarian Corrective and Tonic." The circular accompanying the trade package states that it is:

"Indicated in all functional diseases of women such as: Amenorrhea, Dysmenorrhea, Menorrhagia, Metrorrhagia, Subinvolution, and in all conditions requiring a utero-ovarian corrective and tonic."

From another circular we learn that:

"Hyperol is a combination of Hydrastine, Aloin, Iron, Apiol and Ergotin. Its components to a certain extent will indicate its action, but the therapeutic effects of each ingredient seems to be augmented to an unusual degree by use in this particular combination. The proportions of each have been determined by extensive clinical experimentation, and the formula seems to be exactly balanced to produce the best therapeutic effects in all derangements of the utero-ovarian functions."

This "formula" is not very enlightening and a physician who wrote for further details was told that Hyperol contained:

| | |
|-----------------------|----------|
| Hydrastin | 1/40 gr. |
| Aloin | 1/12 gr. |
| Iron salts | 3 gr. |
| Apiol (Special) | 3 m |
| Ergotin | 1 gr. |
| And excipients. | |

If this is correct, then, so far as its active ingredients are concerned, Hyperol is but a mixture of well-known drugs, having contradictory properties. According to the claims in the circular quoted above, it is useful both in amenorrhea and in menorrhagia. The mixture is as unscientific as it is unnecessary. It cannot be adapted to any individual case; when ergot is indicated, apiol would naturally be contra-indicated; if aloes is appropriate, hydrastin may defeat the object sought. It is unnecessary because no intelligent physician would prescribe such a combination of drugs in any given case. The claims are exaggerated, improbable and foolish. Hyperol conflicts with the following rules of the Council:

Rule 4, in that statements on the label and in the circular enclosed with the trade package advertise it to the public in the treatment of diseases.

Rule 6, in that exaggerated and unwarranted claims are made for its therapeutic qualities.

Rule 8, in that the name of this pharmaceutical mixture fails to disclose the potent constituents.

Rule 10, in that it is unscientific.

It is recommended that publication of this report be authorized to call attention to the unscientific character of such complex mixtures.

EDITOR'S NOTE: Hyperol is advertised in *American Medicine* and the *St. Paul Medical Journal*.

THE GERMAN COUNCIL ON PHARMACY AND CHEMISTRY

At the meeting of the German Congress for Internal Medicine in 1911, a German council on pharmacy and chemistry, Die Arzneimittelkommission des Kongresses für innere Medizin, was organized, with purposes similar to those for which the Council on Pharmacy and Chemistry of the American

Medical Association was created. As practically nothing has been done to restrict the advertising of proprietaries in Germany, the task of the commission was tremendous. Its work has been noted in *THE JOURNAL* from time to time.¹ A review of what has been done up to the present is given by Heubner,² and indicates some differences between conditions in Germany and this country. The members of the commission found confronting them the same evils that met the early efforts of the American council, namely, dominant proprietary interests, a subservient and financially interested medical press and an indifferent profession. Moreover, the pecuniary interest of the editors of German medical journals in the profits of advertising seems to be more direct and more important than in America. The German commission, in Heubner's opinion, was placed at a disadvantage compared with the American council from the first. Funds for investigation were lacking, and the commission had no journal in which its objects could be presented to the medical profession. At the beginning of its work the commission established rules very similar to those of the American Council on Pharmacy and Chemistry. It listed the articles advertised in German medical journals in three groups: (1) those which conformed to the rules of the commission in the method of advertising; (2) those which violated the rules, and (3) those whose classification could not be determined. This amounted to an attack on advertising in medical journals and was undoubtedly premature. It aroused at once the antagonism not only of the proprietary interests but also of the medical press.

"The establishment of the lists of medicines encountered opposition or hindrance from three sources," says Heubner, "first, from the pharmaceutical and chemical manufacturing interests; second, from the medical press, and third, from the medical profession itself. The 'trade' naturally was irritated at any attempt to interfere with 'business,' and brought forward a number of reasons why the procedure adopted by the commission was especially calculated to injure the 'general welfare.' This opposition was to be expected and might be disregarded. The extent to which the medical press was dependent on the drug trade, however, had not been foreseen. The same journals in which for many years all sorts of articles on the evils in the trade in medicines had appeared showed themselves decidedly cool or emphatically critical toward the accomplished fact of the 'lists of remedies.' In hastily written articles a whole series of mistakes in general and in particular, were published. . . . One thing, however, was not explicitly stated—namely, that in any event the lists of remedies must be rejected, and for this the cogent reason was anxiety in regard to advertisements. The editors had been sufficiently warned. The *Therapeutische Monatshefte*, which had not submitted to the wish of a great industrial firm in another matter, was punished for this offense by the withdrawal of all its advertisements. None of the other publishers wanted to risk such a reduction in income, and none of the editors was willing to undertake the risk to the extent of a conflict with his publisher. Curiously, the idea does not seem to have arisen that if the threatened publishers had made common cause they might have freed their editors from the distressing burden of improper advertisements with scarcely any risk at all."

Heubner believes that another motive influencing the editors was the fact that their efforts in behalf of reform, sporadic and ineffective at the best, had been replaced by the propaganda of the commission. It seems clear that the opposition from the press was due not to principle chiefly but to financial pressure. The editors, however unworthy their motives, nevertheless exerted, as in other cases, a powerful influence on public opinion. Among the medical public, opposition was encountered because many physicians were inter-

ested—sometimes financially—in one or more of the discredited remedies. The mass of the profession either were not interested or misunderstood the position of the council.

Despite the obstacles encountered and the difficulties involved, the council and the Congress of Internal Medicine have not wavered. Heubner, however, sums up the work of the council in a rather pessimistic tone, as follows:

"What are the results of the great amount of labor, self-sacrifice, hopeful courage and wasted money? Two journals pretend to be doing wonders in that they are eliminating some of the worst misstatements, distortions, obscurations and concealments of truth in the advertisements. Physicians at certain intervals receive lists of preparations, the manufacturers of which as a rule do not need to pay any attention to the council because their dealings are directly with the public, because their advertisements are usually made to physicians by word of mouth, or their preparations have already a sufficient reputation—no matter for what reason. . . .

"There is little doubt that the results have not paid for the efforts expended. There is no doubt that the whole enterprise will amount to nothing more than a splash in the water if the work is not extended, just as a preliminary skirmish must remain without effect unless followed up by the main army. The main army in this case is the German medical profession. However gratifying the progressive attitude of some individuals and, in fact, of some associations, such as that of Wurtemberg, may be, the fact remains that the profession [in Germany] is not advancing but rather tends to retrograde. The support which the executive committee of the Aeztevereinsbund at first accorded to the efforts of the council was later limited. All further progress depends on the developments of the near future. Will sufficient power be given to the German medical profession after settlement with the insurance societies to permit them to follow the example of their American colleagues?

"It should be made perfectly clear," Heubner insists, "that we are concerned with questions of importance for the standing and influence of the medical profession among the people, and, consequently, for the conditions of its future existence. But even now the consequences of the prevailing indifference to the traffic in nostrums are making themselves felt. The prevalence of self-medication, which was lately recognized by a Berlin court as the normal for 'slight' affections and which has already been made an argument against the extension of the compulsory prescription law, is merely a result of the great evil based on the loss of control by the medical profession of the remedies it employs. Only centralized and energetic measures on the part of the organized profession can secure a reformation of the intolerable conditions that prevail in the field of modern industry in medicine and food-stuffs. The American Medical Association and the German Arzneimittelkommission have shown that a little sacrifice and energy can secure a condition in which the medical profession becomes a powerful factor, able to dictate in the field of the trade in medicine instead of letting itself be dictated to."

THE SUBLIME ASSURANCE OF THE FRIEDMANN VACCINE PROPAGANDA

Under this heading the *Southern Medical Journal* for March publishes the following editorial:

"A certain lawyer in Milwaukee, by the name of Rose, has written a letter to the senior editor of this journal asking him to 'calmly and dispassionately consider such evidence as I may send to you respecting the merits of the Friedmann vaccine.'

"Mr. Rose will be remembered by Alabama physicians as the apostle from the city made famous by certain brews of beer who a few years ago came into our state to instruct from the public platform our people regarding the health-giving properties of alcoholic beverages. He is probably prompted by the same philanthropic impulses when he attempts to inform physicians and the public of the 'miraculous results' of the serum that made Friedmann famous as well as rich.

"The editor begs leave to assure Mr. Rose that he has already devoted considerable attention to the claims of the Friedmann vaccine, 'in an unprejudiced way,' and that his

1. A German Council on Pharmacy and Chemistry, Propaganda, *THE JOURNAL A. M. A.*, July 27, 1912, p. 291; Current Comment, Aug. 10, 1912, p. 452. Reform in the Advertising of Proprietary Medicinal Articles, Berlin Letter, Dec. 7, 1912, p. 2081. Heubner, W.: Wünsche zur Reform des Arzneivertriebes, *Therap. Monatsh.*, 1912, xxvi, No. 11; abstr., *THE JOURNAL A. M. A.*, Dec. 14, 1912, p. 2195.

2. Heubner: Die Arzneimittelkommission des deutschen Kongresses für innere Medizin, *Therap. Monatsh.*, 1914, xxviii, 185.

information was derived from 'unprejudiced' sources, such as 'unprejudiced' case histories wherein a few instances of temporary improvements were swamped by the authoritative reports of ultimate failure; he has considered the conservative estimates presented by investigators in hospitals and in the United States Public Health Service, and has reached the conclusion that thus far the Friedmann 'cure' has signally failed to make good; that, in this country at least, it is being exploited in a way that, in itself, would shake any faith an ethical physician might feel inclined to repose in it; and that not until medical authorities in the places where the experiment has been thoroughly tried have pronounced it trustworthy will he see any good reason for changing his opinion. One thing is certain; he will not accept as reliable, testimony in its favor from any physicians who are making it a specialty, or serve in hospitals chiefly devoted to its exploitation. He will not attach any value to the opinions of lawyers, however eminent, or of preachers, however devoted, for the simple reason that they lack the professional knowledge which alone could render them competent judges. As for testimonials, their absolute worthlessness is illustrated by the literature distributed by Royal Gernateur, Peruna, and 'Duffy's Pure' vile compound. 'David S. Rose, lawyer,' writes as follows:

"We opened *our* laboratories here on August 21, and so far *we* have treated *about* one hundred cases.' (Italics ours.—*Journal*.)

"One might wonder whether the 'we' includes any physicians, or whether they are all lawyers.

"Inspired by this liberal offer on the part of a representative of the legal profession to enlighten the doctors of the South on a medical point of great importance, will not some enterprising Southern doctor provide a *quid pro quo* by instructing Mr. Rose in the routine of court procedure in Wisconsin? It will not be necessary for the doctor to know any more about law than most lawyers know about medicine. Here is an opportunity for missionary work."

Correspondence

The Friedmann Serum and the Society of German Sanatorium Physicians

To the Editor:—Early last month in some of the leading New York American and German-American newspapers there appeared a statement that on the occasion of the annual meeting of the Association of German Sanatorium Physicians on February 28, one hundred and twenty of these physicians had carefully investigated the results of Friedmann's work, that 40,000 patients had been treated with Friedmann's serum and that the successes had been simply phenomenal. It was furthermore reported that Dr. Friedrich Franz Friedmann had been the guest of honor at a banquet given by the sanatorium physicians and that he had been effusively thanked by Privy-Councillor Professor Dr. Pannwitz for his work, in the name of the sanatorium physicians present. Finally, said the newspaper report, Dr. Friedmann stated to an American press representative that Professor Ehrlich had expressed the opinion that the Friedmann serum was absolutely harmless.

In a communication bearing the signatures of the president, Dr. O. Pischinger, the vice-president, Dr. J. Ritter and the secretary, Dr. Schellenberg, of the Association of Sanatorium Physicians of Germany, Austria and Switzerland, I have been requested to enlighten the American medical profession concerning their visit to the Friedmann Institute in Berlin, and to give the facts the widest possible publicity, at least among medical men.

First of all, the officers of the association expressed their astonishment that the visit of the sanatorium physicians to the Friedmann Institute should have been used as a means of advertising Friedmann and his remedy abroad. Because of the report of cures which constantly crept into the German medical and lay press and the demands for the remedy from many sanatorium patients, it was natural that the sanatorium physicians while visiting Berlin should wish to see for themselves what was going on in the Friedmann Institute. Thus they asked Friedmann to show them his cases and give them a talk on the indication for his remedy. About 60 of the 125 members of the association visited the Friedmann Institute

Feb. 26 and 27, 1914. They distinctly stated that their visit was in no way to be considered a pilgrimage to pay homage to Friedmann for his discovery but rather an investigation to find out just how much truth there was in his claims. Many had already tried the remedy and had been disappointed; others were prejudiced, and it was for this reason that they wanted to examine critically into Friedmann's claims. No banquet was given to Dr. Friedmann. After the conclusion of the visit there was a confidential conference, without Dr. Friedmann, at which the members concluded to discuss the theme again next fall and in the meantime collect as much material as possible.

That I may not be accused of prejudice or misinterpretation, I wish to quote in German the most essential statements which were made as the result of the visit of the association to the Friedmann Institute:

"Wir waren uns darüber einig, dass die uns von Friedmann gezeigten Fälle klinisch recht schlecht beobachtet waren und im Allgemeinen keineswegs als 'Erfolge' angesehen werden konnten. Wir haben uns gewundert, dass uns keine ordnungsmässig geführte Kurve gezeigt wurde. Die Roentgenplatten, die man uns zum Beweis zeigte, bewiesen tatsächlich gar nichts. Wir geben zu, dass einzelne Fälle allerdings einen gewissen Eindruck auf uns gemacht haben, *wobei wir uns aber auch darüber klar waren, dass solche Fälle auch ohne jede Behandlung und bei jeder Behandlung vorkommen können*, und dass die Zahl dieser Fälle verhältnissmässig *viel* zu klein war, um ein günstiges Urteil über das Mittel abgeben zu können."

[We were of the unanimous opinion that the cases shown by Friedmann had been clinically very badly observed, and as a whole could not be considered as successes or cures. We were astonished that no carefully recorded temperature and weight curves were shown. The Roentgen-ray plates which were shown to us as evidence of cures did not actually prove anything whatsoever. We will admit that some cases indeed made an impression on us, but here we must also remember that such cases occur without any treatment or with any kind of treatment, and that the number of them were altogether too few to permit a favorable judgment of the value of the remedy.]

I have since received a letter from Geheimrat Prof. Dr. Pannwitz in which he substantiates what has been said in the official communication from Drs. Pischinger, Ritter and Schellenberg. He particularly expresses his indignation at the use of his name in connection with a banquet which never took place. He declared the whole thing to be a newspaper invention.

Prof. Dr. L. Brauer, director of the Eppendorfer Krankenhaus of Hamburg, who had also heard the American version of the sanatorium physicians' visit to the Friedmann Institute in Berlin, wrote me an indignant letter, saying that he "had tried Friedmann's remedy at the Eppendorfer Krankenhaus and the results had been unfavorable." He has reported these unfavorable results recently at the Balneological Congress and the Hamburger Aerzte Verein, and intends to publish more on the subject soon. He has since sent me the advance sheets of his forthcoming communication regarding Friedmann wherein he says: "The pulmonary cases tested in the Eppendorfer and Salemburg hospitals with Friedmann's method did not improve, but some of them without a shadow of doubt were rendered worse by the treatment. Five cases of bone and joint tuberculosis in children treated with the Friedmann serum by Dr. Trepler in the Salemburg institution were not influenced at all by the treatment and in one case, although the movement of the afflicted joint increased, the general condition of the lesions was rendered worse."

In paying a gratifying tribute to the earnest and unbiased work done with Friedmann's serum by American investigators, which likewise gave unfavorable results, Professor Brauer advised me, in the interest of the German medical profession, and especially in the interest of the unfortunate patients who naturally are inclined to accept such advertised endorsement as genuine, that it would be most desirable for the present status of the Friedmann remedy in Germany to be made clear to the American medical profession and the laity.

S. A. KNOPF, M.D., New York.

Face-Powder Conjunctivitis

To the Editor:—For several years occasional cases have come under observation in which the trains of symptoms complained of have been almost identical and in which the result of microscopic examination of the secretion from the culdesac has rarely varied.

The patients, invariably women, complain of vision frequently being blurred, inability to use the eyes for any length of time for near vision, and severe itching of the lids which frequently is intolerable. The slightest rubbing of the lids produces quite marked bulbar hyperemia and only aggravates the itching. In severe cases the lids frequently appear quite edematous from the constant hard rubbing. There is a mucilaginous secretion in varying amounts, which when being removed pulls out in long strings and is quite elastic. Microscopic examination of the secretion reveals great numbers of epithelial cells, in the midst of which or surrounding which are found masses of what appear to be pentagonal crystals, the majority having a central black spot which may be brought out more plainly by slight changes with the fine adjustment. In a few cases there are many fine amorphous crystals disseminated throughout the mass of epithelial cells, and pentagonal crystal-like bodies, but these are not constant. Micro-organisms are conspicuous by their absence.

Smears taken from these cases have been shown to a number of pathologists, bacteriologists and chemists and the symptoms described, but a satisfactory explanation has never been given. Many suggested that the "crystals" might be secreted by the lacrimal gland, others that they were artefacts. Last fall slides prepared from secretion taken from the eyes of two sisters having the usual train of symptoms were submitted to Dr. C. H. Bunting, professor of pathology of the University of Wisconsin College of Medicine, who writes:

"After trying various solvents I found that strong alkalis caused the crystals to swell and become spherical with a doubly contoured wall. When they swelled enough to rupture, iodine showed that they discharged soluble starch into the surrounding fluid. So you are dealing with plant-cells, probably from some face-powder. They are not lycopodium."

After examination of various face- and dusting-powders, Dr. Bunting reported as follows:

"Your 'crystals' come from rice-powder. I think they must be the cells that form the hard exterior, but I have not determined that. I have looked over your samples of face-powder and rice-powder and find the small amorphous crystals, mentioned in your letter, in the face-powder and not in the rice-powder. They do not seem to be organic in nature and are not easily soluble in cold water (if at all), but they seem in a hopeless minority as compared to the rice-cells. I am not chemist or crystallographer enough to tell what they are. They seem so minute, as a rule, in comparison to the size of the rice-starch, and so few, I should be inclined to view the latter as the irritating agent."

On inquiry the face-powder used was found to have been made by Roger & Gallet. Seven other patients in whom the same symptoms and microscopic conditions were found all used the same make of face-powder.

In all probability when powder is applied to the face with a puff a portion of the fine dust is driven upward and lodges on the moist conjunctiva. The rice-flour in the presence of the tears becomes mucilaginous in character and is not washed from the culdesac. The woody cells of the hard exterior of the rice-grain swell, and the angular corners produce the conjunctival irritation, which is aggravated by rubbing. Those who use a chamois-skin in applying the powder are less liable to cause the fine dust to arise, which probably accounts for the condition not being found in every person using face-powder.

The condition is quickly relieved by flushing the culdesae with boric or normal salt solution and the use of an ointment made up of equal parts of lanolin and petrolatum, which seems to cause an agglutination of the cells and permit their being easily flushed out; 0.5 per cent. yellow oxid of mercury salve is usually prescribed. The irritation quickly subsides under a sedative collyrium.

NELSON M. BLACK, M.D., Milwaukee, Wis.

A Case of Voluntary Control of Ascent and Descent of Testicles

To the Editor:—While I was engaged in some routine work for one of our charitable organizations, a boy aged 12 was brought to me for medical inspection. The possibility of the necessity of circumcision is always entertained in the work of this society, and accordingly the youngster was made to expose his genitalia. Phimosi was present, but in addition the scrotum was observed to be empty, and the observation was confirmed by palpation; nowhere were even the most rudimentary testicles to be felt. The boy was asked if they had ever come down, to which he replied that they did but that he put them back again. He further volunteered to bring them down for me if I desired, and by a little manipulation of the abdominal wall and contraction of the abdominal muscles, each testicle appeared in its proper place. Each had to be brought down separately, but neither could be said to be thoroughly developed in proportion to the boy's general physical development. In order to display his accomplishments further, he proceeded to replace the testicles in the abdomen, and when he had finished, neither could be palpated. When asked why he did this, he said he played rather roughly and he did it to protect himself from injury. The possibility of injury, in his case especially, was very remote on account of the small size of the organs, but subsequent inquiry determined the fact that it was one of the several feats he learned while in contact with a group of juvenile delinquents.

SAMUEL HORTON BROWN, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POISONING BY WILD PARSNIP

To the Editor:—Kindly let me know the nature of the poison of the wild parsnip and the treatment of poisoning caused by it. I have lately read of several fatalities from eating it. Some time ago I had a family all of whom were made ill by eating the cooked wild parsnip. They recovered with emetics, purgatives and stimulants. Is it more poisonous when uncooked?

W. J. LEROSIGNOL, M.D., Rifle, Colo.

To the Editor:—Please find enclosed a clipping from the *Denver Post*, March 30, 1914, with reference to poisoning by wild parsnip. I shall be glad to receive any information which you can give about the wild parsnip. We have had three cases with two deaths within the last three weeks.

H. B. CATRON, M.D., Englewood, Colo.

ANSWER.—The wild parsnip belongs to the genus *Cicuta*, which is closely related to the genus *Conium*, from which the official drug conium is derived. The European variety, *Cicuta virosa*, is called white or water-hemlock or cowbane, wild or spotted parsley or parsnip, brook-tongue, death-in, etc., and the American variety, *C. maculata*, is known as wild or American water-hemlock, spotted hemlock, cowbane, spotted parsley, wild parsnip, beaver, muskrat or musquash root or poison, children's death or children's bane. Both species are used to some extent in medicine and both are responsible annually for several cases of fatal poisoning, chiefly of children. *Cicuta maculata* is a common water-weed with a thick, hollow, glaucous-purple, somewhat spotted stem, which sometimes reaches a height of 8 feet and branches strongly, the ascending branches terminating in large umbels of white flowers. The important active constituent is said to be cicutoxin except in the fruit, in which it is replaced by cicutin, which is believed to be identical with coniin. The fleshy roots are often mistaken for Jerusalem artichokes or other edible tubers. As coniin is a volatile alkaloid it is probable that enough might be volatilized in the process of cooking to make the cooked product less poisonous than the uncooked. Nevertheless, reports of cases in which the cooked roots were used indicate that the results were as violent when the roots were eaten after cooking as when they were taken uncooked. Five cases have been reported in which the plant *Cicuta aquatica* was used for the relief of itching with the result that all developed toxic symptoms and two children died. An account of the plant, a description of the symptoms of poisoning, and a review of reported cases, are

given by Egdahl (A Case of Poisoning Due to Eating Poison-Hemlock, *Arch. Int. Med.*, March, 1911, p. 348).

The treatment of such poisoning is well outlined by Dr. LeRossignol in his communication. The stomach should be emptied by an emetic or by the use of the stomach-tube, a mild purgative given and stimulants administered as they seem to be required. The hypodermic use of strychnin would be appropriate unless convulsions were present.

ARTICLES AND BOOKS ON LEAD-POISONING

To the Editor:—I should like to have references to literature on the subject of lead-poisoning; prevention in smelters and manufacturing plants; treatment; acute and chronic lead-poisoning, and so-called "lead colic."

G. T. GOSSARD, M.D., Loraine, Ill.

ANSWER.—The following articles and books discuss these questions:

- Carlson, A. J., and Woelfel, A.: The Solubility of Lead Salts in Human Gastric Juice, and Its Bearing on the Hygiene of the Lead Industries, *THE JOURNAL*, July 19, 1913, p. 181.
Lead-Poisoning, Therapeutics, *THE JOURNAL*, Sept. 6, 1913, p. 772.
The Toxicity of White Lead, Current Comment, *THE JOURNAL*, Feb. 22, 1913, p. 603.
Household Lead-Poisoning, Paris Letter, *THE JOURNAL*, April 19, 1913, p. 1239.
Lead-Poisoning, Bull. 95, Bureau of Labor, Washington, D. C., 1911.
Oliver, T.: Dangerous Trades, New York, E. P. Dutton & Co., price, \$8.
Legge, M.: Lead-Poisoning and Lead Absorption, New York, Longmans, Green & Co., price, \$3.50.
Rambousek, J.: Industrial Poisoning from Fumes, Gases and Poisons of Manufacturing Processes, New York, Longmans, Green & Co., price, \$3.50.
Blackey, H. B.: Occupational Diseases, *Ohio State Board of Health Month. Bull.*, March, 1913.
Mayo, Earl: The Work That Kills, *Outlook*, Sept. 23, 1911.
Chronic Lead-Poisoning, published by State Board of Health of Maine.
Stitt, E. R.: Lead-Poisoning from Inhalation of Red-Lead Dust, *U. S. Naval Med. Bull.*, vi, No. 2.
Schoenfeld, J.: Importance of Examination of the Blood in Lead-Poisoning, *Med. Klin.*, May 18, 1913.
Carlson, A. J., and Woelfel, A.: Solubility of White Lead in Human Gastric Juice, and Its Bearing on Hygiene of Lead Industries, *Am. Jour. Pub. Health*, August, 1913.
Kenney, J. S.: Lead-Poisoning in New York City, *Med. Rec.*, New York, Sept. 6, 1913.
Mellon, R. R.: Relation of Fatigue to Paralysis Localization in Plumbism, *Arch. Int. Med.*, October, 1913, p. 398.
Oliver, T.: Preventive and Curative Treatment of Industrial Lead-Poisoning, *Lancet*, London, Aug. 23, 1913.
Zondek, H.: Radial Paralysis from Lead-Poisoning, *Med. Klin.*, Oct. 26 and Nov. 2, 1913.
Lian, C., and Marcocel, E.: The Bradycardia of Lead-Poisoning, *Presse méd.*, Feb. 8, 1913.
Eichhorst, H.: Lead-Poisoning and Spinal Cord Disease, *Med. Klin.*, Feb. 9, 1913.
Althoff, H.: Lead-Poisoning in Workers on Brass, *München. med. Klin.*, March 11, 1913.
Decastello, A., and Oezacki, A.: Acute Lead-Poisoning, *Med. Klin.*, April 6, 1913.
Gibson, J. L.: Wassermann Reaction in Lead-Poisoning, April 5, 1913.
Chase, R. G.: Case of Chronic Lead-Poisoning in Which Multiple Aneurysms Occurred, *Brit. Med. Jour.*, April 26, 1913.

REQUIREMENTS FOR EXAMINER IN LUNACY IN NEW YORK STATE

To the Editor:—Please give the requirements for examiner in lunacy in New York State.

MAX SCHULTZ, M.D., Brooklyn.

ANSWER.—See Chapter 27 of the Consolidated Laws of New York, Article 4, under the head "Commitment, Custody and Discharge of the Insane," Paragraph 81, "Medical Examiners in Lunacy; Certificates of Lunacy": The certificate of lunacy must show that the person alleged to be insane is insane, and must be made by two reputable physicians, graduates of an incorporated medical college, who have been in the actual practice of their profession at least three years, and have filed with the commission a certified copy of the certificate of a judge of a court of record showing such qualifications in accordance with forms prescribed by the commission. The physicians shall jointly make a final examination of the person alleged to be insane within ten days next before the granting of the order. The date of the certificate of lunacy shall be the date of the joint examination. The certificate of lunacy shall be in the form prescribed by the commission and shall contain the facts and circumstances on which the judgment of the physicians is based, and show that the condition of the person examined is such as to require care and treatment in an institution for the care, custody and treatment of the insane. Neither of the physicians shall be a relative of the

person applying for the order, or of the person alleged to be insane, or a manager, superintendent, proprietor, officer, stockholder, or have any pecuniary interest, directly or indirectly, or be an attending physician in the institution to which it is proposed to commit the person alleged to be insane.

ARTICLES ON ANAPHYLACTIC DEATH

To the Editor:—Please inform me from your literature index where I can find the reports of sudden anaphylactic death in patients after the injection of serum. I understand that there have been reported about twenty such cases although I have no references.

CLARENCE H. PAYNE, Chicago.

ANSWER.—The following is a list of articles on this subject:

- Schultz, W. H.: Physiologic Structures in Anaphylaxis, *Hyg. Lab. Bull.*, 80, 1912.
Anaphylaxis, editorial, *THE JOURNAL*, April 22, 1911, p. 1199.
Friedberger, E.: Anaphylaxis, *Deutsch. med. Wchnschr.*, March 16, 1911; abstr., *THE JOURNAL*, April 22, 1911, p. 1232.
Infection and Anaphylaxis, editorial, *THE JOURNAL*, March 11, 1911, p. 746.
Grinnan, S. G. T.: Anaphylaxis, *THE JOURNAL*, Jan. 20, 1912, p. 178.
Melliere, G.: Anaphylaxis, *Med. Press and Circ.*, Dec. 6, 1911.
Shaw, H. B.: Anaphylaxis in Relation to Certain Clinical Manifestations, *Practitioner*, London, December, 1911.
Hektoen, L.: Allergy or Anaphylaxis in Experiment and Disease, *THE JOURNAL*, April 13, 1912, p. 1081.
Anaphylaxis, Paris Letter, *THE JOURNAL*, Nov. 16, 1912, p. 1807.
Gallagher, J. F.: Anaphylaxis, *Jour. Tennessee State Med. Assn.*, October, 1912.
Gillette, H. F.: Diphtheria Antitoxin in Bronchial Asthma, *THE JOURNAL*, Jan. 4, 1908, p. 40.
Boone, E. L.: Sudden Death Following Use of Diphtheria Antitoxin, *THE JOURNAL*, Feb. 8, 1908, p. 453.
Patterson, F. J.: An Attempted Explanation of Sudden Death Subsequent to Injections of Antitoxin, *Carolina Med. Jour.*, March, 1908.
Stephens, L. C.: Have the Recently Reported Deaths from Diphtheria Antitoxin Been Satisfactorily Explained? *Jour. South Carolina Med. Assn.*, December, 1909.
Miller, F. C. L., and Root, W. W.: Serum Sickness and Sudden Death Following Hypodermic Administration of Antitoxin, *Therap. Gaz.*, February, 1910; abstr., *THE JOURNAL*, March 19, 1910, p. 1006.
Auer, J., and Lewis, P. A.: Acute Anaphylactic Death in Guinea-Pigs, *THE JOURNAL*, Aug. 7, 1909, p. 458.
Hyg. Lab. Bull. 80 has a good bibliography. References may also be made to *Hyg. Lab. Bulls.* 29, 36, 45, 50 and 64.

BENZIDIN TEST AND THREAD TEST

To the Editor:—Please describe (1) the benzidin test and (2) the thread test in ulcer of the stomach.

WILLIAM H. WALKER, M.D., Kansas City, Kan.

ANSWER.—1. The benzidin test should be preceded by abstinence from meat or other sources of hemoglobin for at least two days. The feces are then examined as follows: The stool is extracted with a mixture of alcohol and ether. The residue is then treated with glacial acetic acid and with ether, as in the other tests for occult blood. This acid ethereal extract, which contains the hematin, is then treated with 2 c.c. of a saturated alcoholic bezidin solution and 2 c.c. of a solution of hydrogen dioxid (3 per cent.). In the presence of blood an intense green color appears. Failure of the green color indicates the entire absence of blood.

2. The thread test is performed by having the patient swallow an Einhorn duodenal bucket. The bucket is allowed to remain in the duodenum over night. On removal, a portion of the thread which is attached to the bucket will be stained with blood. (Bassler recommends that the thread be attached to a split shot.) Such a stain indicates the presence of an ulcer. The thread test for acidity was described Feb. 14, 1914, p. 579.

PHENOLPHTHALEIN

To the Editor:—1. Can phenolphthalein be taken indefinitely without injurious results?

2. What is its true value as a laxative?

3. How does it act?

4. Does its prolonged use require increased dosage?

5. Can it be administered with or in combination with sodium chlorid?

H. S. BARTHOLOMEW, M.D., New York.

ANSWER.—1. So far as we know, no toxic or injurious results have been reported from the continued use of phenolphthalein in medicinal doses. A case of poisoning from taking 1 gm. is reported.

2. It acts as a purgative, does not gripe and appears to possess no further physiologic action.

3. It acts chiefly by stimulating peristalsis, but also increases secretion to some extent.

4. Prolonged use does not seem to require increased dosage.

5. It may be administered with sodium chlorid.

Phenolphthalein is described in N. N. R., 1914, p. 206.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

THE HARRISON BILLS AND THE NELSON AMENDMENT

Mention has previously been made in *THE JOURNAL* of the so-called "Harrison bills" for the regulation of the traffic in habit-forming drugs. The first two measures, H. R. 1967 and H. R. 1966, have passed both houses of Congress and have become laws. They prohibit the importation of opium for other than medicinal purposes and forbid the manufacture of smoking-opium in the United States. The third bill, H. R. 6282, is an effort to regulate the sale of habit-forming drugs in the United States, by imposing a special tax on all persons who deal in or handle opium or coca leaves or their derivatives.¹

HOW THE BILL PASSED THE HOUSE

There has not been, at any time, any opposition on the part of individual physicians or of the medical profession as a class to the proper regulation of the sale of habit-forming drugs and the restriction of this traffic to purely legitimate purposes. H. R. 6282, as it passed the House, provided that any person "who produces, imports, manufactures, compounds, deals in, dispenses, sells, distributes or gives away opium or coca leaves or any compound, manufacture, salt, derivative or preparation thereof" shall register with the internal revenue collector of his district. A provision in the second section specifies that nothing contained in the section "shall apply to the dispensing or distribution of any of the aforesaid drugs to a patient by a physician, dentist or veterinary surgeon, registered under this act, in the course of his professional practice only, provided, that such physician, dentist or veterinary surgeon shall personally attend on such patient."

SENATE AMENDMENTS

The language of the bill as it passed the House was the result of long and careful deliberation on the part of all those interested in the bill and in a proper regulation of the sale of habit-forming drugs. It would seem to be unwise at the present stage of the bill's progress to introduce changes which do not materially strengthen the bill or add clearness to its provisions. Several amendments, however, have been introduced in the Senate. One includes hypodermic syringes and needles as forbidden articles of sale. Another substitutes for the proviso that physicians shall be in attendance on the patient, the following: "Provided that such physician, dentist or veterinary surgeon shall have been specially employed to prescribe for the particular patient receiving such a drug; and provided further that such drug shall be dispensed in good faith and not for the purpose of evading the provisions of this act." This amendment simply requires special employment instead of personal attendance as the test of bona-fide professional services and is not in any way objectionable.

A most important amendment, however, was introduced by Senator Nelson of Minnesota: "After the word 'act' add the following words: 'and provided further that such physician, dentist or veterinary surgeon shall keep or cause to be kept a list of names and addresses of all persons to whom the aforesaid drugs were so administered, and the date thereof, and shall preserve such names and addresses for a period of two years from the dates thereof in such a way as to be readily accessible to inspection by the officers, agents, employees and officials hereinbefore mentioned.'"

PRESENT STATUS OF THE BILL

The bill has been reported by the Finance Committee of the Senate; it is now on the Senate calendar and may be called up

at any time. Any amendments to the bill, including that offered by Senator Nelson, will not be referred to the Finance Committee but will be either adopted or rejected on the floor of the Senate. The bill has already passed the House, so that if it passes the Senate in a form in any way different from that in which it passed the House, it will have to go to a conference committee in order to eliminate the points of difference.

Without doubt, Senator Nelson, who introduced the proposed amendment, did so without any purpose of restricting the physician in his practice or of placing any unnecessary or burdensome regulations on the medical profession. The object of the amendment, in Senator Nelson's mind, is obvious. It is intended to require a record of all habit-forming drugs dispensed by physicians, in order that all opium, morphin or cocain preparations can be checked and their final disposition traced. While it would undoubtedly be burdensome and require a considerable amount of unnecessary work for the practicing physician to keep a record of all persons to whom he administered any drugs containing opium, morphin or cocain, this would hardly be a valid objection to the provision, provided it could be shown that a commensurate advantage accrued to the public in the form of protection of life and health and the prevention of the formation of drug habits. Aside from annoyance and added work, the medical profession, as such, has nothing to lose by the adoption of such an amendment. Its adoption, however, would seriously affect the public health and endanger the well-being of the individual patient, in that it would tend to prevent a physician from dispensing or distributing to his patients any of the drugs named. Any interference with the liberty of the physician to prescribe or administer such drug preparations as the patient may need can only have one of two effects: Either the patient will fail to receive such drugs as his condition may require at the hands of the physician, or the patient will secure such drugs in other forms, independent of the physician, and will take them on his own responsibility. If the physician is allowed only to "administer" these preparations in person rather than to dispense or prescribe them, then it can only mean that the physician will have to call more frequently on the patient in order to comply with the law, and that the expense for professional attendance will thereby be increased. If, on the other hand, the physician is not permitted to dispense or distribute to his patients those drugs enumerated in the bill, then the public will soon learn this fact and families will provide themselves with such preparations for use on their own responsibility. In either case the principal object of the bill, namely, the reduction and restriction of the illicit and improper use of habit-forming drugs, will not be in any way advanced.

BILL A LEGAL SUBTERFUGE

The Harrison bill as it passed the House was the result of long consideration and discussion. It is an effort on the part of the federal government to control, through its tax-levying power, traffic in a product, the use of which the government is seeking to restrict for moral and social reasons. The plan followed in this particular is somewhat similar to that in the case of the Esch phosphorus bill, which became a law last year, in which the use of white phosphorus for the manufacture of matches was practically prohibited by levying a tax which was so high as to be equivalent to prohibition. The federal government has no jurisdiction over the sale of either phosphorus matches or habit-forming drugs inside state boundaries. It can, however, under the guise of a tax-levying measure, prescribe the conditions under which such products shall circulate in interstate commerce. The regulation of industries or the correction of an evil by state legislation is notoriously slow and lacking in effectiveness on account of lack of uniformity in the state laws enacted. Federal legislation for the correction of an obvious evil is much preferable if it can be legally accomplished. The Harrison bill, however, like the Esch phosphorus law, is legally a subterfuge and as such presents marked difficulties in the formulation of effective provisions.

1. Detailed accounts of these bills appeared in *THE JOURNAL*, Jan. 25, 1913, p. 310, Aug. 2, 1913, p. 360, and Jan. 24, 1914, p. 316.

PHYSICIAN IN FAVOR OF DRUG RESTRICTION

The medical profession, both as individuals and as a body, strongly favors national legislation for the correction of the improper sale and use of habit-forming drugs. No one knows better than the conscientious physician the harm done to the individual and the community by the use of opium and cocaine. Every reputable and honorable physician will heartily endorse and enthusiastically cooperate in the enforcement of any law which will prevent the improper use of these drugs, of enormous benefit to suffering humanity when properly administered by scientifically educated men, but of terrible destructiveness when used without justification or proper supervision. No class of men will so heartily cooperate in enforcing such a law as will the reputable physicians of the country; none is so vitally necessary for its successful administration. To place an unnecessary and ineffective burden of administrative detail on the very class through whose cooperation the enforcement of the measure must come, is not only unwise but seriously impairs the successful accomplishment of the purposes of the bill. It is difficult to see how such a provision as that contained in Senator Nelson's amendment could be enforced.

KILLING A BILL BY IMPOSSIBLE AMENDMENTS

It has often occurred that the opponents of legislation when unable to defeat a measure by open attack have killed the bill by amendments seemingly good but designed to arouse antagonism against the whole measure or to make the law ineffective by introducing an unenforceable provision. There is no question that the opposition to this bill, as in many other instances of reformatory legislation, is vitally interested in preventing the restriction of the sale and use of habit-forming drugs largely on account of the large revenues derived from their illegitimate use. These interests would like something on which to base the statement that the medical profession is opposed to the regulation of the sale and use of habit-forming drugs. If professional opposition could be aroused by the introduction of some unnecessary and hampering restriction on physicians, whether or not the restriction was important to the success of the bill, the chances of defeating the bill would be greatly increased. Such tactics have been successfully used in other campaigns.

We feel sure that Senator Nelson had no such object in introducing this amendment. That it would work out practically in this way seems clear. Requiring practicing physicians to keep a separate record would only be burdensome to physicians and would in no way increase the effectiveness of the law. As the plain object and methods provided for in the bill as it passed the House are seriously impaired and confused by the Senate amendment, it is earnestly to be hoped that this amendment will not be pushed to adoption in the Senate, but that the bill, which in various forms has been repeatedly before Congress for the last five or six years, may become a law practically as it passed the House. Even in this form there will probably be difficulties in interpreting and administering it. Probably further amendments and modifications will be necessary, but as the bill passed the House, it represents the best form in which legislation on this difficult and perplexing subject has yet been framed.

Let it be clearly understood that the medical profession, the American Medical Association and THE JOURNAL of the American Medical Association are in hearty sympathy with the general object of the Harrison bill, namely, the restriction of the sale and use of habit-forming drugs to the minimum required for the proper treatment of human ailments. It is in the hope that this object may be most successfully accomplished and that the law as enacted may be one that is practicable and capable of enforcement, that THE JOURNAL expresses the hope that the amendment introduced by Senator Nelson may not be made a part of the finally enacted law.

Study of Medical History.—"How true it is that in reading this history one finds modern discoveries that are anything but discoveries, unless one supposes that they have been made twice."—Dujardin: *Histoire de la Chirurgie*, Paris, 1774.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bk. Bldg., Pine Bluff. Homeopathic: Little Rock, May 12. Sec., Dr. I. J. Brooks, 219 East 10th St., Little Rock. Eclectic: Little Rock, May 12. Sec., Dr. C. E. Laws, Ft. Smith.
CANADA: Alberta, April 24. Dr. Cecil E. Race, Registrar of the University of Alberta, Edmonton.
ILLINOIS: Coliseum Annex, Chicago, May 12-14. Sec., Mr. Amos Sawyer, Springfield.
LOUISIANA: New Orleans, May 4. Homeopathic Board, Sec., Dr. Edward Harper, 702 Machecha Bldg., New Orleans.
MASSACHUSETTS: Boston, May 12-14. Sec., Dr. Walter P. Bowers, Room 159, State House, Boston.
NEBRASKA: Lincoln, May 27. Sec., Dr. H. B. Cummins, Seward.
NEVADA: Carson City, May 4. Sec., Dr. Simeon L. Lee, Carson.
NEW YORK: May 19-22. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.
TENNESSEE: Memphis, Nashville and Knoxville, first week in May. Sec., Dr. A. B. DeLoach, Memphis.
WEST VIRGINIA: Charleston, April 21. Sec., Dr. S. L. Jepson, 81-12th St., Wheeling.

Virginia Board Elects Officers

At a meeting of the Virginia State Board of Medical Examiners held recently, the following officers were elected: president, Dr. R. S. Martin, Stuart; vice-president, Dr. J. E. Warriner, Richmond, R. F. D. No. 4; secretary-treasurer, Dr. J. N. Barney, Fredericksburg. The former secretary, Dr. Herbert Old, could not accept reelection since he expects to reside out of the state.

Connecticut Homeopathic Report

Dr. Edwin C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports the special written examination held at Norwich, Jan. 4, 1914. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. One candidate, a graduate of the New York Homeopathic Medical College and Hospital in the year 1913, was examined and passed with a grade of 83. One candidate, a graduate of the New York Homeopathic Medical College and Hospital in the year 1902, was granted a license through reciprocity with New York.

Indiana January Report

Dr. W. T. Gott, secretary of the Indiana Board of Medical Registration and Examination, reports the written examination held at Indianapolis, Jan. 12-14, 1914. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 12, including 2 osteopaths, of whom 11 passed, including 2 osteopaths, and 1 failed. Twenty-three candidates were licensed through reciprocity. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|--|--------|------------|-----------|
| Bennett Medical College | | (1913) | 89.8 |
| Chicago College of Med. and Surg. | | (1913) | 87, 90.2 |
| Northwestern University Medical School | | (1912) | 84 |
| University of Illinois | | (1913) | 83.5 |
| University of Louisville | | (1913) | 76.1 |
| St. Louis University | | (1913) | 85.7 |
| Miami Medical College | | (1902) | 84 |
| University of Athens, Greece | | (1904) | 84.3 |

FAILED

| | | |
|---|--------|------|
| Hahnemann Med. College and Hosp. of Chicago | (1913) | 71.1 |
|---|--------|------|

LICENSED THROUGH RECIPROCITY

| College | Year Grad. | Reciprocity with |
|--|------------|------------------|
| Medical College of Georgia | (1911) | Georgia |
| Bennett Medical College | (1912) | Michigan |
| Chicago College of Medicine and Surgery | (1911) | Illinois |
| Chicago College of Physicians and Surgeons | (1911) | Illinois |
| Jenner Medical College | (1906, 2) | Illinois |
| Hahnemann Med. Coll. and Hospital of Chicago | (1911) | Tennessee |
| Northwestern University Medical School | (1903) | Illinois; (1910) |
| Illinois; (1911) | Illinois. | |
| Rush Medical College | (1910) | Missouri; (1911) |
| Kansas Medical College | (1905) | Kansas |
| Hospital College of Medicine, Louisville | (1906) | Kentucky |
| University of Louisville | (1911) | Kentucky |
| Johns Hopkins University | (1910) | Maryland |

| | | |
|--|--------|----------|
| University of Maryland | (1909) | Maryland |
| Saginaw Valley Medical College..... | (1899) | Michigan |
| University of Michigan, Dept. of Med. and Surg. | (1913) | Michigan |
| St. Louis University | (1912) | Missouri |
| Cornell University | (1906) | Ohio |
| Medical College of Ohio..... | (1898) | Kentucky |
| Western Reserve University | (1898) | Illinois |

Iowa January Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Jan. 6-8, 1914. The number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 14, of whom 13 passed and 1 failed. Three candidates were licensed through reciprocity. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|--|-------------|------------|-----------|
| Bennett Medical College | (1906) | | 78.1 |
| Chicago College of Med. and Surg. | (1911) 77; | (1913) | 88.6 |
| Northwestern University | (1912) | | 87.7 |
| Rush Med. College (1898) 93.7; (1912) 86.5, 93; | (1913) | | 87 |
| University of Illinois | (1912) 86.2 | (1913) | 92.2 |
| Keokuk Med. Coll., Coll. of Phys. and Surgs..... | (1906) | | 77.9 |
| St. Louis College of Physicians and Surgeons ... | (1910) | | 78.2 |
| University of Innsbruck, Tyrol, Austria..... | (1910) | | 80.2 |

| College | FAILED | Year Grad. | Per Cent. |
|---|--------|------------|-----------|
| St. Louis College of Physicians and Surgeons | (1906) | | 70 |

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|--|------------------------------|------------|------------------|
| Indiana Medical College..... | (1906) | | Indiana |
| John A. Creighton Medical College..... | (1911) | | Nebraska |
| Lincoln Medical College | (1908) | | Nebraska |

Missouri Reciprocity Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports that 16 candidates were licensed through reciprocity from Jan. 1 to Feb. 27, 1914. The following colleges were represented:

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|------------------------------|------------|------------------|
| Howard University | (1912) | | Kansas |
| National Medical University, Chicago..... | (1896) | | Illinois |
| Medical College of Indiana..... | (1905) | | Indiana |
| University of Kansas | (1907) (1910) (1912) | | Kansas |
| Hospital College of Medicine, Louisville..... | (1898) | | Kentucky |
| Kentucky School of Medicine.... | (1890) Kansas (1900) | | Kentucky |
| University of Louisville | (1910) (1912) | | Kentucky |
| Boston University | (1910) | | Illinois |
| Johns Hopkins University | (1910) (1911) | | Maryland |
| Lincoln Medical College..... | (1907) | | Nebraska |
| Jefferson Medical College..... | (1910) | | Penna. |

New Mexico January Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports the written examination held at Santa Fe, Jan. 12, 1914. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 4, of whom 2 passed and 2 failed. Ten candidates were licensed on credentials and 3 were licensed through reciprocity. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|------------------------------------|--------|------------|-----------|
| University of Nashville | (1903) | | 81 |
| Fort Worth School of Medicine..... | (1910) | | 92 |

| College | FAILED | Year Grad. | Per Cent. |
|-------------------------------|--------|------------|-----------|
| American Medical College..... | (1913) | | 70.6 |
| University of Tennessee | (1913) | | 73.6 |

| College | LICENSED ON CREDENTIALS | Year Grad. | Reciprocity with |
|---|-------------------------|------------|------------------|
| Denver and Gross College of Medicine..... | (1905) | | (1906) |
| College of Physicians and Surgeons, Chicago | (1905) | | |
| University of Louisville | (1907) | | |
| Harvard Medical School | (1870) | | |
| Columbia Univ., Coll. of Phys. and Surgs., N. Y. | (1903) | | (1911) |
| New York Homeo. Med. Coll. and Hosp..... | (1913) | | |
| Medico-Chirurgical Coll. of Philadelphia | (1899) | | |
| National School of Medicine, Mexico..... | (1885) | | |

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|--|------------------------------|------------|------------------|
| Eclectic Medical College, Cincinnati..... | (1905) | | Oklahoma |
| University Medical College, Kansas City..... | (1908) | | Oklahoma |
| Eclectic Medical College, Kansas City..... | (1900) | | Oklahoma |

Book Notices

SCHOOL HEALTH ADMINISTRATION. By Louis W. Rapeer, M.A., Ph.D., New York Training School for Teachers. Cloth. Price, \$2.15. Pp. 360. New York: Teachers College, Columbia University, 1913.

MEDICAL AND SANITARY INSPECTION OF SCHOOLS. For the Health Officer, the Physician, the Nurse and the Teacher. By S. W. Newmayer, A.B., M.D., in Charge of the Division of Child Hygiene, Bureau of Health; Philadelphia. Cloth. Price, \$2.50 net. Pp. 318, with 85 illustrations. Philadelphia: Lea & Febiger, 1913.

These two books should be in the hands of every public health officer and medical school inspector. One may not agree with all the conclusions of the authors, but they are a distinct contribution to the literature of medical school inspection, both on account of the information contained and the personal views advanced. Rapeer's book is naturally stronger on the educational side since he approaches the problem from the point of view of a teacher rather than from that of a physician. His purpose is to present to the reader what American cities are doing for national health and vitality through the public schools, and how this work may be made more efficient. To the writer's extensive personal experience is added a study of data collected by the Child Hygiene Department of the Russell Sage Foundation, embracing over one thousand graded school systems. The first part of the book discusses the national and school health problem, considering the public school health situation as a part of the general national problem of public health and the prevention of avoidable diseases. The second part takes up the specific question of how educational hygiene is being promoted in twenty-five of our cities, discussing the question under the heads of "Administration"; "Nature and Efficiency of the Work Done"; "Ailments from Which Public Schoolchildren Suffer"; "Special Phases of Medical Inspection in Different Cities," and "Physical Education for the Improvement of the Physical Condition of Schoolchildren." The third and last part of the book is given to an outline of an ideal plan of administration, which can be used as a model, containing as it does the best methods which have been developed in different cities.

Dr. Newmayer naturally discusses the subject from the point of view of the inspector and physician rather than from that of the superintendent and educator, considering the subject under the heads of "Administration," "Building and Grounds," "Infectious, Contagious and Communicable Diseases" and "Physical Defects." The author endeavors to prepare a guide for physicians, nurses and teachers which can be followed in the physical examination of schoolchildren. Dr. Newmayer's book will appeal more to the medical inspector, while Rapeer's will be more appreciated by the superintendent or public school member. Both of these volumes, however, can be read with profit by all those interested in the subject. A considerable table of references to recent authorities is to be found in each.

WORKMEN'S COMPENSATION. Report on Operation of State Laws. Investigation by Commission of the American Federation of Labor and the National Civic Federation. Commission's Findings. Views of Employers and Workmen, Digest of Laws, Rules of State Boards of Award. Paper. Senate Document No. 419, 63d Congress, 2d Session. Washington: Government Printing Office, 1914.

The Commission of the American Federation of Labor and the National Civic Federation on the workmen's compensation laws have reported as a senate document on the various states which have enacted such legislation. It was the purpose of the commission to ascertain the facts with regard to the operation of the workmen's compensation laws rather than to report on theories or to make recommendations. The lack of complete statistics regarding the working of the laws in all of the states has prevented the most accurate conclusions, but it is believed the study will prove valuable to all of the states which have not yet enacted such laws, and also to those having such laws as affording a basis for further amendment. The commission found that more than five million workmen are now operating under the compensation laws in the various states and several million more will soon come under the provisions of the statutes already enacted but not yet in force. One of the features which has interfered with the

Miscellany

The Migratory Habit of the Larvae of House-Flies

In Bulletin 14 of the Department of Agriculture, Bureau of Entomology, Robert H. Hutchinson records some interesting observations on the habits of the larvae of the house-fly which may serve as a basis for fly elimination. Levy and Tuck announced as a biologic fact that the house-fly does not pupate in manure if the full-grown larvae can find any means of reaching and entering the earth; but Hutchinson, in an examination of the ground after the removal of heaps of manure, found only a small percentage of larvae beneath the surface, though the nature of the ground would not have prevented such migration, if that were the larval habit. In accordance with a number of other observers, he finds that the larvae manifest a migratory tendency just before pupation, no doubt initiated in response to internal stimuli incident to the maturing of the larval stage and preparatory to the pupal stage. The course and direction of the migration are determined largely by external stimuli. The larvae seem to flee from the moister regions of the manure heap to the comparatively dry regions at its edges which still are protected from the light. If no such dry places are to be found in the manure they will pupate in the ground or in cracks and crevices, under boards or stones, etc. The teleologic explanation of this is that it is an adaptation to afford an easy path to freedom for the adult fly, while allowing for the quickest possible expansion and drying of the wings. Levy and Tuck caught the larvae by taking advantage of this habit; they constructed a maggot-trap by boring holes in or placing wire screen over the bottom of a barrel containing fly-infested manure, through which the larvae, endeavoring to escape, were caught in a tub placed beneath the barrel. Hutchinson modified this experiment by placing water in the pan or tub in which the larvae dropped from the manure receptacle above, and covered the whole apparatus with a fly-proof screen having fly-traps in the top to catch any of the insects that might mature and emerge in that direction. The screen also prevented reinfestation of the manure, which was thoroughly sprinkled with water each day. By this means about 98 per cent. of the larvae were caught and destroyed in the pan containing the water. In another experiment about 99 per cent. of the larvae were destroyed before they reached the pupal stage. These percentages seem to demonstrate the habitual nature of the migration and the feasibility and efficiency of the maggot-trap in preventing fly propagation in manure. It has been found by Hutchinson that a given lot of manure under favorable conditions will rarely contain larvae after ten or twelve days.

Clinical Diagnoses and Necropsy Findings in Bellevue

Part III of the Report of the Committee on Inquiry into the Departments of Health, Charities, and Bellevue and Allied Hospitals of New York contains some interesting comparisons of the clinical diagnoses and the necropsy findings in the cases of patients dying in the hospital. The comparison was made from the records by Dr. Horst Oertel, formerly chief pathologist of the Russell Sage Pathological Institute, in 388 cases in which post-mortems were held. In 87 of these, or 22.4 per cent., the clinical diagnoses were confirmed; in 116, or 29.9 per cent., the diagnoses were correct but the necropsies disclosed additional important lesions; in 54, or 13.9 per cent., the clinical diagnoses were partially correct but the necropsies revealed other important lesions; in 107, or 27.6 per cent., the clinical diagnoses were not confirmed, in 24, or 6.2 per cent., no clinical diagnoses were recorded in the death records. The clinical diagnoses were therefore confirmed in 52.3 per cent. of the cases and not confirmed in 47.7 per cent. The conclusions drawn by those responsible for the report are "not that the findings of the attending physicians at Bellevue are carelessly made and recorded, but rather that too great reliance is placed on inexperienced house physicians and interns, and also that the current knowledge necessary to make clinical diagnoses which shall approach accuracy is insufficient."

highest possible benefit of these compensation laws has been the lack of adequate appropriations for their enforcement. The commission says, that in those states that have had experience under the law, general satisfaction is given both to employer and employee, and the opinion is generally expressed by those interviewed, that the principle of compensation will soon be the ruling doctrine throughout the country. The laws have improved the relations existing between employer and employee and have had a marked effect on accident prevention by calling attention to the subject and exciting an interest in it. It is said that the difficulties feared by some employers and some workmen that the laws would lead to fraud, deception and maligning on the part of employees and discrimination by employers against certain classes of workmen, have not materialized, but that the laws are easy of administration and fair in their operation.

This report is highly interesting as concerning a radical departure in legislation having to do with the relation of employer and employee. Probably the most salutary influence of such legislation has been the actual saving of life and limb in industrial work through the better safeguards thrown around the workers and the greater care on the part of the workmen themselves, which has been stimulated by the requirements of these laws.

ARBEITEN AUS DEM PHARMAZEUTISCHEN INSTITUT DER UNIVERSITÄT BERLIN. Herausgegeben von Professor Dr. H. Thoms, Direktor des Pharmazeutischen Institutes der Universität Berlin. Tenth Edition. Cloth. Price, 8.50 marks. Pp. 220. Berlin: Urban and Schwarzenberg, 1913.

This volume is the annual report of the pharmaceutical department of the University of Berlin, in charge of Prof. Dr. Thoms, corresponding member of the Association's Council on Pharmacy and Chemistry. The activities of the institute comprise the instruction of pharmaceutical students as well as general lectures including, for instance, one given to justices and state attorneys dealing with milk and milk products. The institute also has a botanic garden in which it is reported the growing of Japanese peppermint was carried out with considerable success, though now the cultivation has been transferred to Germany's African colonies, the institute still controlling the experiments and studying the production of menthol and the yield. In the main, the report is devoted to an account of the scientific work done at the Pharmaceutical Institute, much of which has appeared in current publications during the year. The published work represents a large number of valuable pharmaceutical and chemical investigations, including the examination of a considerable number of proprietary medicines both of the synthetic and of the patent medicine order. As illustrative of the institute's broader scope there appears a detailed account of work in connection with the recent conduct of the Scharmach wood alcohol poisoning prosecution in Berlin. From this it appears that the prosecution depended on the institute for the scientific evidence required in this case.

The report is a credit to the Pharmaceutical Institute of the University of Berlin and to its director, Thoms. It should serve as a suggestion to American universities for the upbuilding of their pharmacy departments.

LONDON PUBLIC HEALTH ADMINISTRATION. A Summary Showing Principal Authorities, with Their Origin, Services and Powers. W. McC. Wanklyn, B.A., M.R.C.S., L.R.C.P., Fellow of the Royal Society of Medicine. Cloth. Price, \$0.90 net. Pp. 59. New York: McGraw-Hill, Green & Co., 1913.

This is a little pocket-manual presenting in tabulated form the principal authorities concerned in the administration of public health in the city of London, with an account of their origin, services and powers. It is intended to present a synopsis of London public health administration in as conveniently condensed and simple a form as possible for foreign visitors. It contains a list of the principal London public health authorities with an account of their origin, a list of various public health services and a table of the most important public health statistics arranged chronologically. A convenient little addition is the fifteen or twenty blank pages in the back of the book for notes.

By this is meant that "medical knowledge is not sufficiently advanced to enable physicians to diagnose with great degree of accuracy."

In this connection attention is called in the report to the comparatively small number of necropsies held in Bellevue Hospital. The ruling of the commissioner of charities that under the law all unclaimed bodies must be turned over to the medical colleges for anatomic instruction is largely responsible for this. Under this ruling the number of necropsies held on unclaimed bodies diminished from 263 in 1907 to 102 in 1911, and in 1912 only 12 necropsies were held with such material. Of the necropsies held on bodies by consent of relatives or friends, the number increased from 143 in 1907 to 423 in 1912. This means that necropsies were held on about 10 per cent. of those dying in the hospital, while in the University College Hospital in London, necropsies are performed on 84 per cent., and in the Allgemeines Krankenhaus, Vienna, they amount to 99.9 per cent., and in most of the German hospitals to at least 90 per cent. In the Boston City Hospital they amount to about 9 per cent.; in the Philadelphia General Hospital to 10 per cent. In Johns Hopkins Hospital and some others the percentage is higher, amounting in the hospital named to 62.8 per cent. of the deaths. The committee expresses the opinion that the greater effectiveness of European teaching is largely due to the more adequate post-mortem study.

Antituberculosis Work in Pennsylvania

Pennsylvania is one of the foremost states in caring for its consumptives. In addition to three large and well-equipped sanatoriums there are 114 dispensaries located in towns and cities in the state. The sanatoriums are located at Mont Alto, opened in 1907; Cresson, opened in January, 1913, and one at Hamburg in course of construction. At Mont Alto since 1907 about eleven thousand patients have been treated. Of the 9,925 persons discharged, 329 have been apparently cured, and 2,066 have had the disease arrested. These two classes comprise about 28 per cent. of the total admissions. Nearly 40 per cent., 3,896, have left the institution with their condition improved. At Cresson since the opening of the sanatorium over 1,000 persons have been treated. Every county in the state has at least one dispensary where any person applying who properly fills out the blanks may receive attention. The staff of each dispensary consists of a physician in charge and a nurse, with additional nurses and physicians as required. One of the duties of the nurse is to visit the homes in which there are patients with tuberculosis, and during 1913, 137,858 of such visits were made in the entire state. In a circular letter addressed to physicians, the State Board of Health urges the use of the dispensaries and sanatoriums by tuberculous patients. The state also maintains a laboratory in Philadelphia where specimens of sputum, as well as of the secretions and excretions in other diseases than tuberculosis, may be sent for examination. A booklet describes the laboratory and its work and gives directions for preparing specimens for submission to the laboratory. In addition, in the propaganda against tuberculosis a circular has been prepared for general distribution, giving advice and instruction as to the manner of life and care to be taken by tuberculous persons in order to obtain a cure and to prevent the spread of the disease among the well. A list of the tuberculosis dispensaries is also supplied.

First Aid to the Injured

A lecture on this subject, delivered by W. L. Brown, division surgeon of the El Paso and Southwestern Railway System, to the employees and approved by F. E. Shine, chief surgeon, has been printed in a pamphlet form for circulation as one of the publications of the safety bureau of the road. It contains in simple language directions as to what fellow employees should do in case one of their number is injured. It is first emphasized that some one should immediately take charge and issue directions as to what should be done before the arrival of the surgeon or before removal of the patient to a hospital or elsewhere. Methods of stopping hemorrhage

are explained and illustrated, and emphasis is laid on the fact that this must be done in such manner as not to cause gangrene. Warning is given that the wounded person should be kept lying flat and stimulants other than coffee should not be given. Open wounds are not to be touched with the hands and are to remain dry. Directions are given for devising splints and supports from materials at hand in case of fractures and mangling, the improvising of stretchers, etc. Suggestions are given for first aid in burns and eye injuries, and the equipment of an emergency box of small dimensions to be kept at hand in all departments of railroad work. The recommendations and instructions in the pamphlet are extremely practical and would serve almost equally among any class of workmen other than railroad employees.

Open-Air Treatment of the Insane

The *Institution Quarterly*, a publication of the Public Charity Services of Illinois, for the last quarter of 1913, contains a tabulated statement of the results of an experiment in the Elgin State Hospital in the open-air treatment of the anemic and tuberculous insane. The hospital has a frame, one-story sanatorium building with an open south front. The cottage, which has a capacity of about forty patients, is built and arranged according to the latest ideas for sanatoriums. May 1, 1913, a number of the inmates, men and women, were transferred to this building. Their weights were taken on admission. September 30, nineteen of the women and seven of the men were still present and their weights were recorded. The smallest gain was found to be 4 pounds and the greatest 51½ pounds, the average gain in weight being about 20 pounds.

No difficulty was experienced in maintaining supervision over these persons, and there was little or no attempt at escape. This sanatorium was erected at a cost of \$500 per bed and is found to be the most comfortable, the easiest maintained and supervised, as well as the best-ventilated and heated ward in any institution in Illinois, and the patients have shown marked improvement, physically and mentally.

Casein Obtained by Electrolysis

In *Daily Consular Reports*, summarized by the *Scientific American*, Consul W. H. Hunt, stationed at St. Etienne, France, reports on recent developments in the production and industrial uses of casein. Casein, which is the principal albuminoid matter of milk, is now obtained by electrolysis, according to the following recently invented process: In the middle of a large vat full of skimmed milk heated to a temperature of 80 C. (176 F.), a porous vessel is placed containing a 5 per cent. solution of sodium hydroxid; an iron cathode is plunged into the soda, and a rod of carbon, serving as an anode, into the milk. An electric current sets free the phosphoric acid contained in the milk, and the casein precipitates. As compared with the method of obtaining casein by the use of acids or rennet, the cost of this process is very low, the yield is greater, and the casein produced contains no foreign ingredients. Vegetable casein, now produced on an extensive scale from the soya bean, can be put to the same uses as animal casein. The principal use of casein is in the manufacture of galalith (milk stone), used as a substitute for ivory, tortoise-shell, celluloid, etc. Penholders, frames, purses, phonograph disks, and a great variety of other articles are now made of galalith. It is also used as a chemical fertilizer. Several other casein products have recently been introduced.

New Diluent for Cow's Milk.—Dr. W. G. Boorsman of the Pharmacological Laboratory, Java, reports on the use for the dilution of cow's milk in infant-feeding of an emulsion of seeds of the *Canarium commune* L., a tree which is common in the tropical parts of Asia and bears the Malay name of *Kanari*. The tree is cultivated in some places. The seeds are triangular in shape and resemble the almond. They must be used when ripe or nearly ripe. This emulsion prevents the coagulation of casein in large lumps. The dried seeds contain about 75 per cent. oil and 14.5 per cent. albuminous matter, besides some soluble carbohydrate, etc.—*Indian Med. Gaz.*

Medicolegal

Construction of Workmen's Compensation Act with Reference to the Furnishing of Medical and Surgical Treatment

(*City of Milwaukee vs. Miller* (Wis.), 144 N. W. R. 188)

The Supreme Court of Wisconsin holds that the legislative requirement in the workmen's compensation act of that state that the employer shall bear the burden of reasonably necessary medical and surgical treatment of his injured employee was not intended as a charity to the one, or as a penalty to the other, but as a recognition of the economic truth that such expense is a legitimate element in the cost of production and should be placed on the product as directly as practicable, using the employer as a necessary first step in that regard.

The amount allowed for reasonable expenses of medical and surgical treatment should be the fair value of the service as such—neither more nor less because of the employer being liable therefor. The burden of proof to establish the reasonableness of such charges is on the employee, and, in case the proof is insufficient, the claim should be proportionately reduced. The reasonableness of an employee's claim being disputed by credible evidence and not supported by other than opinion evidence of the person most interested, the court should apply ordinary common sense and experience to the matter and fix the amount at such sum as appears reasonable; and, where the claim is obviously exorbitant, should not allow it as a whole, however strongly supported it may be by evidence from the mouth of the interested party.

The right of the employer under the workmen's compensation act to furnish reasonably necessary medical and surgical treatment and his liability to the employee for reasonable expense incurred by him, in case the employer unreasonably neglects or refuses to make the proper provision, by necessary implication means that the employer must have reasonable opportunity to furnish the services if the employee is to be entitled to obtain such treatment at the expense of the employer. It also means that the employer must have a reasonable time to provide such services after notice of the need therefor; but an injured employee may obtain medical and surgical treatment at the expense of his employer in the interim between the happening of the injury and the time for notice to the employer of the employee's needs.

Case in Which Father Not Liable for Medical Services Rendered to Son

(*Sassaman vs. Wells* (Mich.), 144 N. W. R. 478)

The Supreme Court of Michigan reverses, without granting a new trial, a judgment recovered by the plaintiff for medical services rendered to the defendant's son, 19 years of age, while the latter was attending school a few miles away from home, in the same county. The court says that two questions were submitted to the jury: (1) Was the defendant's son emancipated when the debt was contracted? (2) Did the plaintiff charge the account to the son or to his father? These the jury answered in the plaintiff's favor. For a time, his father paid the son wages and settled with him when he determined, contrary to his father's wishes, to go away to school. While he was away, his father contributed nothing to his support, and did not know of his son's illness or that the plaintiff was attending him. The son's ailment was a private one, which he would naturally desire to keep from his father. The value of the services was not questioned. The court is of the opinion that, without considering whether the son had been emancipated, or whether the plaintiff intended to hold the defendant responsible, the liability of the defendant was not established, and the jury should have been so instructed. It is manifest that the son had no express nor implied authority to pledge his father's credit. The plaintiff made no express contract with the son, nor were the services rendered under circumstances in which, generally, a promise to pay would be implied. If the defendant was liable, it was because of some general

moral or legal duty to provide necessities for his son, failing in which a stranger might supply them at the parent's expense. There was some evidence of the real need for medical services; none of a failure of duty on the part of the father. Nor was there any exigency, such as the imminent peril of the son and his distance from home, to take the case out of the rule that parental duty must be neglected before a stranger may supply what the parent ought to supply, at the expense of the parent. The court takes notice that over the few miles lying between the place of the father's residence and where the son was, information could have been speedily conveyed to the father.

Lack of Skill or Bad Judgment of Surgeons No Defense to Crime

(*State vs. Gabriella* (Ia.), 144 N. W. R. 9)

The Supreme Court of Iowa affirms a conviction of manslaughter although it was contended for the defendant that the death of the man he shot resulted from a surgical operation negligently performed. The court says that immediately after the shooting the man shot was taken to a hospital where he was cared for to the time of his death. Because of his condition as the result of the wound, the hospital surgeons performed an operation on him with a view of improving his condition and saving his life. The operation, however, was not successful and the patient died within a few hours. At the trial the defendant offered testimony to show that the operation was not performed in a manner in which a reasonably prudent surgeon would perform it. But all proffered testimony along that line was rejected by the trial court. There was no claim that the man had recovered from his wound at the time of the operation, or that there was any evil intent in the performance of the operation, or that it was performed for any other purpose than in a good-faith attempt to save the life of the patient. Lack of skill or bad judgment or mere negligence in any form on the part of the surgeon will not avail the slayer to protect him against the final consequences of his wrongful act.

Death of an Alcoholic From Pneumonia After Being Stabbed—Expert Testimony

(*State vs. James* (Minn.), 144 N. W. R. 216)

The Supreme Court of Minnesota says that the defendant inflicted knife-wounds on one Miller, one of the wounds being a deep stab which penetrated the left lung. Forty-eight hours after the assault Miller developed pneumonia, and died from that disease a week later. Miller was a large, heavy man, in the prime of life. He was in good health, except for alcoholism. The pneumonia attacked the left lung, and did not affect the other. One physician gave it as his opinion that the pneumonia was caused by infection through the wounds, particularly the stab that punctured the left lung. He testified that this was not an unexpected result in wounds of this character, though not a necessary result. He based his opinion that the wound caused the pneumonia in this case, on the fact that the disease attacked and was confined to the lung that was pierced by the knife, the fact that it developed at a time after the wound when it was usual for pneumonia to manifest itself, and the fact that the patient did not have the preliminary symptoms that ordinarily accompany the beginning of pneumonia, acquired by inhaling the germs; that is, a chill and a feeling of lassitude. Another physician expressed himself as unable to give an opinion whether the germ was taken into the lungs by inhalation, or whether it was introduced into the lung by the knife of the defendant. The court holds that the evidence did not leave the cause of death a matter of speculation or conjecture, but was sufficient to justify the conclusion that the pneumonia germ was not inhaled, but entered the lungs on the knife-blade of the defendant or through the puncture in the lung made by the knife, and therefore that the defendant caused the death and was guilty of murder.

This was not a case in which the experts disagreed, but in which one gave an opinion, and the other was unable to

do so. Neither was it a case in which the jury could consider nothing but the opinions of experts in reaching its conclusion. The case concerned a matter of science or specialized art, in so far as it involved an inquiry into the causes and symptoms of pneumonia, and was a proper one for the opinions of experts as to the cause of the disease in the particular case, after the foundation of expert knowledge and acquaintance with the facts was laid. But the question was not one on which there could be no light except the expert opinions. The facts already mentioned were such as the jury could consider in reaching a decision, together with the expert evidence.

It was not claimed, and could not be, that alcoholism was a cause of the pneumonia. It was a condition which made it easy for the bacillus to do its work, but not a cause. That alcoholism made a fatal result more probable was not against the conclusion that the defendant caused the death, any more than if blood-poisoning had followed the wounds, and it was asserted that Miller's being "saturated with alcohol" made it impossible to resist the disease.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

- Alabama Medical Association, Montgomery, April 21-24.
- Am. Assn. of Genito-Urinary Surgs., Stockbridge, Mass., May 15-16.
- American Dermatological Association, Chicago, May 14-16.
- American Gynecological Society, Boston, May 19-21.
- American Laryngological Association, Atlantic City, May 25-27.
- American Medico-Psychological Association, Baltimore, May 26-29.
- American Neurological Association, Albany, May 7-9.
- American Ophthalmological Society, Hot Springs, Va., May 12-13.
- American Otological Association, Atlantic City, May 27-28.
- American Pediatric Society, New London, Conn., May 26.
- American Society of Tropical Medicine, Boston, May 29-30.
- American Therapeutic Society, Albany, May 29-30.
- Arizona Medical Association, Tucson, April 21-22.
- Arkansas Medical Society, Eldorado, May 19-22.
- Association of American Physicians, Atlantic City, May 12-13.
- Connecticut State Medical Society, New Haven, May 20.
- Florida Medical Association, Orlando, May 13-15.
- Illinois State Medical Society, Decatur, May 19-21.
- Iowa State Medical Society, Sioux City, May 13-15.
- Kansas Medical Society, Wichita, May 6-7.
- Louisiana State Medical Society, New Orleans, April 20-23.
- Maryland Medical and Chir. Faculty, Baltimore, April 28-30.
- Missouri State Medical Association, Joplin, May 12-14.
- Nat. Assn. for Study and Prev. of Tuberculosis, Washington, May 7-9.
- National Association for the Study of Epilepsy, Baltimore, May 25.
- Nebraska State Medical Association, Lincoln, May 12-14.
- New Hampshire Medical Society, Concord, May 13.
- New York State Medical Society, New York, April 28-30.
- North Dakota State Medical Association, Grand Forks, May 13-14.
- Ohio State Medical Association, Columbus, May 5-7.
- Oklahoma State Medical Association, Guthrie, May 12-14.
- South Dakota State Medical Association, Watertown, May 26-28.
- Texas State Medical Association, Houston, May 12-14.
- West Virginia State Medical Association, Bluefield, May 13-15.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

April, VII, No. 4, pp. 253-336

- 1 *Incubation Period. No. 1—Serum Disease. D. M. Cowie, Ann Arbor, Mich.
- 2 *Tuberculosis of Lungs, Liver and Spleen, with General Glandular Enlargement in Child. J. S. Leopold, New York.
- 3 *Why Sodium Citrate Prevents Curdling of Milk by Rennin. A. W. Bosworth and L. L. Van Slyke, Geneva, N. Y.
- 4 *Gastric Digestion in Infants. M. Hahn, Washington, D. C.
- 5 Neurosis Chiefly Affecting Stomach and Muscles of Deglutition. A. A. Howell, Philadelphia.

1. Incubation Period. No. 1—Serum Disease.—The object of Cowie's first set of experiments was to determine in as many cases as possible the time at which specific oversensitiveness to horse-serum could first be demonstrated; in other

words, the time that elapses from the first injection of horse-serum until antibodies are demonstrable by the intracutaneous test.

Thirty individuals whose ages varied from 6 months to middle adult life were sensitized to horse-serum by means of prophylactic injections of diphtheria antitoxin. Of these, seventeen were children and thirteen adults. Ninety-four per cent. reacted to the cutaneous test. One of the children was found to be refractory; that is, after repeated intradermal injections sensitization could not be demonstrated up to the tenth day of the experimental period. However, specific oversensitiveness was demonstrated in this case on the forty-first day. One adult did not remain long enough for specific sensitiveness to occur. One hundred per cent. of the adults responded to the test; 94 per cent. of the children. With the exception of one, all reacting cases remained sensitive throughout the first experimental period of eight to twelve days.

In the second series of experiments observations were made to determine how long an individual remains sensitive to an inoculation of horse-serum, and the factors influencing the reaction. Cowie found that an individual may remain very markedly oversensitive (allergic) for seven years. In two other cases seventeen months and two years, respectively, had elapsed since the antitoxin was given.

The third series of experiments consisted of observations made to determine if a small dose of horse-serum is sufficient to sensitize to the point of recognition by the intradermal test, and if so for how long. Typical oversensitiveness as recognized by the intradermal test was brought about in a child by at least 1 c.mm. of horse-serum ($\frac{1}{10}$ c.c.) without the provocative influence of successive injections, and the reaction continued over a period of seven days; the reaction occurred in all cases on the fourth or fifth day, as is the rule after the longer initial injection (5 to 10 c.c.); the reaction was equally as pronounced as it is after the larger injection at the same period of observation, and sensitization by means of a minute dose of horse-serum continues for 136 days.

Cowie divides the so-called incubation period of serum disease into three distinct stages—preallergic, allergic and hyperallergic, depending on the degree of reaction of the organism as a whole, all of which can be definitely determined. The duration of the preallergic stage is uninfluenced by the smallness of the dose of serum. The visible symptoms of serum disease are due to hyperallergy. The hastened and immediate reactions depend on quantitative reaction factors. The blood serum of a normal child recently injected with horse-serum, for the first time, when injected in small amount into a highly allergic child will induce the symptoms of serum disease as recognized by an immediate or a hastened reaction.

2. Tuberculosis of Lung, Liver and Spleen.—Leopold's chief object in reporting this case is to call attention to the difficulty of classification of tuberculosis combined with atypical changes in the lymphatic system, of which it is an example. Miliary tuberculosis of the lungs, liver and spleen is here combined with general glandular changes that closely resemble those found in the condition called "pseudoleukemia." The points of chief interest in this case were the enlargement of the liver, the great enlargement of the spleen, the ascites and the anemia with leukopenia. In making a diagnosis of the patient's condition the various forms of leukemia, a new growth, lues, tuberculosis, pseudoleukemia and Banti's disease were considered. The blood-picture ruled out the various forms of leukemia. The smooth surface of the liver and of the spleen spoke against a new growth. Lues could be ruled out by the history and the course of the case as well as by the negative Wassermann reaction. The diagnosis by exclusion was therefore either tuberculosis, pseudoleukemia or Banti's disease.

In Banti's disease there is usually a much more severe anemia than was present in this case. The course of Banti's disease is as a rule of three to ten years' duration. There are frequently hemorrhages from the stomach and intestines, and during the end stages of the disease there is usually a positive test for urobilin in the urine. All of these conditions

were here absent. On the other hand, the rather acute onset, the short course of the disease, together with the remittent temperature and a positive v. Pirquet reaction pointed toward tuberculosis or pseudoleukemia. A positive diagnosis was not made.

3. Why Sodium Citrate Prevents Curdling of Milk.—Work previously done by the authors led them to test the matter by an experimental study of the action of sodium citrate on milk. They found that the addition of sodium citrate to normal milk increases the amount of soluble calcium in the milk, this increase resulting from a reaction between the calcium caseinate of the milk and sodium citrate, by which is formed sodium caseinate (or calcium-sodium-caseinate) and calcium citrate. The reaction is reversible. The curdling of milk by rennin is delayed by the presence of sodium citrate; when there is added 0.400 gm. of sodium citrate per 100 c.c. of milk (equal to 1.7 grains per ounce), no curdling takes place. The curd produced by rennin in the presence of small amounts of sodium citrate (0.050 to 0.350 gm. per 100 c.c. or 0.20 to 1.5 grains per ounce) increases in softness of consistency as the amount of sodium citrate in the milk increases.

The results of this work indicate that at the point at which rennin fails to curdle milk, in place of the calcium caseinate of normal milk there is a double salt of calcium-sodium caseinate; this double salt, when rennin is added, is changed to a calcium sodium paracaseinate which, owing to the presence of the sodium, is not curdled. The practice of adding sodium citrate to milk at the rate of 1 to 2 grains of citrate per ounce of milk appears in their judgment to have a satisfactory chemical basis in the reaction between the sodium citrate and the calcium caseinate of the milk. The amount added is governed by the object in view, viz., whether it is desired to prevent curdling or only modify the character of the curd in respect to softness.

4. Gastric Digestion in Infants.—Ninety-four specimens of stomach contents from thirty-seven infants were analyzed by Hahn. He found that the determination of the hydrogen-ion concentration is the only rational method of measuring gastric acidity in infants. The hydrogen-ion concentration, $(H) = 1 \times 10^{-5}$, is the normal reaction of the stomach contents at the height of digestion for infants fed on $\frac{1}{3}$ milk-cream and $\frac{2}{3}$ milk. $(H) = 1.0 \times 10^{-5}$ is the optimum reaction for rennet and gastric lipase; pepsin is inert at this reaction. The important processes in the gastric digestion of infants are the coagulation of milk by rennet and the splitting of fat by gastric lipase; the peptic digestion of casein is unimportant for the infant. In infants from 1 to 4 months old fed on $\frac{1}{3}$ cream-milk the lipase content increases with the age of the infant. In infants from 4 to 12 months old fed on $\frac{2}{3}$ milk the content of all gastric ferments is greater than in infants from 1 to 4 months old on $\frac{1}{3}$ cream-milk.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

March, I, No. 9, pp. 605-668

- 6 Epidemic of Paratyphoid Fever. A. N. Sinclair, Honolulu.
- 7 Growth of Filaria Embryos in Vitro. F. M. Johns and P. L. Quereas, New Orleans.
- 8 Innocuous Bites of Malaria and Yellow Fever Mosquitoes During Daytime. E. Echeverria, San Jose, Costa Rica.
- 9 Health Survey. W. H. Deaderick, Hot Springs, Ark.

Archives of Ophthalmology, New Rochelle, N. Y.

March, XLII, No. 2, pp. 117-230

- 10 Experiments on Cultivation of So-Called Trachoma Bodies. H. Noguchi and M. Cohen, New York.
- 11 Results after Trephining. A. Knapp, New York.
- 12 Angioma of Lids and Brow. H. B. Lemere, Omaha.
- 13 Lenses for Refraction of Cataract Cases. D. N. Dennis, Erie, Pa.
- 14 Operative Treatment for Squint. E. Landolt, Paris.
- 15 Endogenous Gonorrheal Corneal Affections. F. Pineus, Cologne.
- 16 Occurrence of Catlike Pupils in Man. R. Greeff, Berlin.
- 17 Progress of Ophthalmology. H. Koellner, Berlin, and others.

Bulletin of Lying-In Hospital of City of New York

January, IX, No. 3, pp. 151-247

- 18 *Treatment of Eclampsia. F. S. Newell, Boston.
- 19 Obstetric Technic for General Practitioner. J. W. Markoe, New York.

- 20 *Three Case Reports. A. B. Davis, New York.

- 21 *Treatment of Puerperal Streptococemia with Intravenous Injections of Magnesium Sulphate. J. A. Harrar, New York.

- 22 *Treatment of Placenta Praevia by Cesarean Section. R. McPherson, New York.

- 23 Maternity Hospital Care for Woman of Moderate Means. G. W. Kosmak, New York.

- 24 Two Cases of Esophagotracheal Fistula. J. R. Losee, New York.

- 25 Work Done in Babies' Class from October 1, 1912, to September 30, 1913. E. L. Coolidge, New York.

- 26 Clinical Report of Work of First Division of Lying-In Hospital for Year 1912. J. A. Harrar, New York.

18. Treatment of Eclampsia.—The principal points in the treatment of eclampsia which Newell says will lead to a satisfactory results are first, prophylaxis, the early recognition and treatment of symptoms; second, venesection, with or without delivery according to the nature of the case; and third, the securing of elimination of all possible toxins through the intestinal tract, meanwhile using morphin, or, if preferred, veratrum viride, to lessen the tendency to convulsions until elimination of the toxins is under way. The mortality from eclampsia is sure to be high if the patients are not seen and treated till the development of convulsions, no matter what method of treatment may be carried out, whether medical or surgical, but if the process is recognized early and treated efficiently most cases are amenable to medical treatment. If, however, prompt amelioration of symptoms does not occur, delivery by the method best suited to the conditions present in the individual case should be carried out and followed by efficient after-treatment.

20. Three Case Reports.—Davis cites the following cases: (1) A case of intermittent and unilateral chyluria. The patient stated that she first noticed the change in her urine at about her fifteenth year, near the time of her first menstruation; that it was not constant in its appearance, but the chylous condition would be absent for years at a time, and would reappear after any indulgence in anger or emotion. Palpation has never revealed tenderness or enlargement of the left kidney. The chyluria was absent for several years, but reappeared at the death of her mother ten years ago, and was present for several months. It was present during the entire time of her first pregnancy, and for nine months thereafter. During and after her second pregnancy, it was absent. There has been no noticeable difference in the character of the night and day urine. Sept. 13, 1913, the urine had been clear for five days, and the general health was good. She was nursing her infant. (2) Acute dilatation of the stomach, following ventral fixation of the uterus, long labor. Low forceps delivery, recovery. (3) Myomectomy at the eighth week, pregnancy not interrupted. Normal delivery at term.

21 and 22. Abstracted in THE JOURNAL, Oct. 4, 1913, pp. 1320 and 1321.

Cleveland Medical Journal

March, XIII, No. 3, pp. 141-220

- 27 *Factors in Diagnosis and Treatment of Syphilitic Aortitis. W. T. Longcope, New York.
- 28 Dentition of Apes. T. W. Todd, Cleveland.
- 29 History of Physiology of Circulation. R. G. Pearce, Cleveland.
- 30 Radium. W. T. Corlett, Cleveland.
- 31 Treatment of Abscess of Nasal Septum. W. J. Abbott, Cleveland.

27. Diagnosis and Treatment of Syphilitic Aortitis.—Longcope claims that syphilitic aortitis is a common manifestation of tertiary syphilis, in this respect approaching in frequency tabes and paresis. It is, moreover, in many instances, associated with syphilis of the central nervous system. The diagnosis in most instances is first made after the appearance of aortic insufficiency, aneurysm or angina pectoris and when such symptoms as pain, paroxysmal dyspnea and evidences of slight heart failure have already appeared. Without these signs dilatation of the aortic arch is the most reliable evidence, though cases of non-syphilitic dilatation may occur presenting exactly the same clinical picture as syphilitic aortitis. A positive Wassermann reaction is, therefore, essential for an accurate diagnosis.

Treatment with salvarsan and mercury has rarely given more than temporary relief. The reason for this seems to depend at least in part on a number of factors. Owing to the danger of Herxheimer reactions, only small doses of salvarsan can be administered safely intravenously, though Hg seems to be without harm. Prolonged treatment is, therefore, required. In the second place, once symptoms have appeared, the life of the individual is very short, from 65 to 70 per cent. of the patients living only one or two years. To overcome this factor it is necessary to make the diagnosis early and institute treatment before irreparable damage has been done. And finally, the eradication of the disease, on account of the situation of the spirochetes, peculiarly protected from the blood-stream, is especially difficult. In an attempt to break down this barrier potassium iodid in large doses may be of assistance, and must be combined with prolonged and persistent specific therapy.

Georgia Medical Association Journal, Augusta

March, III, No. 11, pp. 359-393

- 32 Diagnosis and Treatment of Duodenal and Gastric Ulcers. W. R. Houston, Augusta.
- 33 Autogenous Versus Stock Vaccines. C. W. Gould, Atlanta.
- 34 Use of Bacterial Vaccines in Treatment of Acute Chronic Infections. Report of Results. L. M. Gaines, Atlanta.
- 35 Desirability of Knowledge in Using and of Simplicity in Prescribing Drugs. R. H. Stovall, Macon.
- 36 Report of Ten Transfusions. C. C. Harrold, Macon.
- 37 Salpingitis. A. Griffin, Valdosta.

Journal of Infectious Diseases, Chicago

March, XIV, No. 2, pp. 217-401

- 38 *Pasteurization in Bottles and Process of Bottling Hot Pasteurized Milk. S. H. Ayers and W. T. Johnson, Jr., Washington, D. C.
- 39 *Ferments for Carcinomatous Protein in Blood Carcinoma. G. F. Dick, Chicago.
- 40 Phenomena Involved in Life History of Spirochaeta Suis. W. E. King and R. H. Drake, Detroit, Mich.
- 41 *Non-Cholera Vibrio Resembling True Cholera Vibrio and Pigment-Forming Vibrio. J. G. Drennan, Staten Island, N. Y.
- 42 Disinfectant Action of Certain Bacterial Stains. A. M. Jansen, Columbus, Ohio.
- 43 *Trachoma and Allied Conditions in New York School Children. A. W. Williams and Others, New York.
- 44 *Absorption of Antitoxin and Agglutinin Injected Subcutaneously. W. H. Park, L. W. Famulener and E. J. Banzhaf, New York.
- 45 Serum Sensitization and Dosage of Antitoxin. W. H. Park, L. W. Famulener and E. J. Banzhaf, New York.
- 46 *Protective Enzymes, Immune Sera and Anaphylaxis. R. M. Pearce and P. F. Williams, Philadelphia.
- 47 Immunologic Relationship of Hordein of Barley and Gliadin of Wheat. G. C. Lake, T. B. Osborne and H. G. Wells, Chicago.
- 48 *Anaphylactogen Activity of some Vegetable Proteins. H. G. Wells and T. B. Osborne, Chicago.
- 49 *Immunologic Reactions of Proteins of Human Placenta with Special Reference to Production of Therapeutic Serum for Malignant Chorion Epithelioma. G. L. Lake, Chicago.

38. **Pasteurization in Bottles.**—The authors summarize the result of their work as follows: The process of pasteurization in the bottle using a temperature of 145 F. for thirty minutes causes satisfactory bacterial reductions. Bottles should be steamed before being filled with milk for at least two minutes in order to destroy heat-resisting types of organisms which might survive the pasteurizing temperature and thereby increase the bacterial count. Care must be taken to record the temperature in the bottom of the bottle during the heating process. When milk at an initial temperature of 50 F. is heated in bottles without agitation in water at about 146 F. the temperature of the milk in the top of the bottle will reach 140 F. about nine minutes before that in the bottom. The temperature of the milk during the process of pasteurizing in the bottle should be recorded by placing a thermometer in a control bottle with the bulb of the thermometer about $\frac{1}{2}$ inch from the bottom. The milk should be heated for thirty minutes at 145 F. Care should be taken not to use bottles with chipped or otherwise imperfect tops since the seal caps may allow leaks during the process of pasteurizing. It is advisable for the users of patented seal caps to assure themselves that the caps are water-tight since leaking caps might cause dangerous infections, particularly if the cooling water is polluted.

The great advantage of the process of pasteurization in bottles over the ordinary systems in use at present lies in the fact that no recontamination can take place from the time of pasteurization until it reaches the consumer, when the caps are water-tight. There is also a saving in milk losses due to handling and evaporation over coolers which is usual in the ordinary methods of pasteurization. Considerable expense, however, is incurred owing to the necessity of water-tight caps, which is a disadvantage of the process. Whether the saving in milk losses makes up for the additional expense of seal caps can be determined only by experience. The process of bottling pasteurized milk while hot into hot, steamed bottles causes equally good bacterial reductions as pasteurization in bottles. Even with the same lengths of exposure of thirty minutes and the same temperature of 145 F. the bacterial reductions are often much greater than those produced by pasteurization in bottles. In the process of bottling hot, bottle infection is eliminated even when several cubic centimeters of old sour milk are added to bottles before filling. The two minutes steaming period to which the bottles are subjected before filling with hot milk is sufficient to destroy the contamination at least so far as bacteriologic methods can detect.

Laboratory experiments indicate that milk may be pasteurized, bottled hot, capped with ordinary cardboard caps, and cooled by a blast of cold air. It is probable that if milk is cooled from 145 to 50 F. within five hours no more bacterial increase will take place during the slow cooling than would take place if the milk were cooled immediately to 50 F. Whether or not this will be true under commercial conditions can be determined only by future experiments. As far as the authors' laboratory experiments indicate, when milk is heated to 145 F. for thirty minutes, bottling hot pasteurized milk followed by slow gradual cooling has no more appreciable effect on the cream-line or flavor of milk than does the ordinary process of pasteurization. This is true for cooling periods of less than five hours' duration. Since milk contracts on cooling, a quart bottle filled with milk at 145 F. does not hold a full quart when the milk is cooled to 50 F. It is about 0.62 of an ounce short. Therefore slightly oversized bottles should be used. The advantages of the process are: (1) that the bottle infection can be eliminated, (2) that milk losses are saved, owing to evaporation over the cooler, and (3) that ordinary cardboard caps can be used. The principal disadvantage is that the air-cooling process requires several hours. This, however, would be a disadvantage only in the few plants where milk is delivered directly after pasteurization. The process of bottling hot pasteurized milk followed by air-blast cooling appears from these laboratory experiments to be an entirely feasible modification of the "holder" system of pasteurization. This process will be the subject of a future study on a commercial scale in which the details of bottling and air-blast cooling can be worked out in a manner which will prove or disprove the practical value of this process.

39. **Ferments for Carcinomatous Protein.**—By the titration method of estimating amino acids, ferments capable of splitting protein from carcinomatous tissue were demonstrated by Dick in the blood serum of patients with carcinoma. The power of the blood serum of carcinomatous patients to split carcinomatous protein is not different from the normal with the same constancy and to the same degree when estimated by amino acid titration as indicated by the results obtained with the dialysis method of Abderhalden. Serum capable of splitting protein from carcinoma of the uterus was also capable of splitting protein from carcinoma of the breast, but not mixtures of gelatin and Witte's peptone. The complement content of the blood serum of a carcinoma patient Dick found is as a rule higher than normal. Ten cases were studied.

41. **Non-Cholera and Pigment-Forming Vibrio.**—This vibrio is reported by Drennan because chromogenic vibrios are rare, if indeed one has as yet been reported. The rectal contents from which it was isolated were obtained by rectal swab from a young male, 18 years old, who showed some signs of intes-

tinal disturbance. It is a large, motile vibrio producing a large, white moist colony on alkaline agar and turning slowly to a dark, rich brown color from the formation of a pigment. The same grown alkaline peptone culture medium shows a growth at the surface, which slowly changes to the same dark brown and gradually extends to the depths of the tube. It is an aerobe and a facultative anaerobe, liquefying gelatin slowly. It produces acid in dextrose and saccharose peptone but not in lactose. It is slowly hemolytic and on alkaline blood-agar produces a geranium odor similar to that of the growth of *Bacillus pyocyaneus*. It is monotrichous and in this respect resembles the true cholera vibrio. It produces no indol. The only points of resemblance between the true cholera vibrio and this pigment forming one are (1) the same source, human feces; (2) stain, Gram-negative; (3) both are aerobes, but the latter is also a facultative anaerobe.

43. Trachoma and Allied Conditions in New York School Children.—This study of 4,000 children showed that the written descriptions of trachoma do not agree as to a clinical or a pathologic entity. Among the children in 60 public schools in the crowded lower East Side of New York City (supposed to be a hotbed of trachoma) during the past four years no cases of conjunctival affections answering in their entirety to the classic descriptions of trachoma were found. None of the 3,000 and more cases of follicular affections in these children have developed cicatricial changes due to the infection; on the contrary the great majority of them now present normal conjunctivas. The authors attribute these results chiefly to the following measures: (a) The carrying out of preventive methods of treatment such as ophthalmia schools and school clinics, summer camps, mothers' demonstration classes, home instructions and "follow-up" work. (b) More minute care of acute, as well as of chronic cases, including the specific treatment given chiefly at clinics and the "follow-up" work in the homes. (c) Non-operative procedures in a large number of cases formerly operated.

Hemoglobinophilic bacilli were found in a large proportion of the cases of chronic conjunctivitis (especially of the papillary type) as well as in those of acute catarrhal conjunctivitis (including clinically typical "pink eye"). These bacilli, though they probably represent several different varieties, have not yet been differentiated from *Bacillus influenzae*. These bacilli were found coincidentally with trachoma inclusions in a high percentage of the cases of subacute and chronic conjunctivitis when examined from the beginning. They show morphologic and staining characteristics similar to those seen in trachoma inclusions; and transition forms between bacilli and inclusions are frequently seen in these cases. In a few cases of acute catarrhal conjunctivitis, trachoma inclusions and transition forms have been found coincidentally with hemoglobinophilic bacilli and in several other acute cases transition forms have been often found. Many of the cases of chronic papillary conjunctivitis not actually followed from the beginning gave a history of repeated acute attacks, and several cases beginning as acute contagious conjunctivitis passed into the chronic condition called papillary conjunctivitis.

Cell inclusions similar to the trachoma inclusions found in the papillary conjunctivitis cases were found in cases of gonorrheal ophthalmia neonatorum, cultures from which showed only gonococci. These inclusions differ somewhat from those found in the papillary conjunctivitis cases, and transition forms between gonococci and inclusions are seen in smears from the former cases. Members of the pneumostreptococcus group were frequently found in chronic as well as in acute cases, especially in those cases showing pannus.

The general conclusions arrived at are: (1) Trachoma inclusions are nests of growing bacteria in epithelial cells—hemoglobinophilic bacilli in certain cases of papillary conjunctivitis, gonococci in certain cases of gonorrheal conjunctivitis and possibly other bacteria in certain other cases of conjunctivitis. (2) Under minute hygienic and medicinal treatment, the great majority, if not all, of the cases of conjunctival affections of children may run a benign course resulting in normal conjunctivas. (3) Comparatively few, if any, cases

of chronic conjunctivitis develop in individuals exposed, if the rules of general and personal hygiene are carried out. (4) If trachoma is present or should be introduced among our schoolchildren it may be controlled by methods which are within practical limits.

44. Absorption of Antitoxin and Agglutinin.—The degree of protein concentration which is usually employed to produce the refined and concentrated diphtheria antitoxin globulin preparations the authors found has little or no effect in retarding the absorption of the antitoxin from the subcutaneous tissues. The removal of water, if not pushed too far, is therefore a justifiable means of lessening the quantity of fluid to be injected. Any preparation which causes local inflammatory reaction lessens the rate of antitoxin absorption.

46. Protective Enzymes, Immune Sera and Anaphylaxis.—On the basis of Abderhalden's theory of protective enzymes and by the use of his dialysis method it has been shown by Pearce and Williams that the serum of a rabbit receiving a single injection of kidney substance develops the power to digest dog's kidney *in vitro*, but has no effect on the kidney of the dog when administered intravenously. Thus it would appear that the so-called protective enzymes are not to be classed with the immune cytolytics. The digestive power of the serum which develops after the injection of kidney is not limited to the kidney but acts also on the liver. This is true after one injection or after four or five injections. There is some evidence, however, after multiple injections of a tendency to a more definite effect on the kidney than on the liver.

A few attempts to demonstrate protective enzymes in the serum of dogs receiving dog's kidney and of animals with experimental nephritis have failed. Attempts to demonstrate protective enzymes in the serum of dogs sensitized to horse serum have not been successful as those of Abderhalden with the serum of the guinea-pig sensitized to egg-white. Negative results have been the rule before shock, and positive results, difficult of explanation, after shock. Dialysis, alone, of small amounts (2 c.c.) of serum, obtained either before or five to ten minutes after "shock" in dogs sensitized to horse serum, gives no evidence of the presence of the products of protein disintegration. Large amounts (10 to 20 c.c.) taken one-half to one and one-half hours after shock give positive results after dialysis, but the interpretation of these is doubtful on account of the difficulty, under these circumstances of obtaining serum free of traces of hemoglobin.

The authors conclude that the results of the injection of renal tissue support Abderhalden's general contention concerning protective enzymes, but indicate a lack of specificity. On the other hand this work with anaphylaxis, while suggestive, is not sufficiently definite to be used in support of the theory that the essential mechanism of anaphylaxis can be explained on the theory of the development of a protective enzyme. On account of the many difficulties which the technic of this method presents—and especially because of the frequent presence of ninhydrin reacting substances in the serum of normal animals—thus rendering exact control observation difficult, these results are presented with some hesitation. Moreover, without desiring to detract in any way from the importance of the underlying principle of Abderhalden's theory of protective enzymes as exemplified by this work on pregnancy, they urge caution as to hasty attempts to apply this theory as a general explanation of widely diverse conditions of altered physiology.

48. Anaphylactogenic Activity of Vegetable Proteins.—The data presented in this paper support the assumption that the severity of the anaphylaxis reactions produced by intraperitoneal injections of dilute alkaline solutions of vegetable proteins is, approximately, in inverse ratio to their relative precipitability when their solutions are mixed with the peritoneal fluid. Proteins like edestin, which are readily precipitated, and only slowly redissolved, under conditions similar to those presumably prevailing in the peritoneum, rarely produce a fatal intoxication; whereas those that are less easily precipitated and more readily dissolved, give fatal

reactions in much smaller doses. The lethal dose of those vegetable proteins which are readily soluble in pure water, or in very dilute saline solutions, is smaller than that of those which are soluble only in comparatively strong saline solutions. The minimum intoxicating dose of most of the vegetable globulins (i. e., proteins insoluble in pure water but soluble in saline solutions) administered intraperitoneally is from 1 to 2 mg., but from 5 to 10 mg. are usually required for severe intoxication. On the other hand, the minimum intoxicating dose of those so-called vegetable proteoses which are readily soluble in pure water and are uncoagulable by heat is much smaller, moderate to severe reactions being obtained with 0.05 to 0.1 mg. and fatal results with 0.5 to 2 mg.

49. **Proteins of Human Placenta.**—The possibility that immune serum of therapeutic value in chorion-epithelioma can be prepared specifically for the human placenta is, in Lake's opinion, at least at this time, extremely slight.

Journal-Lancet, Minneapolis

March 15, XXXIV, No. 6, pp. 149-172

- 50 Clinical Aspects of Primary Diffuse Degeneration of Spinal Cord. C. E. Riggs, St. Paul.
- 51 Knee-Joint: Anatomy and Physiology. E. R. Hare, Minneapolis.
- 52 Case of Mikulicz' Disease. C. Fisher, Rochester, Minn.
- 53 Epigastric Pains. J. E. Engstad, Minneapolis.
- 54 Arteriosclerosis. C. W. Watson, Minneapolis.

Kentucky Medical Journal, Bowling Green

March 15 and April 1, XII, Nos. 6-7, pp. 189-236

- 55 Functional Affections of Heart. C. B. Johnson, Earlinton.
- 56 Fractures and Roentgenography. R. C. Falconer, Lexington.
- 57 Review of Bulletin of State Board of Health of Kentucky, Biennial Report, 1910-1911. B. C. Frazier, Louisville.
- 58 Anesthesia. L. Frank, Louisville.
- 59 Hare Lip. D. O. Hancock, Henderson.
- 60 Cases of Ocular Disturbance Caused by Nasal Disease. S. G. Dabney, Louisville.
- 61 Chronic Constipation. B. Asman, Louisville.
- 62 Postdiphtheritic Paralysis. G. C. Hall, Louisville.
- 63 Treatment of Alcoholism. E. W. Stokes, Louisville.
- 64 Cesarean Section, Naegele Pelvis. (Report of Case.) J. H. Peak, Louisville.
- 65 Tuberculous Meningitis. J. A. O. Brennan, Louisville.
- 66 Foreign Body in Eye Removed by Magnet. J. M. Ray, Louisville.
- 67 Intraspinal Injection of Salvarsanized Blood Serum in Syphilitic Affections of Central Nervous System. C. W. Jefferson, Louisville.
- 68 Medical Ethics. J. W. Ellis, Masonville.
- 69 Is Demand for Services of Regular Practitioner Growing Less? W. J. Shacklette, Nolin.

Medical Record, New York

April 4, LXXXV, No. 14, pp. 559-644

- 70 *Method for Plicating Voluminous Ceca. J. A. Blake and J. N. Worcester, New York.
- 71 Drainage of Bladder Following Suprapubic Operations. C. H. Chetwood, New York.
- 72 Dental Aspect of Oral Infection. M. L. Rhein, New York.
- 73 Case of Sporotrichosis with Multiple Localizations. F. Dominiguez, Havana, Cuba.
- 74 Liquor Question in Medicine. E. H. Williams, Montclair, N. J.
- 75 Present Status of the Non-Operative Treatment of Benign and Malignant Growths. At Clinics Abroad. S. Stern, New York.
- 76 Cicatrix of Bladder Relieved by Fulguration. L. B. Bangs, New York.
- 77 Autoserum Injections in Certain Obstinate Dermatoses. W. S. Gottheil and D. L. Satenstein, New York.

70. **Method for Plicating Voluminous Ceca.**—The operation employed by Blake and Worcester consists in stitching the ventral and lateral teniae together after the appendix has been removed; thus folding in or plicating the cecum and ascending colon. A non-absorbable suture of silk or linen is used, and the stitches are taken a long way apart, usually about two centimeters or a little less, so that when the stitch is drawn tight the length as well as the diameter of the gut is diminished. The stitching is carried aborally as far as is practicable, usually for 10 to 15 cm. The contractility of the gut is not impaired as it would be if part of the wall were excised, and it is believed that on account of its diminished capacity there is not so great a tendency to accumulation and stasis. Apparently the results confirm the reasonableness of this belief.

Military Surgeon, Washington, D. C.

April, XXXIV, No. 4, pp. 301-400

- 78 Modern Operations for Glaucoma with Especial Reference to Elliot Operation of Corneo-Scleral Trephining. L. W. Fox, U. S. Army.
- 79 Detection of Tuberculosis in Recruit. L. H. Schultz, Colorado National Guard.
- 80 Leprosy in Its Relation to Treponematosus Disease. F. Schmitter, U. S. Army.
- 81 Disease and Garrison Ration. G. L. McKinney, U. S. Army.
- 82 Is Field Hospital Unit Sufficiently Mobile to be of Practical Use During an Active Campaign? H. H. Doan, National Guard of Pennsylvania.
- 83 *Sprue Treated by Emetine Hydrochlorid. F. Schmitter, U. S. Army.
- 84 Anti-Typhoid Vaccination. F. W. Foxworthy, U. S. Army.
- 85 Cocainism in Army. W. B. Meister, U. S. Army.
- 86 Rational Treatment of Gunshot Wounds of Abdomen on Battlefield. J. Frank, Illinois National Guard.
- 87 Pocket Field Case for Medical Officers with Actively Moving Commands. P. C. Fauntleroy, U. S. Army.

83. **Sprue Treated by Emetine Hydrochlorid.**—In six cases of sprue Schmitter used emetine hydrochlorid with good results. In all of these cases the soreness of the tongue and mouth either cleared up or was improved. All of them had complained of a feeling of tension across the upper abdomen which they usually volunteered to say was relieved soon after the emetin treatment began. The objection to the treatment is the increased activity of the bowel which it causes, but that is only temporary and trivial in comparison with the general improvement. In the first three cases treated the emetin was dissolved by the acid of hydrochloric acid and given intramuscularly. The results in these cases seemed more prompt and definite than in the later three cases which were treated with hypodermic injections of emetin hydrochlorid purchased in the market.

New Mexico Medical Journal, Las Cruces

March, XI, No. 6, pp. 177-206

- 88 Disease of External Canal, Simulating Middle Ear Disease. E. R. Carpenter, El Paso, Tex.
- 89 Every-Day Eye Injuries. F. E. Till, Albuquerque.
- 90 Unusual Eye Injuries. E. H. Irvin, El Paso, Tex.
- 91 Pellagra. J. W. Colbert, Albuquerque.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

March, XVIII, No. 3, pp. 113-185

- 92 Direct Suture of Brachial Artery for Traumatism. J. G. Sherrill, Louisville, Ky.
- 93 Medical Man of Yesterday, To-Day and To-Morrow. B. C. Keister, Roanoke.
- 94 Fractures of Neck of Femur. J. E. Moore, Minneapolis, Minn.
- 95 Specialism in Its Relation to Public and Profession from Standpoint of General Practitioner. R. M. Wiley, Salem.
- 96 How Some Little Ones Die. W. H. Taylor, Richmond.

Pennsylvania Medical Journal, Athens

March, XVII, No. 6, pp. 421-522

- 97 *Puerperal Sepsis and Present Methods of Treatment. E. E. Montgomery, Philadelphia.
- 98 Structural or Fixed Scoliosis and Its Treatment by Abbott Method. J. T. Rugh, Philadelphia.
- 99 Recent Advances in Diagnostic Blood Examination. O. H. P. Pepper, Philadelphia.
- 100 Eustachian Tube. G. R. S. Corson, Pottsville.
- 101 *Relation of Venereal Diseases to Public Health. E. Martin, Philadelphia.
- 102 *Problems of Unfit. E. E. Mayer, Pittsburgh.

- 97. Abstracted in THE JOURNAL, Oct. 18, p. 1484.
- 101. Abstracted in THE JOURNAL, Oct. 25, p. 1564.
- 102. Abstracted in THE JOURNAL, Oct. 11, p. 1398.

South Carolina Medical Association Journal, Seneca

March, X, No. 3, pp. 439-477

- 103 Benzol in Treatment of Leukemia. J. H. Gibbes, Columbia.
- 104 Surgical Clinics in Europe. H. A. Royster, Raleigh, N. C.
- 105 Questions Submitted by State Board of Medical Examiners of South Carolina, November, 1913. H. H. Wyman, Aiken.
- 106 Psychology of Negro Revival. H. D. King, New Orleans, La.

Washington Medical Annals, Washington, D. C.

March, XIII, No. 2, pp. 83-171

- 107 *Autoserotherapy in Serofibrinous Pleurisy. C. A. Pfender, Washington.
- 108 "Chronic Irritation" and "Fertilization of Epithelial Cells by Sperm"—Conjoint Causes of Cancer. A. F. A. King, Washington.
- 109 Case of Miliary Tuberculosis of Lungs Diagnosed by Roentgen Rays. C. A. Pfender, Washington.
- 110 Two Cases of Ectopic Pregnancy. I. H. Lamb, Washington.
- 111 Case of Epignathus. D. S. Lamb, Washington.

- 112 Case of Tuberculoma of Cerebellum. P. B. Johnson, Washington.
- 113 Hysteria Simulating Eclampsia in Primipara at Thirty-Seventh Week of Pregnancy. P. Willson, Washington.
- 114 Osteosarcoma of Humerus Following Fracture. A. R. Shands, Washington.
- 115 *Method of Testing Renal Function with Phenol-Sulphone-Phthalein. W. A. Frankland, Washington.
- 116 Case of Aneurysm of Thoracic Aorta, with Paralysis of Left Diaphragm and Hour-Glass Contraction of Stomach. J. D. Thomas, Washington.
- 117 Cavitation of Lung in an Infant Dying in Seventh Month. B. M. Randolph, Washington.
- 118 Essential Hematuria. A. Kemble, Washington.
- 119 Four Cases of Pregnancy Complicated by Uterine Tumors. W. S. Bowen, Washington.

107. **Autoserotherapy in Serofibrinous Pleurisy.**—In Pfender's opinion autoserotherapy is a reliable and safe method of treatment for all forms of serofibrinous pleurisy and should be employed in every case in which pyemic infection is absent. A positive cure may be expected in over 80 per cent. of cases. He analyzed the reports of 565 cases recorded in the literature since 1894; of this number 424 were cured and 31 benefited. In secondary pleurisy autoserotherapy may not exert any beneficial effect on the primary cause of disease. It will merely cause rapid absorption of the pleuritic fluid, however, and in incipient tuberculous conditions has been known to arrest the progress of this disease. In large effusions causing severe dyspnea and pain it is advisable to aspirate from 10 to 200 c.c. of fluid and before withdrawing the needle entirely to reinject 2 to 3 c.c. under the skin of the patient. The result will be immediate relief from subjective symptoms and more rapid absorption of the exudate. Autoserum injections should be repeated every other day until decided improvement follows. It is advisable to employ small doses from 2 to 3 c.c. only, as most authors have had the best results with this dose, and larger doses may not be without danger. Pfender cites three personal observations.

115. **Testing Renal Function with Phenolsulphonephthalein.**—In the method of Frankland the patient first drinks two glasses of water, after which 1 c.c. of a solution containing 6 mg. of phenolsulphonephthalein is injected into the lumbar muscles. The urine is passed or drawn into a vessel containing an alkaline solution every five minutes after the injection until the distinctive color of the dye is observed, and every hour afterward, counting from the time of the injection, until the color is no longer present in the urine. Four bottles are provided and are numbered in which these specimens are placed for later examination, when their contents must be made alkaline, if not already so, by the addition of sodium hydroxide solution.

In normal cases the dye should appear in the urine in from five to ten minutes. By the end of the second hour about 80 per cent. should be excreted, leaving only 20 per cent., which is usually excreted within the third hour. The bottles of urine, therefore, would be colored as follows: First and second bottles, deeply colored; third bottle, pale; fourth bottle, urine uncolored. In abnormal cases in which the appearance of the dye in the urine is delayed, the results will be apparent in the bottles accordingly. The first bottle may be pale or uncolored by the dye. The second, third and fourth bottles may be colored with a pale or deep tint, depending on the rapidity of excretion. In the severe cases, especially in interstitial nephritis in which uremia is impending, the first bottle may be uncolored urine, the following ones all having the pale tint due to slow excretion.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

March 21, I, No. 2777, pp. 663-692

- 1 *Art of Prescribing. A. P. Luff.
- 2 Business Side of Medical Practice. J. Collie.
- 3 Medical Etiquette, Ethics and Politics. R. C. Buist.
- 4 Cancer, Public Authorities and Public. C. P. Childe.
- 5 Experiences of National Health Insurance Act. E. F. Pratt.
- 6 Hygienic Aspect of Coal-Mining Industry in United Kingdom. (Continued.) F. Shufflebotham.

1. **Art of Prescribing.**—It is Luff's conviction that there is a growing practice which is rapidly threatening to undermine to a great extent what he considers to be the skilled and rational employment of therapeutic agents in the treatment of disease. He refers to the too general use of powerful drugs in compressed forms and of proprietary preparations. Undoubtedly lamellae and tabellae of active principles in the hands of medical men are most convenient and useful for hypodermic and occasionally for other forms of administration; but it is the ready facility with which powerful drugs prepared in this form are obtained by the public which constitutes a grave danger, a facility which is responsible to a great extent for the increasing practice of self-drugging. Equally bad is the use of some of the proprietary preparations which are so speciously puffed, and with the samples and laudatory advertisements of which physicians are so profusely deluged, tempting the medical man as they do to the enervating habit of thinking that the writing of an order for such a preparation is the writing of a prescription, and gradually rendering him absolutely impotent to exercise the true art of prescribing.

There is another aspect to this subject to which Luff directs attention. The practice of writing an order for a particular form of compressed drug, or for a proprietary preparation (he says he cannot dignify such an act as the writing of a prescription) is apt to encourage patients to recommend such proprietary articles to their immediate friends who in their opinion are suffering from similar symptoms or from what they imagine to be a similar complaint.

The factors which make for success in the art of prescribing as Luff lays them down are: (1) A sound acquaintance with the therapeutic uses of drugs. (2) A thorough knowledge of the doses of drugs. (3) The avoidance of the mixing of drugs that are incompatible. (4) The administration of drugs which are nauseous or distasteful in such a form or combination as to be palatable to the patient.

Journal of Tropical Medicine and Hygiene, London

March 16, XVII, No. 6, pp. 82-96

- 7 Human Recovery from Trypanosomiasis. T. S. Kerr.
- 8 Further Case of Entoplasmosis. A. Castellani.

Lancet, London

March 21, CLXXXVI, No. 4725, pp. 803-876

- 9 Biology of Tumors. C. M. Moullin.
- 10 Technic of Operation of Sclero-Corneal Trephining for Glaucoma. R. H. Elliot.
- 11 *Nature of Rodent Ulcer. H. G. Adamson.
- 12 Arteriosclerosis. L. Williams.
- 13 *Etiology of Endemic Cretinism, Congenital Goiter and Congenital Parathyroid Disease. R. McCarrison.

11. **Nature of Rodent Ulcer.**—Two facts are mentioned by Adamson which might be thought to stand in the way of the acceptance of the view that rodent ulcer is etiologically distinct from the epitheliomatous growths which may occur as sequelae of keratosis senilis or chronic dermatitis solaris. One is that, exceptionally, one may find prickle cells and cell nests in typical rodent ulcer, and that in rare instances rodent ulcer may infect glands. But these exceptional occurrences may readily, Adamson says, be explained by regarding the rodent ulcer, with its tendency to imperfect repair by scarring, as itself a precancerous condition which may in rare cases in the same way as the scars of lupus vulgaris give rise to epitheliomatous growths.

The second fact is that it is not uncommon to find among the squamous-celled epithelioma of keratosis senilis other growths which are histologically indistinguishable from rodent ulcer, which are indeed basal-cell epitheliomata. But this does not constitute them rodent ulcers, and it may still be claimed that their situation on damaged skin and their mode of origin from the same distinguish them from rodent ulcers, which arise from embryonic cell-rests in certain situations and on skin not previously damaged by inflammation.

13. **Etiology of Endemic Cretinism, Congenital Goiter and Congenital Parathyroid Disease.**—Three important facts are noted by McCarrison in his experiments: (1) That out of 16 animals born of a goitrous mother which consumed fecal

filtrate prior to and during pregnancy, 3 were born cretins, while the 47 animals born in other cages showed no clinical or pathologic signs of this condition. (2) That of 31 animals, born of goitrous mothers which consumed either fecal anaerobes or the filtrate of a fecal emulsion, 15 were found to have congenital parathyroid disease. Of these, two-thirds were born of mothers consuming the anaerobic cultures, while one-third were born of a mother consuming a fecal filtrate which contained the toxic products of these anaerobes. The parathyroids were normal in 16 animals born of goitrous mothers in other cages. (3) Fecal organisms which grow aerobically on agar, while capable of causing marked hyperplasia of the thyroid gland, do not appear to be capable of producing any ill effect on the parathyroid glands.

Of the offspring of goitrous parents, then, a small percentage are born cretins; approximately 63 per cent. are born with congenital goiter, 32 per cent. are born with congenital parathyroid disease, and 33 per cent. are born with normal thyroid and parathyroid glands. McCarrison believes that cretinism and congenital goiter are due to the action of toxic substances derived from the intestines of the goitrous mother on the fetal thyro-parathyroid mechanism. Cretinism represents the maximum, and comparatively rare, effect of these toxins; congenital goiter their minimum, and comparatively common, effect. Between these extremes all degrees of thyroid involvement may occur with or without associated swelling of the gland. Congenital parathyroid disease is due to the action on the fetal gland of the toxic products or organisms present in the intestine of the goitrous mother, which are capable of growth under anaërobic conditions.

Sei-I-Kwai Medical Journal, Tokyo

March 10, XXXIII, No. 3, pp. 13-19

- 14 Operative Treatment of Hydrocele. S. Mizokami.
- 15 Fracture of Neck of Femur in Children. R. Yajima.
- 16 Floating Liver in Childhood. K. Matano.
- 17 Treatment of Ankylosis of Joint. G. Tashiro.
- 18 Treatment of Inguinal Hernia in Child. D. Takayasu.
- 19 Testicular Neuritis Following Gonorrheal Epididymitis. S. Yoshida.

Bulletin de l'Académie de Médecine, Paris

March 3, LXXVIII, No. 9, pp. 297-338

- 20 Resolutions Adopted in Regard to Advising Restriction of Use of Poisons in Agriculture. Lucet and Others.
- 21 Experiences with Heated Antityphoid Vaccine. A. Chante-messe.
- 22 Hypertrophy of Pylorus in Adult, of Type Common in Infants. H. Hartmann.
- 23 Dermoid Cyst of the Inion; Two Cases. Walther.

March 10, No. 10, pp. 339-382

- 24 Typhoid Epidemic at Avignon; 673 Cases in Twenty-Five Days. Pamard.
- 25 *Rubber Grafts in Human Tissues. (Les greffes en caoutchouc.) P. Delbet.

25. **Engrafted Rubber Tissue.**—Delbet's idea is different from that of Fieschi who seeks to induce regeneration of tissues in the porous substance of a scrap of rubber sponge, as was described in these columns recently, 1914, lxii, 735. Delbet used a sheet of rubber tissue to reinforce the abdominal wall in treating a large hernia, and the rubber healed in place without any reaction. It is this apparently constant lack of irritation from rubber which seems to adapt it particularly for such operations. It seems evident, he says, that the motion and the chemical-physical conditions in the abdomen tend to preserve the life of rubber better than when it lies in a drawer. Like a living substance, it keeps better when it is functioning. His communication was summarized in the Paris Letter, April 4, p. 1106.

Journal de Médecine de Bordeaux

March 15, LXXV, No. 11, pp. 173-186

- 26 Colonial Recruits for French Army from the Medical and Military Points of View. (Réflexions sur l'incorporation du contingent créole.) A. Le Dantec.

Presse Médicale, Paris

March 11, XXII, No. 20, pp. 193-200

- 27 Sterilization of Stools. (Désinfection des selles.) Arnould.
- 28 Mark-Time, Stepping and Other Spinal-Cord Automatic Reflexes. (Les réflexes d'automatisme médullaire chez l'homme.) A. Strohl.

Revue de Chirurgie, Paris

March, XXXIV, No. 3, pp. 233-340

- 29 *Bile in Ascitic Fluid with the Bile Passages Apparently Intact. (Les cholépéritonies.) M. Guibé.
- 30 *Traumatic Spondylitis with Necropsy. (Maladie de Kümmel.) V. Balthazard.
- 31 Retrograde Strangulation of Intestine in Double Loop Hernia. (Hernie en W.) H. Welsch.

29. **Bile in Ascitic Fluid.**—Guibé reports the case of an elderly woman who had what the Germans call "bile peritonitis without perforation of the biliary passages." Necropsy revealed, however, that escape of bile into the peritoneum was probably the primary phenomenon, and that the ascites had developed in consequence of the presence of the bile. An epithelioma in the head of the pancreas had pressed on the bile passages, and the bile had worked its way through the walls, infiltrating first into the subserous cellular tissue and then seeping through the serosa itself. The bile does not seem to irritate as long as it is sterile, but when it becomes infected it is liable to set up fatal peritonitis. The trouble may have a stormy onset, simulating appendicitis or cholecystitis, or it may develop with a chronic course like ordinary ascites. Drainage alone was applied in twelve cases and six of the patients died. It seems wiser to open or remove the gall-bladder; the record of cholecystectomy in such cases is three deaths in thirteen cases. The bile passages may have perforated enough to permit the escape of the bile and then the minute perforations have healed again and not been discovered. But even admitting this for a number of the cases on record, there are still numerous cases in which the bile must have seeped out through the wall.

30. **Traumatic Spondylitis.**—Balthazard adds another to the few cases on record in which after a fall the patient complained only of vague pains in the lumbar region after the first. He walked home after the fall but by the sixth month he complained of girdle pains and there was a hump in the dorso-lumbar region. He died from an intercurrent disease and necropsy revealed that the spine had been fractured; the body of one of the vertebrae had been crushed and the transverse lamellae broken, but the spinous processes were intact.

Revue Mens. de Gynécologie, d'Obstétrique et de Pédiatrie, Paris

February, IX, No. 2, pp. 81-160

- 32 Study of the Mechanics of the Obstetric Forceps. L. Demelin.
- 33 Momburg's Belt Constriction in Treatment of Obstetric Hemorrhage; Three Cases. L. Pierra.

Semaine Médicale, Paris

March 18, XXXIV, No. 11, pp. 121-132

- 34 *Medicinal Treatment of Tuberculosis. (Un traitement efficace et pratique de la tuberculose pulmonaire.) J. F. Larrieu.

34. **Medicinal Treatment of Pulmonary Tuberculosis.**—Larrieu says that treatment should aim to tone up the system in general, to check the development of tubercles and check expectoration by curing secondary infections, and to reestablish good digestion. Stimulants and tonics tone up the general system and encourage the patient while guaiacol and potassium iodid answer the second indication. The cooperation of the patient is necessary so that he will avoid any excesses in diet liable to bring on dyspepsia and avoid sudden changes in temperature, especially exposure to the cool evening air after a hot day or to cool air at any time when his garments are wet with perspiration. The poor are able to benefit just as much from a course of treatment like this as those able to go to expensive sanatoriums, but the treatment must be kept up perseveringly even long after the disease has been clinically cured. When patients have proved docile, he has found the treatment he outlines extremely effective and practical in a number of years' experience.

His first prescription is a mixture of 6 gm. potassium iodid; 8 or 12 gm. potassium bromid; 0.03 gm. strychnin sulphate. 20 c.c. tincture of cinchona; 40 c.c. each of tincture of coea

and tincture of kola, and 100 c.c. each of neutral glycerin and syrup of bitter orange peel. A teaspoonful of this is taken at breakfast for twenty days during each month, keeping it up for three months after all the local lesions have subsided in recent tuberculosis, and indefinitely in chronic tuberculosis and phthisis. The prescription can be modified by substituting some other flavoring or by using arsenic instead of the three first ingredients, especially in case of industrial tuberculous bronchitis. The above prescription can be supplemented by 0.25 gm. salol at the noon and evening meal to promote digestion. If the appetite is poor, during the periods of resting from the iodid prescription the patient might take nux vomica and Fowler's solution. Concurrently with this internal medication he gives subcutaneous injections of guaiacol with or without camphor or iodoform. The injection is made in the arm or back every five days at first and later every eight or ten days. This method of treatment suits the overwhelming majority of cases; it is comparatively convenient, and renders it possible for fully four-fifths of the tuberculous to continue at work, without the necessity for a fresh-air course. It has to be kept up almost endlessly, but when the patients see how they are gaining they seldom object to this. They must be warned that the subcutaneous injections are liable to be a little painful for a few seconds at first. When a complete cure has been realized, the medication can be suspended for longer and longer intervals each month. Larrieu does not give any statistics or clinical details beyond the above.

Archiv für Gynäkologie, Berlin

CII, No. 2, pp. 201-410. Last indexed March 21, p. 972

- 35 *Improved Technic for Treatment of Prolapse by Interposition of Uterus. E. Wertheim.
36 Source of the Bleeding when Tubal Pregnancy Ruptures. Y. Taniguchi.
37 *Imperforate Genital Tract as Obstacle to Delivery. (Gynaesien in der Gravidität.) C. Ruge.
38 *Congenital Universal Hydrops. W. Lahm.
39 *Spontaneous Amputation of Tube or Ovary. (Spontauabtrennungen der weiblichen Adnexe.) M. Ogorek.
40 Reciprocal Relations between the Ductless Glands. (Die gegenseitigen Beziehungen einiger Drüsen mit innerer Sekretion.) L. Okintschitz.

35. **Operative Treatment of Prolapse.**—Wertheim here describes a modification of the technic with which the uterus turned over forward serves as a pad to close the gap in the pelvic floor, the bladder resting on its back. He has found that even with this technic the mouth of the uterus or the fundus may work loose and protrude. All this is avoided, he declares, by suturing the uterus all around when it is fitted to cover the gap. The operation thus becomes more "suturing the uterus in the gap" rather than the primary designation of "interpositio vesicovaginalis." He has applied this technic during the past year with increasing satisfaction. Two large plates and four illustrations in the text accompany the article.

37. **Gynatresia During Pregnancy.**—Ruge remarks that the genital canal may become closed in the course of a pregnancy from the pressure on and swelling of the parts. Complete closure of the hymen has been reported in three cases, and he has recently encountered a case of stricture and stenosis of the vagina. In another case there was a muscular stricture at the internal os and the woman died in eclampsia at delivery. She had borne four children, and was previously healthy. The eclampsia came on at the sixth month, and the obliteration of the internal os seemed to be the outcome of an inflammatory process.

38. **Universal Hydrops.**—In Lahm's case there were signs of syphilis in the new-born child, so the universal hydrops may be credited to this inherited taint in this case. A number of chemical and other causes may be responsible for it, and toxic substances in the mother's blood acting predominantly on the kidneys or blood-producing apparatus of the fetus. Pregnancy nephritis and syphilis are the factors most commonly involved.

39. **Amputation of the Uterine Adnexa.**—Ogorek has encountered two instances of this occurrence and has found ninety-seven cases recorded, all of which he analyzes. Torsion and strangulation are of course the direct cause and

trauma is generally responsible for both, mechanical forces and gravity completing the work started by the trauma.

Archiv für klinische Chirurgie, Berlin

CIII, No. 4, pp. 871-1097. Last indexed March 28, p. 1055

- 41 *Circumscribed Suppuration in Pleura and Lungs. (Die Therapie der Pleuraempyeme und Lungenabscesse.) E. E. Pribram.
42 *Dislocation of the Pelvis. (Beckenluxationen.) Heinemann and Siedamgrotzky.
43 *Kidney Tumors of Embryonal Origin. (Embryonale Nierengeschwülste.) Junkel.
44 *Dangers and Treatment of Abdominal Infection. (Abdominale Infektion, Passagestörungen und ihre Folgezustände.) E. Gelinsky.
45 The Obturator Nerve. (Die intrapelvine extraperitoneale Resektion des Nervus obturatorius und anatomische Studien über die Topographie dieses Nerven.) R. Selig.
46 *Experimental Puncture of the Heart. (Verwendbarkeit der Punktion des Herzens zur Hervorrufung experimenteller Klappenfehler.) H. C. Jacobaeus and G. Liljestrang.
47 Primary Angioma in Muscle. A. Serra.
48 *Acute Perforation of Gastric and Duodenal Ulcer. W. W. Florowsky.
49 Fat Graft to Arrest Hemorrhage. (Experimentelle Untersuchungen über freie Fetttransplantation bei Blutungen parenchymatöser Bauchorgane.) A. Hilse.
50 *Continuous Lavage of the Stomach. (Zur Dauerausheberung des Magens.) M. Grosser.

41. **Treatment of Suppuration in Pleura or Lung.**—Pribram gives full details of 100 cases in which operative treatment was applied for pleural empyema or pulmonary abscess at von Eiselsberg's clinic during the last thirteen years. These experiences emphasize anew the vital importance of early operative treatment in all suppurating inflammatory processes in the pleura and lungs; also the advantages of extensive local anesthesia and of differential pressure apparatus for operations on the lungs. Unless the process is a mild metaphneumonic empyema or the operation is done in an emergency on a child, the process should be amply exposed and thoroughly drained, then covered with a light simple dressing. He warns against rinsing out the cavity at first, but says that a few weeks later it may be of advantage. The pure pneumococcus processes have the best prognosis; tuberculous processes make the greatest demands on the patience and perseverance of both patient and physician. He had 21 per cent. cured; 52.6 per cent. improved and 21 per cent. died of his thirty-eight patients in this group. One recovered completely under the Leysin sunshine and mountain air treatment.

42. **Dislocation of the Pelvis.**—Heinemann adds two more cases to the twenty-two on record in which the pelvic bones became dislocated, causing a puzzling train of symptoms. He gives roentgenograms of his cases to aid others in recognizing the trouble at need. The young man had been run over by a vehicle; the boy of 10 thrown from a wagon and hit by a large stone thrown also from the wagon. In both cases the pelvis was supposed to have been ruptured, but the Roentgen rays revealed the dislocation of one-half of the pelvis. In the man it had healed in an abnormal position, but the boy was seen soon after the accident and the dislocation was easily corrected by gradual weight extension into nearly normal conditions, and healed leaving scarcely a trace of a limp. Forceful reduction seems unwise on account of danger of injury of important parts. The gap in the symphysis shows comparatively little tendency to heal. There was no healing under six weeks' treatment in the case of the boy, and Heinemann thinks it might be as well to apply some operative measure here from the start, when the patient is seen soon after the accident. In old cases, wearing a higher sole seems the only thing to be done.

43. **Kidney Tumors of Embryonal Origin.**—Junkel reports two cases, a boy and girl of 2½, both recovering after removal of the large tumor weighing 650 and 860 gm. The first was an adenocarcinoma, the other a fibromyosarcoma. Heinicke has compiled 138 tumors of this kind, but only one of the patients is known to be alive after an interval up to three years. Even this one case encourages the surgeon to operate, especially as the operation is always borne remarkably well.

44. **Dangers and Prevention of Abdominal Infection.**—Gelinsky's analysis of the experiences with ileus at the Charité in Berlin, shows that injury from toxic substances formed

during ileus is a greater danger than infection in case of ileus, as a rule. Also that meteorism must be regarded as a serious symptom as it may progress from paralysis of peristalsis alone to paralysis of the bowel. The laparotomy itself is absolutely harmless, he says; the danger from the general anesthesia required for the operation is much greater than from the incision itself. Local anesthesia may be used. When infection is already installed every effort should be made to close up or exclude the source of the infection. With local paralysis of the bowel, the excluded loop should be removed; if this is not possible it should be extensively drained. The injury done to peristalsis by the operation is best combated by early and systematic application of superheated air. This early after-treatment is the most reliable method at our disposal to date for starting up peristalsis anew when the changes are not absolutely irreparable.

46. **Experimental Valvular Disease.**—Jacobaeus reports his work in this line on one calf and eleven dogs; six of the animals survived the operation. He used a straight trocar with valve and cystoscope, the same technic as for laparothoracoscopy. There was no bleeding from the heart. A scrap from the heart lining or chorda or mitral valve was thus obtained. In one dog a large part of the median mitral valve was thus cut away and the dog rapidly recovered.

48. **Treatment of Gastric or Duodenal Ulcer.**—Florowsky writes from Odessa to report 4 operative cases from his own experience. He cites further 58 cases already on record in Russian literature. Collapse occurred on perforation in only 10 of the 41 gastric ulcers and in 6 of the 17 duodenal ulcers. There was a history of preceding stomach trouble in 16 of the duodenal cases and in 31 of the gastric cases; in some the perforation occurred like a bolt from a clear sky. He advocates injecting quinin at once after the operation as it stimulates the heart and peristalsis and promotes leukocytosis. Differentiation is best accomplished by seeking the negative symptoms which exclude other affections.

50. **Continuous Lavage of the Stomach.**—Grosser advocates introducing a retention stomach tube through the nose and thus keeping a constant flow of fluid in and out of the stomach as the best means available for combating acute atony of the stomach and duodenal-jejunal occlusion, postoperative paralysis of the bowel and ileus from adhesions or spastic contraction from peritonitic reflexes. The nose is first cocaineized and then a soft oiled stomach tube with a lumen of 8 or 11 mm. is worked through the nose down into the stomach. As soon as it reaches there the stomach content generally spurts from the tube spontaneously. The stomach can then be rinsed out if desired; then a longer tube is attached to it and carried to a receptacle. Fluids can be supplied, he adds, by slow subcutaneous infusion, a drop at a time, of a warm isotonic salt solution, possibly with 4 per cent. grape sugar.

Grosser says it is more convenient to apply both the stomach tube and the infusion on the left side, leaving the patient's right hand free. With this retention tube the mouth is left free and the patient can talk, swallow and have his teeth brushed, while the method has a number of obvious advantages over the ordinary technic for lavage of the stomach. He has had amounts up to 5 liters thus drain away. Westermann has applied the procedure to fifteen patients, Kappis to ten and Grosser himself to nine. The tube was left in place for four days in one of his cases. Kappis and Westermann found traces of the gastric mucosa having been sucked into the openings in the tube in two cases, and they advise keeping the outlet on a level with the bed to prevent aspiration. Grosser's patients who had the pus reaccumulate in the peritoneum were beyond rescue and all died. He advises a trial of the retention stomach tube in case of a vicious circle after gastro-enterostomy.

Berliner klinische Wochenschrift

March 9, LI, No. 10, pp. 433-480

- 51 *Pathology of Syphilis and Curative Action of Salvarsan. M. v. Zeissl.
- 52 *Tubercle Bacilli in the Blood-Stream. F. Klemperer.
- 53 Shellac Concrements in Gastro-Intestinal Tract. E. A. Hallas.
- 54 The Nissl Bodies. (Zur Chemie der Zelle. IV.) P. G. Unna and O. Gans.

- 55 Precocious Puberty Not Accompanied by Precocious Development of the Mind. A. Münzer.
- 56 Luetin in Diagnosis of Syphilis. (Intracutanreaktion mit dem Luetin von Noguchi. II.) Fagioli and V. Fisichella.
- 57 *Fivefold Increase Since 1900 in Abortions Requiring Hospital Treatment at Berlin. (Zunahme der Fehlgeburten.) Bleichröder.
- 58 Ethylhydrocuprein in Treatment of Malaria. (Chemotherapie bei Malaria.) G. Izar and R. Nicosia. Commenced in 9.

51. **Salvarsan.**—Von Zeissl cites historical records to show that when mercury was first applied in treatment of syphilis it aroused a crowd of objectors and for nearly a century had to fight its way again and again. As late as 1860, J. Hermann of Vienna still proclaimed that constitutional syphilis was the work of the mercury that had been given, and a committee of investigation was appointed by the Austrian minister of the interior to decide the question. Zeissl states that he has never had any serious injury result in any of the 1,000 cases in which he has given salvarsan intramuscularly or neosalvarsan intravenously. He has had exclusively good results with them, as he excludes from this treatment every patient presenting contra-indications. He reviews literature from years before the discovery of salvarsan, in which deafness, blindness or paralysis are reported from untreated syphilis alone, and also fatalities and mishaps after mercury.

52. **Tubercle Bacilli in Blood-Stream.**—Klemperer presents extensive clinical anatomic and experimental evidence to show that there can be no doubt that in most of all forms of tuberculosis the tubercle bacilli get into the blood occasionally, in small amounts. Their presence in the blood has no significance for diagnosis or prognosis any more than the skin tuberculin reaction in adults. Their presence in the blood seems to be important only from the standpoint of immunization processes.

57. **Increasing Number of Abortions.**—Bleichröder has been compiling and comparing the statistics in regard to women brought to the Berlin hospitals for treatment after abortion, omitting the abortions from syphilis. In 1900 the total was 317; in 1910, it had risen to 841, and this has doubled in the three years since, the figure for 1913 being 1,694. This increase is mainly among the younger women. His comment on these figures is that the birth strike (*Gebärstreik*) is evidently being conducted not by prevention measures alone but also by systematic abortifacients, *Abtreibung*. He does not give the figures as to the mortality at the various hospitals but states that among 504 abortions in 1912 at one maternity 240 were septic cases and the mortality was 12.5 per cent.

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 14, XLIV, No. 11, pp. 321-352

- 59 Action of Bromids. E. Bernoulli.
- 60 Universal Hydrops of the New-Born. (Zur Lehre der allgemeinen Wassersucht des Neugeborenen.) W. Lutz.

Deutsche medizinische Wochenschrift, Berlin

March 12, XL, No. 11, pp. 521-576

- 61 *Progress in Causal Treatment. (Fortschritte der ätiologischen Therapie.) P. H. Römer.
- 62 *Analysis of Action of Radio-Active Substances on Mouse Cancer. A. v. Wassermann.
- 63 Negative Results of Inoculating Rabbits with Mouse Cancer. (Mäusekarzinomimpfungen auf Kaninchen.) H. Apolant and K. Bierbaum.
- 64 *Immunization against Anthrax. (Milzbrandimmunität.) E. Wernicke.
- 65 Nature of Immunity to Tuberculosis. P. H. Römer and C. Siebert.
- 66 Chemotherapy. (Spezifische Desinfektion und Chemotherapie bakterieller Infektionen.) J. Morgenroth and E. Bumke.
- 67 *Diphtheria Antitoxin in Bacilli-Carriers, etc. (Gehalt des Blutes an Diphtherie-Antitoxin bei gesunden Erwachsenen, Rekonvaleszenten und Bazillenträgern; Bedeutung der letzteren bei der Diphtherie.) R. Otto.
- 68 *Danger and Prophylaxis of Anaphylaxis from Diphtheria Antitoxin. K. Joseph.
- 69 Standardization of Serums. (Praktische Ergebnisse der Heilserumkontrolle.) K. E. Boehncke.
- 70 Alkali Releases Toxin from Combination with Antitoxin. (Wirkung von Alkali auf die Antitoxinverbindungen der Toxine.) H. Sachs.
- 71 *Partial Antigens. H. Much.
- 72 Regional Differences in Stature and Weight. (Körpergrösse und Körpergewicht des Menschen.) H. Schwiening.

61. Ehrlich and Behring.—By a curious coincidence, these two scientists were born March 14 and 15, 1854, and both had been trained together under Robert Koch, and each has received a Nobel prize. After their early work had brought fame to each, Ehrlich devoted himself to the study of cancer and Behring to tuberculosis, but nothing which seems to be of importance was achieved by either in these lines. Then Ehrlich turned to chemotherapy and salvarsan and Behring to diphtheria anew. His new vaccine, Römer says, seems to promise a means of actually stamping out the disease as small-pox has been eradicated. Of Ehrlich's chemotherapy, he remarks that even if salvarsan does not prove an effectual remedy against syphilis, in certain tropical diseases it has already proved its efficacy beyond question. All the German weeklies of the above date do homage to Ehrlich and Behring.

62. Action of Radio-Active Substances on Cancer Cells.—Wassermann's conclusions from his analysis of the action of radio-active substances on mouse cancers are that the cancer cells are not killed but are rendered incapable of further growth. There is no further division, and the cell thus rendered sterile grows old and dies of itself and is removed by the normal cell-destroying forces of the organism. The greater the tendency in the cell to regeneration and proliferation, the more susceptible it is to this action of the radio-active substances. But the latter act only directly, and hence deep-seated cells do not seem to feel their influence at all, not even when reenforced by injection of metal salts to generate secondary rays.

64. Immunization against Anthrax.—Wernicke states that he has succeeded in rendering guinea-pigs immune to virulent anthrax. The immunization with other animals was less complete. It is particularly noticeable as guinea-pigs seem to be peculiarly susceptible to anthrax.

67. Diphtheria Antitoxin in the Blood under Various Conditions.—Otto's research confirms the assumption that a single attack of diphtheria does not cause the production of large amounts of antibodies. For this, repeated, possibly, minute infections are more effectual. For example, physicians and nurses having to do with diphtheria patients gradually acquire a high antitoxin content in their blood serum. Bacillus carriers have a high antitoxin proportion. When there is no history of diphtheria, the person must have been subjected to repeated, minute infections which passed over with minimal or misinterpreted symptoms. This is proved beyond question by the high antitoxin content in the serum at the time and after the bacilli are found.

68. Danger and Prophylaxis of Anaphylaxis from Antitoxin.—Joseph insists that the danger of anaphylaxis in man has been much exaggerated; it is incorrect to assume that what is observed in extremely susceptible small animals applies to man. Only with much debilitated children and by intravenous injection of antitoxin a second time, is there danger. Heubner declares that with otherwise healthy children there need be no cause for anxiety on reinjection of antitoxin by the subcutaneous or intramuscular route. The attempts to avoid trouble by iodizing the antitoxin, using an oil vehicle, pasteurizing or removing the albumin have failed to prevent anaphylaxis in small animals while they materially lowered the antitoxin strength. He reiterates that the dread of anaphylaxis is baseless and that even if it were to be feared, we have means at our command to ward it off. Among these he enumerates the use of antitoxin obtained from cattle instead of horses. This could be used in prophylaxis, reserving horse antitoxin for use in case of actual diphtheria. Another way to ward it off is by means of the Neufeld-Besredka method of inducing anti-anaphylaxis by a preliminary subcutaneous injection of a minimal dose of the antitoxin. This prepares the body in such a way that the injection of the curative dose of antitoxin a few hours later has no power to elicit phenomena suggesting anaphylaxis. Still another way is by saturating the reacting body according to Friedberger and Mita by slow intravenous infusion of serum, a drop at a time. Either of these methods renders

the sensitized organism refractory to the antitoxin regardless of the route by which it is introduced.

71. Partial Antigens.—Much says that not only the tubercle bacillus but a number of others can be separated into a soluble filtrate and insoluble sediment, each of which possesses the properties of an antigen. The dialysis procedure for sero-diagnosis utilizes sediment; the optic procedure the filtrate. The sediment contains both albumin and fat; and the fat is both a neutral fat and a lipoid. For all of these, antibodies are generated, each partial antigen inducing production of its own partial antibody. The discovery of these facts and of cell immunity have opened new horizons for vaccine therapy. They have demonstrated among other things, he continues, that syphilis causes injury of cells and that the Wassermann reaction is the expression of this active injury of cells. It is not specific for syphilitic infection but it is a valuable index for treatment as the active destructive processes going on in the cells must be arrested to prevent further damage. If the Wassermann were really an immunity reaction, as some claim, it would be impossible to change it to a negative under the influence of treatment.

Jahrbuch für Kinderheilkunde, Berlin

March, LXXIX, No. 3, pp. 261-384

- 73 Muscle Pathology in Children. N. Krasnogorski.
- 74 *Increasing the Fat Content in Infant-Feeding. (Möglichkeit einer Fettanreicherung der Säuglingsnahrung.) A. Niemann.
- 75 Mother's Milk Combines Less Hydrochloric Acid than Cow's Milk. (Salzsäurebindungsvermögen von Frauen- und Kuhmilch.) H. Aron.
- 76 Growth of Animals after the Nursing Period on Mixed and on Carbohydrate Diet. H. Brüning.
- 77 Clinical and Morphologic Study of Congenital Atresia of the Tricuspid. E. Wieland.

74. Increasing the Fat Content of Infants' Food.—Niemann holds that substitutes ordinarily used for mother's milk contain much less fat than the mother's milk itself, and that the tendency is to increase the carbohydrates and decrease the fats. He believes that such injury as does result from too great fat content is due to the lower fatty acids, and he offers a method of increasing the fat-content that obviates this. It consists in the addition to the food of butter that has been thoroughly and repeatedly washed with cold water until the acid reaction has disappeared. The food—modified milk, malted gruel or whatever it is—should be heated, the butter added, and shaken so that it forms a fine emulsion. Enough butter should be added to bring the fat-content up to that of mother's milk.

Medizinische Klinik, Berlin

March 8, X, No. 10, pp. 401-442

- 78 *Inflammatory Processes Forming Tumors in the Abdomen. (Entzündliche Geschwülste der Bauchhöhle.) F. Hölscher.
- 79 *Pathogenesis of Stuttering. (Das Stottern eine Zwangsneurose.) E. Trömner.
- 80 *Diphtheric Process without Membrane. (Durch den Diphtheriebacillus hervorgerufene blenorrhoische Prozesse, speziell in der kindlichen Vagina.) E. Kobrak.
- 81 Modification of Pasteur Treatment of Rabies. (Modifikation der Lyssaschutzimpfung und deren Resultate in der Krakauer Ansalt.) O. Bujwid.
- 82 Findings with Abderhalden's Serodiagnosis Suggest that Epilepsy is of the Nature of Anaphylaxis. L. Grigorescu.
- 83 Experimental Syphilis in the Rabbit and Laboratory Infection of Two Attendants. (Histopathologie der experimentellen Kaninchensyphilis.) F. Graetz and E. Delbanco.

78. Inflammatory Processes Forming Tumors in the Abdomen.—Hölscher reports fourteen cases to illustrate the deceptive clinical pictures presented by such tumors of inflammatory origin. Even when the abdomen has been opened, it is not always easy to differentiate them. In one case a sarcoma in the omentum seemed beyond question, but the man refused to permit any operation and in two months the tumor disappeared entirely under bed rest, moist heat, potassium iodid and an iodine salve. Except for slight constipation, the man has been in good health since for fifteen years. In this and in several of the other cases, the tumor developed at a point on which there was pressure in working at a trade, and the tumor simulated inoperable cancer of the gall-bladder, uterine adnexa or stomach. A stricture in the rectum is sometimes responsible for conditions above which develop into an inflam-

mation tumor. His latest case was peculiarly instructive; the tumor was back of the right Poupert's ligament and caused no pain. An old sear in the groin was explained as the result of trauma and syphilis was denied. The Wassermann reaction was negative in the blood. The patient was a man of 41 and after a few months violent headache developed and the Wassermann reaction was found positive in the cerebrospinal fluid. Specific treatment for syphilis was pushed at once and all the symptoms promptly subsided except that a trace of the tumor can still be palpated. Most of these inflammation tumors are postoperative; sometimes two or three years may have elapsed since the operation. They develop slowly without fever or general disturbance unless the accelerated pulse points to an inflammatory process somewhere. They are always anchored solidly by adhesions and the adjoining organs become rapidly involved. Incision, not excision, is the principle for treatment and an exploratory laparotomy should not be too long delayed.

79. Stuttering an Obsession-Neurosis.—Trömmner regards stuttering as a motor *Zwangsneurose* or obsession-neurosis, similar in nature to *tic impulsif*. In his study of ninety cases he found hereditary influences marked in 85 per cent. including forty with a simple neurotic taint, thirty-four with inherited stuttering and eleven with both. Infectious diseases and trauma have a marked influence on the neurosis. One of his patients began to stutter at 2 but overcame the tendency in his first year at school. It returned at 11 after an injury to the head, but was again conquered. It returned anew at 13 after typhoid and again at 25 after articular rheumatism. Damp weather and fatigue are liable to aggravate stuttering. He defines it as a localized form of obsession-neurosis, a pure conditional functional disturbance, which shows improvement when the attention can be diverted away from it. The child begins to stutter merely from some awkwardness in speaking, from ignorance of or forgetting the proper word, and this gradually becomes fixed as a pathologic habit. This is followed by the stage in which the effort to speak with as little stuttering as possible causes abnormal contractions of the muscles of the face and body, the obsession inhibitions having now an obsession motor accompaniment. The third and extreme stage is when autosuggestion or annoyance and dread amounting to an actual phobia magnify all the phenomena.

80. Diphtheria of Vagina Simulating Gonorrhea.—Kobrak relates that after the death of a young child for laryngeal diphtheria, the father and aunt developed the same but recovered under diphtheria antitoxin. In the first case there was no formation of false membranes but diphtheria bacilli were found in each in pure cultures. In some other cases related suppuration in the nose or nasopharynx was the only symptom revealing the diphtheria and the cases simulated severe influenza, but recovery was soon complete under antitoxin. These cases of diphtheria without membrane production gave the clue to and permitted promptly successful treatment in two cases observed in the course of the last six months in which little girls of 9 had a vaginal affection simulating gonorrhea in every respect. The children complained first of smarting in the vulva, increasing for three days. Then inspection revealed that the hymen and accessible mucosa looked exactly like the throat in diphtheria minus the membrane, and smears showed diphtheria bacilli. Under antitoxin and chamomile tea or mercurial sitz baths normal conditions were restored in ten days.

Monatsschrift für Kinderheilkunde, Berlin

XII, No. 8, pp. 453-532

- 84 *Treatment of Spasmophilia in Children. Bernheim-Karrer.
- 85 No Special Relation between Spasmophilia and Whooping-Cough. B. Erlanger.
- 86 Modern Theories of Infant Nutrition as Related to Practice. R. Halberstadt.
- 87 Growth of Twins in Height. A. Orgler.
- 88 A Case of Congenital Steeple-Shaped Skull. K. Hochsinger.
- 89 Delayed Absorption of Cerebrospinal Fluid in Hydrocephalus. W. Knopfmacher and H. Mautner.
- 90 Emphysema of the Lungs a Symptom of Alimentary Intoxication. F. Bauer.
- 91 Inconstant Effect of Thymus Extracts. R. Fischl

84. Spasmophilia in Children.—Bernheim-Karrer recommends a combined treatment of spasmophilia with phosphorized cod-liver oil and milk curds from which the whey has been removed by washing with water, thus removing all mineral salts. He gives histories and tables for twelve cases in which he obtained a cure by this method; in nine of them within a week, twice at the end of the second, and once in the fourth week. The electrical reaction returned to normal. There was loss of weight under this diet, but never so great as to be alarming and it was soon compensated for on return to full milk diet.

Münchener medizinische Wochenschrift

March 10, LXI, No. 10, pp. 513-576

- 92 *Salvarsan Treatment of Syphilis in the Navy. (Die bisherigen Erfolge der Salvarsanbehandlung im Marinelazarett zu Wik.) Gennerich.
- 93 *Mode of Action of Salvarsan and Mercury in Syphilis. E. Schreiber.
- 94 *Salvarsan in Cerebrospinal Syphilis and Tabes. G. L. Dreyfus and G. Iwaschenzoff.
- 95 *Technic for Sterilization of Syphilis with Salvarsan. Leredde.
- 96 *Subcutaneous Injection of Neosalvarsan. Wechselman and Eicke.
- 97 *Intravenous Injection of Neosalvarsan. J. Katzenstein.
- 98 Technic for Injection of Concentrated Solution of Neosalvarsan. R. Seyffarth.
- 99 Reinfection after Recovery from Syphilis. E. Hardrat.
- 100 Quinin Intoxication not Anaphylaxis. (Zur Frage Arzneiüberempfindlichkeit.) A. Pöhlmann.
- 101 Fracture of Base of Skull Involving Mastoid Process, and Treatment. (Ueber Schädelbasisfrakturen mit Beteiligung des Warzenfortsatzes.) C. Kirchner.
- 102 *Reply to Critics of Serodiagnosis of Pregnancy. E. Abderhalden.
- 103 The Medical Curriculum. (Probleme des medizinischen Unterrichts.) F. Moritz. Commenced in No. 9.

92. Experiences with Salvarsan in the Navy.—Gennerich remarks that conditions are particularly favorable in the navy, for study of syphilis and the effects of treatment, as the men are under such close supervision during their three or four years of service. He then gives the details of cases in which salvarsan has been given at the Kiel Marine Hospital, classifying them under numerous headings and devoting nearly ten pages to his experiences. He excludes all cases under observation for less than a year after treatment. There were two deaths among the 1,200 cases of the nearly four years since salvarsan was introduced; one patient died from embolism, one from a dermatitis with ulcerative enteritis and stomatitis. Both had been given intensive preliminary treatment with mercury and then three injections of salvarsan. There was no disturbance in vision or hearing in any instance. In obstinate cases of meningocerebral syphilis, that is, with moderately severe changes in the fluid, he treats by endolumbal injections every third week of 6 or 8 c.c. of a solution of 0.15 c.c. neosalvarsan in 300 c.c. of physiologic salt solution diluted one-half with cerebrospinal fluid. His experience with sixty-seven of these endolumbal injections has been very favorable. He says that it has proved a weapon against syphilis such as we have never had before. The greatest progress, however, has been realized in aborting the disease; this can be done now in six months at most and in his experience the cure has proved durable in 94 or 97 per cent. of the cases. Seventeen of the men contracted the disease anew from three months to three years after all tests had shown them to be completely cured.

93. Mode of Action of Mercury and Salvarsan.—Schreiber's pharmacologic and clinical research, he states, has shown that mercury and salvarsan complete each other. The salvarsan kills all the spirochetes it can reach while the mercury promotes the immunity reactions.

94. Salvarsan in Syphilis of the Central Nervous System.—Dreyfus has made 3,000 intravenous injections of the salvarsan preparations in 250 patients and has had but one mishap. This was early in his experience and it had a favorable outcome at last. He combines the salvarsan with mercury and iodid, and has had very encouraging results to date in numbers of the cases. He enters into full particulars of indications and cases. With tertiary cerebrospinal syphilis he says that negative findings in the fluid show that nothing can be hoped from treatment. The lesion is already arrested and irreparable changes are installed, with rare exceptions.

Iwaschenzoff reports experiences with 130 cases which confirm, he says, the undoubted benefit from salvarsan in cerebrospinal syphilis. He advises to begin with small doses. Among 39 patients with myelitis, 8 were practically and 11 nearly cured; 4 had some of their symptoms retrogress; no benefit was apparent in 14; the condition grew worse in 1 patient and another patient died. In the fatal case, if the interval between the injections had been longer (seven days) possibly the focal reaction might have subsided more completely.

95. Treatment of Syphilis.—Leredde insists that treatment to be effectual must be begun very early and be vigorous and prolonged, the patient kept under medical supervision for years. He states that some of his tabetic patients have had thirty or even forty injections of salvarsan or neosalvarsan, and the Wassermann reaction and cerebrospinal findings finally became negative and the tabes seems to be permanently arrested.

96. Subcutaneous Injection of Neosalvarsan.—Wechselmann and Eicke wonder that more do not adopt the technic which they have applied in so many cases that they have now a record of 7,000 such injections. The important point is to deposit the fluid actually on the fascia. They have dropped mercury completely for years in treatment of syphilis, and claim that their results are superior to those of others who still cling to mercury. Six typical cases are tabulated to show the actual results.

97. Intravenous Injections of Neosalvarsan.—Katzenstein emphasizes that we cannot expect to eradicate the spirochetes entirely at one course of treatment when the cerebrospinal nervous system is already involved. Treatment must be resumed again and again. He adds further that the Wassermann reaction is chiefly important for the knowledge it imparts that syphilis is still lurking in the system when all symptoms have subsided.

102. Reply to Criticism of Dialysis Serodiagnosis.—Abderhalden replies to Flatow, Kämmerer and others, pointing out special features in their published technics which show that they misunderstand the principle of the method, and hence that their findings cannot be compared with those obtained with his technic.

Wiener klinische Wochenschrift

March 5, XXVII, No. 9, pp. 197-220

- 104 Infantile Scorbutus. W. Wernstedt.
105 Production of Special Precipitins in Artificial Cultivation of Tissues. P. Przygode.
106 Extensive Gap in Tendon in Forearm Bridged with Fascia. (Fall von ausgedehntem Sehnersatz durch freier Faszientransplantation.) J. Gobiet.
107 *Necessity for Modifying the Blood in Treatment of Cancer. (Die Lehre von der humoralen Entstehung der Karzinome und der Einfluss dieser Lehre auf die Therapie.) A. Theilhaber.
108 Pathogenicity of Capsule Bacilli. D. Natonek.
March 5, No. 10, pp. 221-260
109 Importance of Roentgenotherapy for Internal Medicine. G. Forssell.
110 The Meiostagmin Reaction. L. Arzt and S. Zarzycki.
111 Acute Ulceration of the Vulva. S. Grosz and R. Volk.
112 *Segregating the Blood in the Limbs in Treatment of Cardiovascular Disturbances. (Behandlung der Zirkulationsstörungen mit "Abschnürung der Glieder" und "Phlebotomie.") J. Tornai.
113 Symptoms of Uremia with Kidney Disease. J. Feldner.
114 Prophylaxis of Plague at Trieste. M. Gioscili.

107. Importance of Modifying the Blood in Malignant Disease.—Theilhaber has been proclaiming for five years that among the factors contributing to cancer, some change in the juices of the body is evidently of importance, and that in treatment all should be done to improve the condition of the blood and blood-producing organs and also to improve the circulation through the region of the cancer. He is convinced that the insufficiently oxidized and injurious products of metabolism accumulating in the body play an important part in the development of myomas. The defective functioning of the blood-producing organs cooperate in the production of cancer, as in these abnormal conditions the antibodies which should be on hand to protect the tissues are not produced in adequate amounts. This is one reason why the predisposition to cancer increases in the elderly, as their

blood-producing organs are becoming atrophied. On this factor are superposed the poverty of cells and the defective blood-supply in the connective tissue, anemia of this kind being found an invariable precursor of cancer. These same causes, poor blood-supply and scanty cells, are often the cause of recurrence after radical removal of the cancer. Research has been reported which showed that the predisposition to cancer in animals was materially enhanced by removal of the spleen, while it was reduced by removal of testicles and ovaries. Animals already bearing cancer showed unusually rapid growth of the process after splenectomy. Venesection, by stimulating blood production, aids in warding off recurrence of cancer in animals (Fichera and Cimeroni). Theilhaber thinks that any method is doomed to failure which leaves out of account the abnormal condition of the body fluids. He makes a point of applying diathermia, that is, heat in the depths by electricity as a preliminary to roentgenotherapy. He applies it to the cancer and also to the spleen in order to stimulate the blood production. He supplements this by injection of thymus, uterus and spleen extracts. These organ juices stimulate the functioning of the blood-producing organs and induce strong leukocytosis. At the same time they seem to have a cytolytic action on cancer cells. He has been using thymus and uterus extract for four years and his experiences have shown that by the above combined measures cancer can be favorably influenced. The pain and bleeding diminished, many inoperable tumors subsided and some disappeared entirely. As antibodies develop it is wise to change the measures occasionally. The injections of uterus extract at first abolished the pains, reduced the discharge and improved the general health; after a few months what was left of the cancer seemed to reach a stationary phase and no further influence on it was evident. Changing then to spleen extract, was followed by renewed improvement, or vice versa. As these injections are effectual in palliative treatment of inoperable cancer, and prevention of occurrence, even without radiotherapy, they can be placed in the hands of the general practitioner as means with which he can hope to prevent recurrence after operation, improve inoperable cancers, and cure them completely in many cases. The circumstance that the genital glands seemed to favor the growth of the malignant tumors, has led him to supplement the above measures by means to induce the ovaries to atrophy, that is, by exposure to the Roentgen rays. He adds that exposure of the testicles might have a similar favorable effect in cancer in man.

112. Segregation of the Blood in the Limbs as Therapeutic Measure in Heart Disease.—Tornai remarks that this measure is proving more and more satisfactory and a powerful aid in relieving the heart of a large part of its work for an hour or so morning and afternoon, giving it a chance to recuperate in comparative peace. It is only three years since he called attention to the advantages of this means of combatting congestions but the method has been widely adopted since. It has been applied to a hundred patients with disturbances in the circulation at the university medical clinic at Budapest, where he is assistant. He gives several illustrations of the broad band and automatic U buckle which he uses, applying constriction to the four limbs at once.

Zeitschrift für Kinderheilkunde, Berlin

X, Nos. 2-4, pp. 81-353. Last indexed March 7, p. 819

- 115 Necropsy Reports on Four Infants. (Kasualistik aus der Pathologie des Säuglingsalters.) O. Reinach.
116 So-Called Rumination in Infants. J. C. Schippers.
117 Rosenbach's Tuberculin in Tuberculosis in Children. C. Beck.
118 Case of Webbed Fingers and Toes and Deformity of the Ears. (Fall von Arachnodaktylie mit Schwimmhautbildung und einer eigenartigen Ohrmuscheldeformität.) E. Thomas.
119 Symmetrical Progressive Loss of Flesh in Children. J. Husler.
120 Physiology of Suckling. II. Barth.
121 Histologic and Cytologic Examination of the Bone-Marrow of Infants. M. L. Mayerhofer.
122 Disturbances in Nutrition of Infants from Excess of Albumin. (Der Eiweissnährschaden des Säuglings.) E. Benjamin.
123 Nutrition Experiments with Friedenthal's Milk. N. Bahrdt.

Zentralblatt für Chirurgie, Leipsic

March 14, XLI, No. 11, pp. 465-496

- 124 Implanting Nerve in Muscle. (Die direkte Einpflanzung des Nerven in den Muskel.) Heineke.
125 Etiology of Appendicitis. A. Simin.

Zentralblatt für Gynäkologie, Leipsic

March 14, XXXVIII, No. 11, pp. 393-424

- 126 *Roentgenotherapy of Myoma. (Versuche, die Heilungsdauer bei der Myombehandlung durch Steigerung der verabreichten Röntgenmengen noch weiter abzukürzen.) E. v. Graff.
- 127 *Radiotherapy of Uterine Cancer and Hemorrhage. L. Landau and E. Kaufmann.
- 128 Instrumental Dilatation of the Cervix. (Ein neues Dilatationsinstrument.) G. Grotte.

126. **Roentgenotherapy of Myoma.**—Graff reports experiments with various technics, especially attempts to enhance the effect and shorten the course of treatment by increasing the dosage and the number of points for cross-fire. The best results seem to be obtained with cross-fire from eight or ten points, each covering considerable area.

127. **Radio-Active Substances in Treatment of Uterine Cancer and Hemorrhage.**—Landau shrinks from radiotherapy alone for an operable uterine cancer. He says that vaginal hysterectomy must not be burdened with the mortality from abdominal hysterectomy. By crushing the tissues each side of the uterus, a broad strip becomes necrotic and microscopic germs in it are killed. He has found metastatic nodules in the fundus of the uterus, unreachable by the rays, while the thickened uterus walls interfere with the penetration and action of the rays. When the uterus is removed through the vagina, the tissues each side can be rendered necrotic and the stumps brought down and sutured in the vagina, thus rendering the deeper tissues accessible to the rays.

Kaufmann reports a case every particular of which seemed to indicate a bleeding uterine myoma. Both tubes and ovaries could be felt of normal size and consistency. Roentgenotherapy was advised but the patient preferred operative treatment to hasten her return to her distant home. So at her wish the abdomen was opened. Instead of the expected myoma, an extra-uterine pregnancy was found, adherent to the exterior of the uterus; both tubes and ovaries were sound. The ovum was intact. The case impresses anew the necessity for caution with radiotherapy in gynecology. The disastrous consequences that would have followed mere radiotherapy in this case are obvious.

Gazzetta degli Ospedali e delle Cliniche, Milan

XXXV, Nos. 30-33, pp. 313-352

- 129 Importance of Institutional Care for the Tuberculous. (Alcune osservazioni intorno a la vita nosocomiale dei tubercolosi.) D. Soldi.
- 130 Action on the Kidneys of Spinal Anesthesia. (Azione sul rene della rachianestesia novocainica e tropococainica.) R. Mosti.

Riforma Medica, Naples

March 7, XXX, No. 10, pp. 253-280

- 131 Echinococcus Disease. (Contributo allo studio delle cisticercosi.) V. Aloï.
- 132 Value of Wright's Serodiagnosis. L. Ferro.

Brazil-Medico, Rio de Janeiro

February, XXVIII, No. 8, pp. 71-80

- 133 *Reliability and Convenience of Ambard's Formula for Estimation of Kidney Functioning. (A proposito da constante de Ambard.) N. Barbosa. Commenced in No. 7.

133. **Ambard's "Uremic Constant."**—Barbosa adds his testimony to the value of this method of estimating the functional capacity of the kidneys. It was described in these columns March 7, 1914, p. 813.

St. Petersburg medizinische Zeitschrift

March 1, XXXIX, No. 5, pp. 61-72

- 134 Purulent Ascites Causing No Symptoms with Carcinosis of the Peritoneum. B. Ottow.
- 135 Chronic Cystic Mastitis. A. Bertels.
- 136 Massage of the Head and Neck Often Useful. F. Klau.
- 137 Inherited and Familial Tendency to Masturbation. J. B. J. Zimkin.

Hospitalstidende, Copenhagen

March 11, LVII, No. 10, pp. 289-320

- 138 *Operative Treatment of Internal Echinococcus Disease. G. Magnusson. Commenced in No. 9.
- 139 Improved Hemoglobin Scale. (Hæmoglobinbestemmelsesmetoder og Forslag til en saadan.) N. L. Petersen.

138. **Treatment of Echinococcus Disease.**—Magnusson discusses the various technics called for by different locations and varying conditions in individual cases, the aim in all being to destroy the parasites first, possibly with formaldehyd, and then suture the lips of the cyst to the wound, supplementing this marsupialization by finally burying the closed capsule. It may be necessary to attack the cyst both from the rear and the front, especially with kidney cysts or multiple cysts anywhere.

Ugeskrift for Læger, Copenhagen

February 5, LXXVI, No. 6, pp. 229-268

- 140 Electrocardiography. L. S. Fridericia.
March 5, No. 10, pp. 406-456
- 141 *Deforming Osteochondritis of the Hip-Joint in the Young. P. F. Møller.
March 12, No. 11, pp. 457-492
- 142 Retention of Membranes with Delivery at Term. (Retention af Aeghinderne ved den rettetidige Fødsel.) P. Guildal.
- 143 Amputation with Diabetic Gangrene. A. Trolle.

141. **Deforming Osteochondritis in the Young.**—Møller states that attention has been called to this affection only recently. The youngest patient in the 27 cases on record was over 3, the oldest 13. Boys are more frequently affected than girls, and the trouble affects usually only one hip-joint. Swelling and pain in the joint may be the first symptoms but in 8 of Perthes' 15 cases there was no pain; in the others there was mild pain, at times, radiating to the knee. In Møller's 2 cases one child complained of pain at first, but it disappeared under treatment, and the other had no pain. In all the cases—and this is an important point in differentiation—the children ran around with their mates and made no effort to spare that leg, even when there was some tendency to pain in it. The gait may suggest that of congenital dislocation of the hip-joint, the body tilts when the patient steps on the leg affected and—most important of all—active and passive bending of the leg causes no disturbance but abduction is almost impossible while adduction and rotation are restricted in varying degrees but seldom very pronounced. The limb can be flexed without the least pain but occasionally there is transient tenderness at the line of the joint. This was marked in one of his cases but in none of Perthes'. There is no crepitation but a slight tendency to atrophy of muscles may develop in time.

The roentgenograms given show that the findings are specific and pathognomonic. They suggest an infectious process developing at a point of lessened resistance from mechanical irritation or disturbance in the blood-supply. The hindrance to abduction seems to disappear under general anesthesia, so that this may be ascribed to muscular contraction. The difficulty in abduction and the restricted rotation and adduction soon reach their highest point and then persist unmodified for months or years. Then the affection gradually heals and the gait becomes normal once more. The trouble has certain features which distinguish it from mere deforming arthritis. The process seems to develop in the interior of the head of the femur and, unlike deforming arthritis, in time progresses to a spontaneous cure with restoration of joint function. There is no doubt that many cases of this kind have been treated for tuberculous coxitis, and the final recovery has been credited to the treatment applied. Even when the child gives a positive tuberculin reaction, this need not indicate that the affection in question is of tuberculous origin. The dystrophic changes which always accompany tuberculous coxitis are not apparent in the roentgenograms, and the bone changes of tuberculosis never appear. As the affection in question does not spread, it seems probable that it may originate in some nutritional disturbance in the region, some lesion of an artery interfering with the normal blood-supply. A history of trauma was known in 11 of the 27 cases he analyzes. No signs of rachitis were found in the majority and nothing to indicate inherited syphilis in any instance. Treatment must be restricted to massage and measures to prevent atrophy, especially of the abductors. Only when there is excessive pain or deformity are operative measures justified.

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INFLAMMATION OF THE GALL-BLADDER

ITS CAUSES, SYMPTOMS AND RESULTS *

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PHILADELPHIA

Inflammation of the gall-bladder, like many other inflammatory affections, varies so much in grade that certain mild forms do not cause appreciable symptoms, while it may be so severe as to justify the adjective "fulminating." In either event the mischief wrought corresponds with the degree of severity.

Its causes are those usual to inflammation, most frequently some pathogenic organism favored or not by local irritation of a mechanical kind. Perhaps the most common cause is the typhoid bacillus, which creeps up the common duct from the bowel. The favoring cause may be gall-stones preexisting in the bladder, or they alone may irritate enough to light up an inflammation. Again, there may be inflammation in adjacent parts which extends *per contiguum* to the gall-bladder. The variety associated with typhoid fever is most familiar to us and commonly ushers itself with a chill and fever, with pain and tenderness in the neighborhood of the gall-bladder. Successive attacks may occur, each one milder than the preceding. The milder grades commonly terminate in resolution or at least in partial resolution, some cases persisting a longer time. Such a remnant may result in alteration of secretion which leads to precipitation of the solids of the bile and the formation of calculi.

The severest or fulminating form often terminates in abscess, which, if unrecognized, may rupture into the peritoneal cavity, producing shock and death, although at times life is saved by operation promptly performed, even after rupture. Next to the typhoid bacillus the colon bacillus is a frequent cause of cholecystitis.

A result appreciated comparatively recently is adhesion of the gall-bladder to adjacent viscera, now recognized as a frequent cause of pain in the right upper abdominal quadrant, formerly unexplained.

The most important consequence of inflammation of the gall-bladder, because of its frequency and further consequences, is cholelithiasis. Cholelithiasis may arise independently of inflammation of the gall-bladder, or at least with symptoms so mild as to be unrecognizable. In either event the immediate cause is such perversion of secretion as results in the precipitation of cholesterin and lime-salts and the formation from these of calculi. Naunyn called our attention to the fact that cholesterin and lime-salts are a secretion of the mucous membrane

of the gall-bladder and ducts as well as of the liver, and that this source is especially active when the mucous membrane is in a state of active inflammation.

We should not overlook the fact also that there are other predisposing causes which need only be mentioned in passing, such as sedentary habits and lack of exercise, tight lacing, child-bearing and abdominal tumors. All of these contribute to explain the greater frequency of cholelithiasis in women than in men, four times as often. The excessive use of fatty, starchy and saccharine food is also said to favor gall-stone formation.

It is especially cholelithiasis due to active cholecystitis to which I wish to call attention because of its great practical importance not only on account of the suffering it entails, but also because of more serious consequences which have not been sufficiently emphasized, namely, its tendency to the production of cancer and other morbid anatomic states of the biliary passages.

The causal relation of stones in the gall-bladder and biliary passages to carcinoma of these localities has for some time been regarded as settled, and no one now denies that gall-stones may be an exciting cause of cancer in their neighborhood, but I do not think that the profession at large has been strongly enough impressed with the importance of early operation for removal of the offending calculi. The practice so long universal of waiting for further developments, or until direct danger to life is evident, is still too general. Realizing that many lives are thus sacrificed that might be saved and that the voice of the physician is sometimes heeded by the conservative general practitioner more than that of the surgeon, I thought that I might help those who are hesitating, by reporting my own experience, with reasons for my conversion to the belief that in every case of well-determined cholelithiasis, operation should be promptly performed with a view to averting cancer as well as relieving suffering and averting less serious complications.

In illustration, I append the history of three cases:

CASE 1.—Cholelithiasis; carcinoma of the gall-bladder and liver.—Mrs. D. was seen in consultation with Dr. H. G. Norton of Trenton in December, 1906. Her mother died of cancer. The daughter reports an attack of dysentery with nausea, loss of appetite and vertigo while at the seaside the previous summer. Otherwise her health had been fairly good. Dr. Norton saw her for the first time, November 11, for an obstinate cough contracted three weeks earlier. At that time she appeared to have no other ailment, but a couple of weeks later he discovered a prominence in the right hypochondrium. About this time, too, the cough grew worse, but later yielded somewhat to treatment. The patient had no pain in the region of the liver until about the time of my visit to her in December. There were no signs of pleuritic disease or deep-seated involvement of the lungs. Her temperature during this preliminary period was from 99.5 to 101 F. Soon

* Read before the Philadelphia County Medical Society, March 11, 1914.

after my visit her appetite failed and drowsiness supervened. She was disposed to constipation but there was no jaundice, nor were there clay-colored stools. The urine was reported normal. Subsequently to my visit the patient developed vertigo and some delirium.

On account of the hepatic enlargement, carcinoma of the liver was suspected, although there had been no jaundice or other symptom of disease of the liver unless the vertigo and loss of appetite be so regarded. Because of the surgical aspect of the case, Dr. John G. Clark was asked to see the patient. He advised operation and made a section displaying the gall-bladder. It contained gall-stones and was the seat of carcinoma which had invaded the liver. The patient died Jan. 14, 1907.

With our present knowledge of these affections it is reasonable to believe that an earlier operation would have been followed by more favorable results, but it will be observed from the history that there was no definite diagnosis of cancer, or, indeed, of cholelithiasis until it was made at the operation, both conditions being present at that time. It is, moreover, not impossible that the carcinoma was the primary disease.

CASE 2.—Cholelithiasis; cancer of the gall-bladder; general peritoneal carcinoma.—Mrs. —, was admitted to the University Hospital, Dec. 23, 1906. I had seen her in consultation with Dr. Laws of Paulsboro, N. J., in the previous summer. She then suffered with abdominal discomfort and pain, but she was stout and difficult to examine, and I could find no well-defined evidence of cholelithiasis or other abdominal disease. She was then 52 years of age. Her pregnancies, of which she had had six, were always accompanied by severe pain in the epigastrium, but her labors were normal. With the discovery of stones in the gall-bladder it became reasonable to suppose that the earlier pain during pregnancies may have been due to pressure on the stone-packed gall-bladder by the gravid uterus. With the lapse of time her symptoms became more definite. The pain increased so much in severity as to require hypodermic injections of morphin to relieve it. She had a severe attack of this kind in September. She grew gradually worse and entered the University Hospital, December 23, where Dr. Clark did an exploratory operation December 26. The gall-bladder was found filled with stones and was the seat of carcinoma and there was general peritoneal carcinosis. She died Feb. 11, 1907, after much suffering. Jaundice appeared for the first time, Jan. 21, 1907.

CASE 3.—Cholelithiasis; carcinoma of the gall-bladder; carcinomatous invasion of lymphatic glands and liver.¹—Mrs. M., aged 60, was admitted to the University Hospital on Dr. Clark's service, Jan. 22, 1900. Except for rheumatism, of which she had had several severe attacks, and indigestion more or less for years, she had fair health until her present illness. She has had four children, of whom the youngest is 24 and the oldest 37 years. Mrs. M. has not felt well for several months, suffering with pain in back, but about five weeks before admission she began to have pain also in the right upper quadrant of the abdomen. This persisted, but it was never very severe and often the pain in the back was worse than that in the right side. About three weeks before admission she noticed that her skin was getting yellow, and also that the urine was deep brown in color. A week later she observed a lump on the right side just below the costal margin. For two or three days in the previous week she had had considerable pain on urination. Bowels have been constipated for some years, requiring cathartics. For the past four or five weeks the stools have been very light in color, never before. She has had a great deal of occipital headache during the past winter.

The patient is extremely jaundiced. In the right upper quadrant of the abdomen, extending about four finger-breadths below the costal margin, is a smooth, somewhat tender, tense mass about the size of a large lemon. The urine is very dark red, specific gravity 1.025, acid, contains a trace of albumin,

no sugar, a few narrow hyaline and bile-stained granular casts, a few cylindroids, and no red blood-cells, leukocytes or bacteria.

June 24, Dr. Clark made a vertical incision over the gall-bladder, which was found to be enlarged and very tense. When it was opened a quantity of greenish pus squirted out under pressure. The lower portion of the gall-bladder was packed full of small stones, probably several hundred in number. The wall of the gall-bladder was in places about one-fourth inch thick and quite hard. The mucosa was intensely inflamed.

After removal of the stones, many small nodules could be felt in the wall of the gall-bladder surrounding the common duct, and one quite large nodule in the liver. One of these nodules was removed for examination, and macroscopically resembled carcinoma. The posterior half of the gall-bladder was excised; the anterior half, adherent to the liver, was left *in situ*. A large gauze packing was placed down to the base of the gall-bladder and the wound closed with silkworm gut. The packing was all removed by the fifth day. The patient complained bitterly of pain in the back for many days after the operation, and continued to do so longer in less degree. The jaundice cleared up partly, but continued some time longer. The stools became normal in color. The patient gained strength rapidly.

The pathologic diagnosis was carcinoma of the gall-bladder and of the adjacent lymphatic glands.

Delay in operation in cholelithiasis is sometimes followed by other terminations which are scarcely less serious than carcinoma. Among these are suppurative cholangitis involving more or less the ducts of the liver, whence it may extend into the liver substance or gall-bladder, causing abscess of the liver and empyema of the gall-bladder, and terminating fatally unless relieved by operation.

Another is the establishment of biliary fistulas in different situations in the abdominal cavity, ulcerative perforations of the biliary passages which in 70 cases out of 499 cases, reports of which were collected by Courvoisier, occurred directly into the peritoneum; in 49 there was encapsulated abscess and in 3 retroperitoneal perforation.

Between the biliary passages themselves were 8 cases; this perforation was found directly from the gall-bladder into the substance of the liver (4 cases); into the hepatic duct (2 cases), into a diverticulum of the common duct (1 case) or between the intestinal and hepatic parts of the common duct (1 case). Perforation between the biliary passages and portal vein was found in 5 cases, including the celebrated case of Ignatius Loyola. Openings between the biliary passages and gastro-intestinal canal are not uncommon (137 cases), most frequently between the bile-passages and duodenum, of which there were 83 cases, of which 73 were between the gall-bladder and duodenum, while 10 were between the common duct and duodenum. From the biliary passages into the stomach there were 13 perforations; into the jejunum 1, ileum 1 and colon 39. As might be expected, perforation takes place most frequently from the intestinal part of the duct, the stone first lodging in the diverticulum of Vater. Perforation into the urinary passages was found in 7 cases and into the pleura and lungs in 24 cases. To the last-mentioned, J. E. Graham added ten cases of broncho-biliary fistula. Finally, there may be fistulous communication between the biliary passages and the external integument, Courvoisier having collected 196 cases, in 49 of which the communication was in the right hypochondrium, 36 at the border of the ribs, 49 at the navel or in its vicinity, 17 in the right mesogastrium, 10 in the right iliac region and 6 in the epigastrium. Very

1. Published by permission of Dr. Clark.

interesting in this connection is the fact that out of 169 cases in which the sex was noted, 126 were in women and 43 in men.

Atrophy of the gall-bladder is not infrequent, and may succeed hydrops vesicae felleae. Many gall-bladders do not hold more than a dram or two of bile, and sometimes there is a mere remnant left in the shape of a fibroid mass; at other times the shrunken bladder closely embraces a single gall-stone of large size. Gall-stones are occasionally found in diverticula of the gall-bladder. Suppurative phlebitis and abscess of the liver may also be due to gall-stones, causing a puriform thrombus in an adjacent branch of the portal vein.

In other instances the gall-stone is so large as to obstruct the bowel when discharged into it, although it may have passed through the natural channel, as evidenced by dilatation of the common duct. For the most part, however, such discharge is by ulceration into the intestinal tract.

It cannot be denied that associated cancers of the gall-bladder may have preceded the cholelithiasis, but there is at least as much reason to believe that they succeeded it. It is just as reasonable to suppose that had operation been performed earlier it would have been successful, and the cancer with its fatal terminations, prevented. The present state of operation on the gall-bladder is such that it is practically as free from danger to life as appendectomy if done early. The medical treatment is at best palliative, and it is not worth while to lose time with it. Nay, more: I believe that in doubtful cases exploratory operation is at times justified, and the more justified because if cholelithiasis is not found some other remedial state may be encountered which would otherwise be undiscovered.

I have said little about symptoms or diagnosis of cholelithiasis, because my object has been to call attention to the importance of early surgical treatment with a view to prevention of carcinoma and other dangerous complications, almost all of which can be averted by such treatment.

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A PHYSIOLOGIC TREATMENT OF CONGESTIVE DYSMENORRHEA AND KINDRED DISORDERS ASSOCIATED WITH THE MENSTRUAL FUNCTION

THIRD NOTE

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In 1911 I called attention¹ to certain factors which produce physical degeneration and increase the number of women suffering from dysmenorrhea, and suggested a method of treatment. The conclusions stated here and those of former papers as well are based on personal observation of several hundred average women during several thousand menstrual periods; they have been supplemented by experimental work in the physiologic

laboratories of Johns Hopkins and Stanford University and in Dr. Kelly's laboratory at Baltimore. These observations and experiments have been almost continuous through a period of twenty-two years.

In order to approach the subject of menstruation with a judicial mind it is necessary to discard preconceived ideas, sex traditions and individual experience—in short, to begin afresh, observing this function precisely in the same attitude of mind that one would observe other periodic functions, such as digestion, defecation, urination and sleep. With this dispassionate view we may be able to accept the definition here given.

Menstruation is, in fact, a periodic flow from the uterus of woman which occurs at fairly definite intervals in the same person. This interval is counted from the first day of the onset of the flow to the first day of the next onset. The duration of the flow, which varies in different persons, should be not more than two or three days. When normal, this function is not attended with pain or disability of any kind.

The functional dysmenorrhea so commonly observed is, in the larger number of cases, congestive in type, and is produced by: (1) the upright position (Moscati), (2) alteration of the normal type of respiration by disuse of the diaphragm and of the abdominal muscles; (3) the lack of general muscular development; (4) inactivity during the menstrual period; (5) psychic influences. In order to follow the relation between these causes of congestive dysmenorrhea and the physiologic treatment about to be suggested, it is necessary to have clearly in mind certain anatomic and physiologic facts concerning circulation.

The circulatory apparatus in human beings is not materially different from that in the higher mammals which go on all fours and thus carry the body in the horizontal instead of the upright position. The vena cava is without valves; and therefore, in the upright posture, a great column of blood must be sent back to the heart against the force of gravity. The chief factor in the return of the blood to the heart is the negative pressure in the thorax. "At each inspiration blood is 'sucked' from the extrathoracic into the intrathoracic veins."² The thoracic portion of the vena cava inferior which is under less pressure than the abdominal portion has this difference increased by the descent of the diaphragm and the contraction of the abdominal muscles.

Whatever part of the body is functioning at any particular time has a larger supply of blood. Thus the uterus, during the menstrual period, has its blood-supply augmented and at the same time the general blood-pressure is lowered³ and the local blood-pressure raised. By the menstrual hemorrhage the excessive local blood-pressure is relieved. This blood, lost in the menstrual flow, is the same kind of blood as that used for mental or physical activity and represents, therefore, potential energy. In the intermenstrual period more energy of the person must be used to replace this loss. Normally, according to Cullen,⁴ Williams,⁵ Moericke and others, the epithelial lining of the uterus is not shed.

This periodic physiologic congestion of the uterus in woman, which occurs about the time of menstruation,³

2. Howell, W. H.: Text-Book of Physiology, p. 588.

3. Mosher, C. D.: Normal Menstruation and Some of the Factors Modifying It (preliminary note), Bull. Johns Hopkins Hosp., 1901, xii, 178.

4. Cullen, T. S.: Changes of the Endometrium at the Menstrual Period in "Cancer of the Uterus," pp. 25-26.

5. Williams, J. W.: Observations on the Mucosa during Menstruation (also quotes views of Moericke and others) Obstetrics, p. 75.

1. Mosher, Clelia Duel: Functional Periodicity in Women and Some of the Modifying Factors (Second Note), California State Jour. Med., January and February, 1911; reprinted in full in Woman's Medical Journal, Cincinnati, April, 1911; abstr., THE JOURNAL A. M. A., April 29, 1911, p. 1295; Sargent Normal School Association Proceedings, 1911, p. 14; American Physical Education Review, November, 1911, p. 493.

is frequently so excessive that it produces congestive dysmenorrhea. The upright position, lax abdominal muscles, costal instead of diaphragmatic breathing and constriction of the body by clothing which interferes with the use of the abdominal muscles and diaphragm—all combine to develop and promote this excessive pelvic congestion. As a result, there is pain at the menstrual period, prolonged hemorrhage and undue loss of blood.

In a large number of cases I have corrected these conditions by the following physiologic method: All tight clothing having been removed, the woman is placed on her back, on a level surface, in the horizontal position. The knees are flexed and the arms are placed at the sides to secure relaxation of the abdominal muscles. One hand is allowed to rest on the abdominal wall without exerting any pressure, to serve as an indicator of the amount of movement. The woman is then directed to see how high she can raise the hand by lifting the abdominal wall; then to see how far the hand will be lowered by the voluntary contraction of the abdominal muscles, the importance of this contraction being especially emphasized. This exercise is repeated ten times, night and morning, in a well-ventilated room, preferably while she is still in bed in her night-clothing. She is cautioned to avoid jerky movements and to strive for a smooth, rhythmical raising and lowering of the abdominal wall.

In many cases and particularly in those who most need the exercise, the voluntary contraction of the muscles will at first be very slight. Occasionally, the woman will complain of dizziness, and the exercise should be discontinued for that time; but she will be able at subsequent trials to increase the number of repetitions until she reaches the specified number. In a few cases some discomfort or slight pain has been experienced with the contraction of the abdominal muscles; nevertheless, if the exercise is gently continued, these symptoms are relieved and usually disappear entirely.

The result of the treatment has been that the pain has been lessened in many cases, and wholly removed in a large number. In women who are habitually free from pain at the menstrual period, but who, on account of some unfavorable condition, have suffered an attack, the pain has been stopped at its onset by these exercises. The exercises have been taught by the women under my care to others with the same satisfactory results as, for instance, in the following cases:

Patient A was a sister of woman under my observation. Symptoms were too abundant flow of too long duration (nine to fifteen days), headache, backache, cramps during the entire period; obliged to go to bed to control the flow. This woman has practiced these exercises daily for six months with the result that the headaches have almost disappeared, the backache and cramps are much less severe and she is able to be about on her feet instead of going to bed.

Patient B was the mother of woman under my observation. Menstruation was normal and without pain, but the patient has always suffered from severe constipation, which medical and osteopathic treatment has failed to relieve. Since she has been taught these exercises by her daughter the constipation has disappeared.

Constipation, which is so frequently a factor in producing mechanical dysmenorrhea, may be corrected in a certain number of cases by the massage of the intestines, which is brought about by the contraction of the abdominal muscles and the descent of the diaphragm in these exercises. The correction of constipation in cases in

which it exists is also a factor in the improvement as well as the correction of the excessive uterine congestion. A general improved condition of the organism is, of course, induced by proper elimination.

The effect of such exercises in limiting the duration and amount of the flow is shown in such an instance as Case 180 T, in which the patient menstruated regularly every twenty-eight days, the entire period lasting eight days and the main flow four days. Usually much abdominal pain was felt on the first day, though sometimes—as three months ago—she had no pain. Though she did not go to bed she had to rest the whole first day. She is of a temperament that worries about everything. She discovered for herself that walking at the menstrual period relieved the pain; after taking regular gymnastics and these exercises for several months she had gained in weight, there was no pain at the menstrual period and its duration was reduced to five days. She reported that she went to two dancing parties on successive nights during a menstrual period without suffering any undesirable results.

Patient V 53 had no pain, but the period lasted eight to nine days, the main flow only three days. After she has practiced these exercises daily the duration is reduced to five and the main flow to two days, and she is in much better general condition than formerly. Many women who have taken these exercises regularly, report periods shortened and some that the amount of the flow is less. In some cases it has been necessary to continue the exercises for some time before any marked change in length and amount of flow has been accomplished.

Two patients have corrected the symptoms of nausea and vomiting during menstruation by these special exercises and the morning sickness, which often accompanies pregnancy, has been completely corrected by Patient 51 M. She was pregnant about three and a half months and was in the habit of waking about 4 o'clock in the morning with severe nausea and retching. By practicing these exercises she obtained immediate relief and repeating them several times a day she has stopped not only these attacks, but also relieved the sense of weight and of pressure in the legs. These exercises have been continued through the later months of pregnancy for this latter symptom, and she has found them helpful in producing sleep.

In simple and uncomplicated cases it should be possible to control hemorrhage at the menopause as in Patient C (mother of woman under my observation), whose symptoms were severe headache, excessive flow and constipation. She takes the exercises twice daily during the month with the result that her headaches have almost disappeared, the flow is already reduced to reasonable amount and the constipation is definitely less.

It is well known that many women have pimples at or near the time of menstruation. Careful observation has shown that they sometimes come before, sometimes during and sometimes after the period. This variation corresponds to the drop in the sexual blood-pressure, a rhythm which bears the same variable relation to the menstrual flow. May not the appearance of these pimples be due to the drafting off of too much blood from the general circulation to the pelvis, thus leaving the digestion a little less perfect? The skin may suffer as well from depleted circulation—a woman is often noticeably paler at the menstrual period. The unfavorable condition may be further increased by the omission

to bathe, a habit which is traditional among women. It is not strange that the organism should work less perfectly when all its activities are so sharply altered as has become habitual among a large number of women at the menstrual period.

The desirability of more activity during menstruation is illustrated by Case D (not under my observation). A robust young woman suffered with too abundant flow which came every three weeks and then every two weeks. She was in the habit of always resting at the menstrual period. All medical care failed to relieve this too abundant and too frequent hemorrhage. She took an office position which required her to be indoors all the week except Saturday afternoon. In order to get some outdoor life she made it a practice to take a long walk of from 6 to 10 miles on her half holiday. She did this every week even if menstruation came at the time. Her periods promptly improved. She is now perfectly well with a period coming every twenty-eight days and with a reasonable flow.

While ordinary activity during the menstrual period is desirable, a word of warning is needed in this relation. Although some women may be able to carry on all their usual physical work, it would be a dangerous experiment to permit pupils in the secondary schools especially or even women in college to continue all their regular gymnastics and athletics. Many of the more mature women may be able to go on with safety, but it is impossible to draw the line between those who are and those who are not able to do violent exercise at this time. The individual judgment must be sufficiently developed after proper training in physiology and hygiene to assume the responsibility for the degree of activity desirable during the menstrual period.

Psychic Influences: The first step in the physical regeneration of women is to alter their habits of mind in regard to bodily functions. They now accept periodic disability as inevitable. The terms "sick time," "unwell," etc., for the function of menstruation and the mental acceptance of disability is so firmly fixed in traditional thinking that it is difficult to get a woman even to try to be perfectly well, however simple the method of relief offered to her. In answer to any suggestion I am met with such statements as: "I have so much less trouble than my friends that it does not seem worth bothering about"; or, "Everyone has more or less trouble," or "I can't remember to do the exercises"; the implication always being that such trouble is inevitable to woman. One young woman under observation gave this account of her experience:

I had never had a period without terrible pain since I was 13 years old. I always went to bed, at least for the first day. My mother has taken me to every kind of a doctor, even osteopath and chiropractor, and none of them did me any good. I didn't believe in your exercises, but after talking with you I did them for two weeks twice a day, and two or three days before my period, for three times a day. When I felt that it was coming on I did two hours of my class-work and telephoned my mother to have hot-water bottles and my bed ready when I should come home. I was so sure that I would have the customary pain that I lay down and waited for it to begin. But it did not begin. Then I got up and went out to gather some greens for decorations for a dance which was to be given that night. I fell over a fence and then I was sure I would have a terrible time. But as the pain still did not come on I stayed around till dinner-time and afterward dressed and went to the party. On the second day I was on my feet all day and did much heavy lifting so that I was very tired and felt a sense of weight (in the pelvis) but I had no pain, cramps or any bad effects.

The lassitude, headache and nervous irritability which it has been customary to associate with the menstrual function, may readily be explained by (1) the lowered general blood-pressure and the excessive congestion of the uterus which causes the lack of a proper blood-supply in other organs, and (2) an inactivity which brings about both a lessened oxygen intake and a decreased carbon dioxid elimination, thus favoring the development of these undesirable symptoms. To these factors must be added the normal stimulation of the sex centers at this time, which may express itself in nervous irritability and depression. The traditional treatment of rest in bed, keeping the patient very warm, directing the attention solely to the sex zone of the body, and the accepted theory that it is an inevitable "illness" while at the same time the mind is without wholesome occupation, produces a morbid attitude and favors the development and exaggeration of whatever symptoms there may be.

From these cases and their response to these regular exercises it becomes evident that the definition of menstruation should be restated more accurately: menstruation is a hemorrhage from the uterus of a woman which occurs at regular intervals. It is Nature's effort to relieve the undue congestion of the uterus which has been induced (1) by the upright position and (2) by interference with the normal physiologic return of the blood to the heart which should be accomplished by the action of the diaphragm and the abdominal muscles. The undue congestion is most frequently the cause of pain at the beginning of the menstrual period, and this pain disappears as soon as the flow is well established.

Additional evidence that the menstrual pain is caused by this excessive congestion is furnished by Dr. Esther Rosencrantz of San Francisco. In a recent conversation she stated that she frequently prescribed to her patients two hot tub baths a day to relieve the pain at the onset of menstruation. The hot bathing would, of course, divert the blood from the overcongested uterus to the skin.

The periodic raising of the local blood-pressure and the lowering of the general blood-pressure has been grossly exaggerated in the woman by her physical inactivity and by her constricting dress and unhealthful habits. The hemorrhage is brought about probably by Nature's usual method—diapedesis⁴—and there is no shedding of the epithelium in preparation for the reception of the fertilized ovum as was formerly supposed. Does not Loeb's work,⁶ showing the sensitizing of the uterine mucosa by the secretion of the corpus luteum so that it reacts to the normal stimulus of the fertilized ovum, do away with any theoretical necessity for a new surface?

I believe that menstruation represents, not a supplemental wave of nutrition (Jacobi⁷), but rather a waste of potential energy in the form of blood which might be used in productive work when not required for the development of the embryo. No physiologic purpose is served by the excessive congestion of the uterus and adnexa so frequently found in women. No harm can possibly come from bringing about a better circulation of the blood through the generative organs by the physiologic method here suggested. The healthy functioning

6. Loeb, Leo: Experimental Production of the Maternal Placenta and Function of the Corpus Luteum, *THE JOURNAL A. M. A.*, Oct. 30, 1909, p. 1471. See also editorial, Function of Corpus Luteum, *THE JOURNAL A. M. A.*, Feb. 25, 1911, p. 59.

7. Jacobi, Mary Putnam: The Question of Rest for Women p. 168.

of any organ is dependent on perfect circulation which brings oxygen and nutritive material to its cells and carries away its waste products, not on being overfilled by a sluggish blood-flow. In this overcongestion, often unduly prolonged, have we not a condition favoring the development of pathologic conditions?

It is generally believed that primitive and savage women have a very scanty menstrual flow. That a flow of short duration and limited quantity is not abnormal even among civilized women is shown in the following case.

The menstrual history of Patient 47 M began at 16, and was well established at 18; regular every twenty-eight days; flows scanty, duration three days, first day being slight colored flow, second day a little flow of decided color, third day lessened color; no pain. There was complete amenorrhea during the patient's first year in college; prompt return of normal periods during vacation; on reentering college the second year, amenorrhea again. At the end of this year she was advised by the college physician not to continue her course because of the amenorrhea. Soon after leaving college she was married and has borne eight vigorous, perfect children, and has normal sexual instinct.

Women have been taught to fear every variation in the menstrual function, but they are often quite ignorant of the origin of this unnecessary terror of even slight variations. This has come possibly from the fact that amenorrhea may be a symptom of pregnancy. Is it not probable that the amenorrhea induced by change of climate is an indication of increased rather than diminished vigor, when it is not associated with undesirable symptoms? Excessive work in college, usually social as well as mental, occasionally gives rise to a temporary amenorrhea—a mere colorless show appearing at the regular period. I have pointed out to such young women the relation between the extra strain and the absence of the usual hemorrhage—they had nothing to waste. If they were not anemic or otherwise in poor condition, the assurance that the flow would return when they ceased to work so hard would set their minds at rest. If they had been encouraged to worry about it, psychic influences might have induced more serious symptoms. Again, the menstrual period occasionally is skipped once or twice; it returns, no harm has been done, apparently—any more than in Patient 47 M already quoted, in which the college career was cut short unnecessarily, through fear, although the young woman was splendidly well in every other particular.

There is, however, some danger of confusing cases of amenorrhea, lessened flow and colorless flow which are due to lowered vitality, to anemia or to other serious disturbances, with the normal shortening of flow and lessening of amount in vigorous women produced by the more perfect circulation induced by the exercises already described, and it is obvious that careful discrimination must be made.

For twenty years I have been asking myself the question: "Why are some weak women free from menstrual disability while some strong ones suffer much pain?" The answer has been given to me every time I suggested these abdominal exercises to a woman who had never had any pain. She said: "I always breathe this way." In other words, normal women who have the diaphragmatic type of respiration have no menstrual pain. This does not prevent them, however, from having too long periods nor from undue loss of blood. In order

to change these conditions the abdominal muscles must be exercised definitely and regularly.

Constrictive dress and inactivity interfere more with the abdominal muscles than with the diaphragm. The degree to which they induce menstrual pain may be suggested by a comparison of observations made in 1893-6 with others made in 1910-14. In 1893-6 a larger proportion of the women had pain and discomfort of severe type and of relatively long duration. In 1910-14 the larger number of cases have no disability and such pain as the remainder have is rarely severe and of short duration. In 1893-6 the average width of skirts worn by 98 young women was 13.5 feet—the widest 15 and the narrowest 9 feet. The weight of the outside skirt alone was often nearly as much as the weight of the entire clothing worn by a modern girl. At that period, too, every woman must have a wasp-like waist and several under petticoats were also carried from the waist. It is certainly not difficult to understand why so many women had menstrual pain at that period.

The modern girl with her large normal waist may in some cases have her narrow skirt criticized on the ground of modesty, but from the point of view of health we should rejoice in her freedom. The only other factor which is tolerably constant in the two groups compared above is that of exercise. In some measure the greater activity of modern girls, made possible by lighter and looser clothing, has undoubtedly assisted, when the skirt is not narrow enough to be a limitation to lessen the menstrual hemorrhage, its duration and the associated pain.

Under normal conditions there should be no more women suffering with disorders of the generative organs than with disturbances of the digestion or respiration or heart. But it is still very difficult for us to lend an open mind to any theory which opposes the accepted one of inevitable menstrual disability among women. An English writer,⁸ who quotes my experiments on women, ignores the corresponding set of experiments on men, thus deducing quite false conclusions. He sets aside the statements that the blood-pressure rhythm cannot be a menstrual rhythm since it is found in men as well as women; and that the coincident functional disturbances in other organs are probably due to the lowered general blood-pressure.³ Mr. Havelock Ellis disposes of the subject as follows:

Suffering occurring at the menstrual period, whether directly or indirectly due to the menstrual process, is quite properly described as menstrual suffering.

In regard to menstruation we have too long confused cause and effect: the menstrual hemorrhage is not the cause of the blood-pressure rhythm, but an exaggerated result of interference with normal circulation.

The economic loss to the individual woman who has to earn her living and is yet periodically incapacitated more or less is very great; and even to the married woman the loss in time and working capacity is considerable. But these losses are relatively small as compared with the inability of the periodically depleted woman, to be a vigorous mother to the race.

The first of these remedies is the removal of the factors which are producing the disability—constrictive clothing and the inactivity of the muscles of the abdomen and the diaphragm. But more important even than this is an alteration of the morbid attitude of women themselves toward this function, and almost

8. Ellis, Havelock: *Man and Woman*, 1913, pp. 287, 291, 298.

equally essential is a fundamental change in the habit of mind on our part as physicians; for do we not tend to translate too much the whole of a woman's life into terms of menstruation? If every young girl was taught that menstruation is not normally a "bad time" and that pain or incapacity at that period is as discreditable and unnecessary as bad breath due to decaying teeth, we might almost look for a revolution in the physical life of women.

At present all the evidence points to the menstrual hemorrhage as a secondary matter more or less fixed by the upright position. It is unnecessary and undesirable that it should be of more than brief duration or of more than slight amount. Pain and discomfort, where no organic lesion exists, are readily controllable by the physiologic regulation of the circulation from the abdomen and pelvis back to the heart by the restoration of the tone and action of the abdominal muscles and diaphragm. The coincident functional disturbances in other organs are a result, directly or indirectly, of the undue congestion in the pelvis which has drafted off too much blood from the general circulation leaving other parts, as the digestive area or skin, too depleted to function properly. The congestive headaches, whether they occur at the menstrual or the intermenstrual period, are relieved by the equalizing of the circulation by these exercises.

A CASE OF SO-CALLED "RENAL DIABETES," POSSIBLY TRAUMATIC IN ORIGIN*

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The relations between the kidney and sugar excretion form interesting chapters in the study of diabetes and of less well-known glycosurias. The general conception that the kidney is practically passive in diabetes has been dispnted. In 1897 Lépine¹ reported the case of a woman dying in coma, whose blood contained 1.6 per cent. sugar and whose kidneys were enormous and showed a high grade of interstitial inflammation. Richter,² in 1900, in a critical review of the relation between kidney and glycosuria, concluded that renal diseases may have a favorable effect on glycosuria, and that in kidney diseases the permeability of the renal filter to sugar seemed diminished. Von Noorden³ also considers that a diseased kidney shows a diminished permeability to sugar.

Weiland⁴ has shown that in cases of acute nephritis the blood-sugar level is low, and in chronic interstitial nephritis it reaches the upper limits of normal, while in outspoken uremia there is usually hyperglycemia. He, too, thinks that the development of albuminuria in a diabetic usually has the effect of diminishing the excretion of sugar, on account of diminished permeability of the renal filter. Likewise the low excretion of sugar seen in diabetic coma is frequently associated with a very high increase in blood-sugar, an interrelation which

strongly suggests that the low excretion is due to the inability of the kidney to excrete accumulated sugar. It must be assumed, then, that a relation may exist between glycosuria and the kidney, independent of a true metabolic disturbance. The name "renal diabetes" would imply a disorder involving the kidney, and Lütjhe⁵ cites a case-report to show that glycosuria developed after the appearance of a kidney lesion.

Richter⁶ and subsequent workers do not consider active renal disease necessary for the conception of this type of glycosuria, although, according to the theories advanced by Lépine⁷ and by Frank,⁸ the absence of resorption of sugar by the kidney canaliculae may account for the anomaly. Renal diabetes is "glycosuria without hyperglycemia," analogous in many ways to the toxic glycosuria produced by chromium, uranium or phloridzin (Frank). In fact, Lépine⁷ and recently Garrod⁹ have proposed that the term "renal diabetes" be dropped and that the phrase "glycosuria without hyperglycemia" be employed in its stead.

Clinically, the condition as reported in the literature is an anomaly, differentiated from true diabetes mellitus by (a) the excretion of sugar being entirely or practically entirely independent of carbohydrate intake; (b) the blood-sugar being normal or decreased, and (c) the clinical course. Early cases of diabetes may not show an interdependence of diet and sugar excretion, so that from a diagnostic point of view the greatest emphasis is to be laid on the blood-sugar determinations. Such determinations have always been considered unsatisfactory, and reports from different clinics or different laboratories have not been comparable because of different technics employed. Therefore, the third element, the clinical course, must also be properly weighed.

In the analysis of cases of so-called renal diabetes in the literature one is struck by the many temporary derangements classified under this head, which to us seems like an unjustifiable neglect of the clinical possibilities. Since so little is known of the early course of orthodox diabetes mellitus, it would seem necessary to prove that a given condition is not true diabetes before labeling it with the name of a distinct entity of unknown etiology and pathology.

Therefore, unless one is willing to accept the term renal diabetes to mean merely a *state* of glycosuria without hyperglycemia, many of the cases described in the literature cannot be considered to prove the existence of a separate disease. Undoubted cases which have conformed to the standards just laid down have been reported. Bönniger's¹⁰ patient was under observation three-quarters of a year, and had had glycosuria for three years. There were none of the usual symptoms of diabetes; the excretion of sugar was practically constant (from 2 to 25 gm.), and was independent of carbohydrate intake; the blood-sugar was normal.

Lütjhe's⁵ patient was under observation for six months, and had the other characteristics of the condition. Only one of Weiland's⁴ three patients was watched long enough to rule out the subsequent development of a true diabetes, although he precludes this possibility on theoretical grounds. Garrod⁹ has followed two cases for six and two years, respectively. Buber and Kolisch¹¹ watched their patient for six months, but the constant

* From the Department of Clinical Research, Michael Reese Hospital.

1. Lépine: Rev. de méd., 1897, xvii, 832.

2. Richter: Deutsch. Arch. f. klin. Med., 1900, xli, 160.

3. Von Noorden: Metabolism and Practical Medicine, 1907, iii, 529.

4. Weiland: Deutsch. Arch. f. klin. Med., 1911, cli, 167.

5. Lütjhe: München. med. Wehnschr., 1901, xlviii, 1471.

6. Richter: Deutsch. med. Wehnschr., 1889, xxv, 840.

7. Lépine: Semaine méd., 1913, xxxiii, 457.

8. Frank: Arch. f. exper. Path. u. Pharmacol., 1913, lxxii, 387.

9. Garrod: Brit. Med. Jour., 1913, ii, 850.

10. Bönniger: Deutsch. med. Wehnschr., 1908, xxxiv, 780.

11. Buber and Kolisch: Wien. klin. Wehnschr., 1897, x, 553.

high sugar excretion (5 per cent.) makes it doubtful if this case should be included.

Recently Salomon¹² has described from von Noorden's clinic thirteen cases which fit into the class under discussion. He calls them "diabetes innocens" rather than renal diabetes, and lays great stress on the clinical course. Although some of his patients did show a somewhat increased amount of blood-sugar, he does not consider that this fact makes them true diabetics. The absence of an alimentary hyperglycemia is of special importance in including glycosurias among the innocent group. Call these cases what one will, Salomon has surely shown that there exists a group of glycosurias even in youth which does not progress to orthodox diabetes mellitus.

The observations recently made by Novak, Porges and Strissower¹³ and by Frank,⁸ that the transitory glycosuria seen in pregnant women belongs to the type of glycosurias without hyperglycemia, suggests at least that the condition is not rare, and that the more extensively blood-sugar estimations are made, the more frequently will the condition be observed. Tachau,¹⁴ Weiland,⁴ Frank⁸ and others all report cases without symptoms of diabetes, with glycosuria independent of intake, and with normal or reduced blood-sugar, but in none of these was the period of observation long enough to exclude them definitely from the possibility of being unusual onsets of true diabetes. Any studies, however, which throw light on the early clinical course of diabetes and assist in differentiating non-diabetic glycosurias from true diabetes, are at least of empiric interest, and the review of the literature justifies the assumption that a glycosuria without hyperglycemia exists and is not a true diabetes.

Since knowledge of the condition under discussion is so far from being absolute, it seems wise to report in complete detail the interesting case which furnishes the basis for this article.

REPORT OF CASE

History.—The patient was 23 years old, a Jewish man. Nov. 6, 1912, he was refused life insurance because of "diabetes." From this date to Dec. 21, 1912, he was under the care of Dr. Arthur Beifeld, and was being gradually placed under an increasing restriction of carbohydrates. December 21 he was referred to us. At that time he had no complaints whatever, except at the physicians who insisted on finding sugar when he felt so well. No increased thirst, no increased appetite and no polyuria were present. During the period of restricted diet he developed acetoneuria and lost weight.

The patient, five years before, had had possibly a mild typhoid fever. He denied lues. Always a good liver, he had eaten about what he wanted and usually consumed plenty of rich carbohydrate food. He indulged in alcoholic drinks very moderately, but smoked cigarettes freely. He was of a nervous, rather excitable temperament.

About one year before, while he was out sleighing in a party, the vehicle was struck by a street-car and the patient was thrown to the street, landing on his head. He was unconscious for a few minutes, but soon recovered, and was able to drive an automobile. He was seen at this time by one of us (A. H. B.), who found nothing indicating a skull fracture. For from three to five days he had intense headache, which then left him without the slightest trace of ill result. A urinalysis made before the accident and one after it showed no sugar.

Most members of the family are of the "high-strung" type, hustling, active mentally and physically. There is no diabetes in the family.

Physical Examination.—The patient is a well-built, well-nourished young man in apparent perfect health. The pupils are equal and react to light and accommodation. The eye-grounds (Dr. Harry Gradle) are negative. Mucous membranes are of good color. Tongue is clean, teeth good, pharynx negative. Ears and nose negative. No palpable glands in the neck or elsewhere in the body. The thyroid is not enlarged.

Chest: Heart and lungs are negative.

Abdomen: This is held everywhere rather rigidly, but when attention is distracted it relaxes. There is no tenderness, and no masses are palpable. Spleen, liver and kidneys are not palpable.

Genitalia are negative. There is no edema of extremities. Careful examination of reflexes shows them all equally active and brisk. No Babinski.

Pulse is 76 to the minute, regular and small; vessel-wall is not palpable. Blood-pressure (systolic) in right brachial artery is 110 mm., in left 105.

Temperature is 98.4, respirations 20.

Blood Examination: Red blood-cells, 5,980,000; white blood-cells, 9,450; hemoglobin, 95 per cent. (Sahli corrected). Differential count—Wright stain: polymorphonuclears, 71; small mononuclears, 19; large mononuclears, 8; eosinophils, 1; basophils, 1 per cent.

The Wassermann reaction is negative.

Feces are small, well-formed, acid and brown; they show no mucus, pus or blood. Microscopically, digested food particles are revealed, with no excess of undigested muscle fibers or of fat.

TABLE 1.—EXAMINATIONS OF PATIENT ON CARBOHYDRATE-FREE DIET (SIX PIECES OF BREAD)*

| Date | Amt. c.c. | Specific Gravity | Reaction | Sugar, Per Cent. | Sugar, Gm. | Albumin | Acetone | Ferric Chlorid | Ammonium Gm. |
|----------|-----------|------------------|----------|------------------|------------|---------|---------|----------------|--------------|
| 12/21/12 | + | 1.025 | Alk. | + | + | 0 | 0 | 0 | ..... |
| 12/24/12 | 1,500 | 1.016 | Alk. | 0.55 | 8.25 | 0 | ++ | 0 | ..... |
| 12/30/12 | 1,500 | 1.015 | Acid | 0.23 | 3.45 | 0 | ++ | 0 | ..... |
| 1/7/13 | 2,100 | 1.017 | Acid | 0.39 | 8.19 | 0 | ++ | 0 | 0.321 |
| 1/11/13 | 3,000 | 1.018 | Alk. | + | ? | 0 | + | + | 0.35 |

* In this table ± means trace, + positive, and 0 negative.

† Plain specimen.

‡ Sugar was not measured as only a plain specimen was examined.

A Roentgen examination of the skull showed no evidence of fracture and no signs of pathologic changes in the sella turcica.

The first twenty-four-hour urine examination was made by us Dec. 24, 1912, at which time the patient was on a restricted diet, containing from four to six pieces of rye bread a day. This and the other office examinations are shown in Table 1.

The reducing body was dextrorotatory, was fermented and gave characteristic crystals with phenylhydrazin.

Jan. 12, 1913, the patient was admitted to the Michael Reese Hospital for further study. During the stay in the hospital he had no symptoms except when under complete restriction of carbohydrate, at which time he complained of headache and was inclined to be irritable.

The complete urinary analyses, with corresponding diets, are given in Table 2.

Summary of Findings.—1. A glycosuria practically independent of carbohydrate intake. In fact, the largest excretion of sugar noted is on February 14, after five days of strict carbohydrate-free diet.

2. Neither simple restriction of carbohydrate intake nor the use of "vegetable days" or "oat days" made the patient aglycosuric, except once, for four days.

3. Restriction of protein intake did not reduce the glycosuria.

4. Acetonuria and clinical signs of acid intoxication developed quickly on the withdrawal of carbohydrate from the diet.

Further History.—Feb. 17, 1913, the patient went to Europe, where he consulted von Noorden. He was under observation at von Noorden's clinic from March 11 to March 31, during which time the observations made by us were repeated and

12. Salomon: Deutsch. med. Wchnschr., 1914, xl, 217.

13. Novak, Porges and Strissower: Deutsch. med. Wchnschr., 1912, xxxviii, 1868.

14. Tachau: Deutsch. Arch. f. klin. Med., 1911, civ, 448.

verified. In addition, two blood-sugar determinations were made—one with the patient on a strict diet, and one while he was taking plenty of starch—and in both cases “normal values were found.” In a personal communication von Noorden says, “According to theoretical considerations, the case must be classified under the so-called renal diabetes.”

We have been able to follow the patient quite carefully since his return from Europe. We did not advise a strict carbohydrate-free diet, but with some misgivings we allowed him to eat about what he pleased—restricting only the use of sugar. There were certain personal reasons why the patient was anxious to know if the disease could be true diabetes mellitus, and he insisted on using means to bring out any latent evidences of diabetes. Accordingly, he led his usual life, and ate what he pleased. July 15, 1913, he was in excellent physical condition, weighing 160 pounds, felt strong and healthy and had absolutely no symptoms of diabetes, or any complaint whatever. He felt so well then that he even refused to collect a twenty-four-hour specimen, but did give us a plain specimen voided at 11 a. m. This contained 0.8 per cent. sugar, no acetone and no albumin.

At about this time we proposed a lumbar puncture. We reasoned that the whole condition *may* have been due to the

the twelfth day it became less intense and disappeared on the fourteenth.

After recovery from this the patient continued his normal life. In October he became engaged to be married, and at varying intervals we saw him and examined the urine. We saw him last, Dec. 24, 1913. He had been leading a very strenuous, active life; had eaten much of all kinds of carbohydrates; had been indulging freely in cocktails and champagne, and had not even limited the amount of saccharose in his diet. In addition, he had been under severe nervous strain. In fact, he was living under ideal conditions to produce a diabetes mellitus. He weighed 160 pounds, had no symptoms of disease, and even though he was very slack on sleep, he “felt fine.” The urinalysis of a twenty-four-hour specimen showed: amount, 1,000; acid in reaction; specific gravity, 1.026; no albumin; no acetone; sugar, 0.9 per cent.; 9 gm. The diet for the day included, for breakfast: grapefruit with sugar, three pieces of toast, coffee with two lumps of sugar; for lunch: two rolls, potatoes, pastry, three lumps of sugar in his coffee; for dinner: rolls, potato and pastry.

The patient was again seen, March 19, 1914. He was feeling splendid, weighed 163 pounds and had no symptoms. A plain specimen of urine voided at 12:30 p. m. after a rather

TABLE 2.—COMPLETE URINARY ANALYSES, WITH CORRESPONDING DIETS*

| Diet | Date, 1913 | Amount, c.c. | Specific Gravity | Reaction | Albumin | Sugar, Per Cent. | Sugar, gm. | Acetone | Ferric Chlorid | Ammonium, gm. | Nitrogen, gm. | Urea, gm. | Casts | Weight, Lbs. |
|---|------------|--------------|------------------|----------|---------|------------------|------------|---------|----------------|---------------|---------------|-----------|-------|--------------|
| Carbohydrate-free | 1/12 | † | 1.025 | Acid | 0 | + | + | ++ | ++ | .... | .... | .. | 0 | 151 |
| Carbohydrate-free | 1/13 | † | 1.025 | Acid | 0 | + | + | ++ | ++ | .... | .... | .. | 0 | 149 |
| Vegetables | 1/14 | 1.920 | 1.020 | Alk. | 0 | + | + | ++ | ++ | .... | .... | .. | 0 | 149 |
| Oat gruel, 250 gm., and vegetables | 1/15 | 720 | 1.030 | .... | 0 | 0 | 0 | ++ | ++ | 0.23 | .... | 23 | 0 | .... |
| Same | 1/16 | 1.170 | 1.030 | .... | 0 | 0 | 0 | ++ | ++ | 0.28 | .... | 23 | 0 | .... |
| Same | 1/17 | 2.220 | 1.012 | .... | 0 | 0 | 0 | ++ | ++ | 0.11 | .... | 24 | 0 | 149 |
| Vegetables, oat gruel, 100 gm., meat, eggs.. | 1/18 | 2.430 | 1.015 | .... | 0 | 0 | 0 | ++ | ++ | 0.13 | .... | 46 | 0 | .... |
| Same | 1/19 | 1.980 | 1.016 | Alk. | 0 | 0.119 | 2.36 | ++ | ++ | 0.18 | .... | 30 | 0 | .... |
| Carbohydrate-free | 1/20 | 2.520 | 1.017 | Alk. | 0 | 0.15 | 3.78 | ++ | ++ | 0.10 | .... | 30 | 0 | .... |
| Bread, 50 gm. | 1/21 | 2.520 | 1.021 | Alk. | 0 | 0.2 | 5.25 | ++ | ++ | 0.12 | .... | 30 | 0 | .... |
| Bread, 75 gm. | 1/22 | 2.520 | 1.022 | Alk. | 0 | 0.26 | 6.5 | ++ | ++ | 0.55 | .... | 37 | 0 | 149 1/2 |
| Bread, 100 gm. | 1/23 | 1.560 | 1.025 | Alk. | 0 | 0.14 | 2.18 | ++ | ++ | 0.99 | .... | 31 | 0 | .... |
| Bread, 125 gm. | 1/24 | 1.560 | 1.024 | Alk. | 0 | 0.25 | 3.9 | ++ | ++ | 0.57 | .... | 22 | 0 | .... |
| Bread, 150 gm. | 1/25 | 1.590 | 1.020 | Alk. | + | 0.19 | 3.1 | ++ | ++ | 0.39 | .... | 22 | 0 | .... |
| Bread, 150 gm. potato, 40 gm. | 1/26 | 1.780 | 1.020 | Alk. | ++ | 0.4 | 2.83 | ++ | ++ | 0.76 | .... | 25 | 0 | .... |
| Bread and potato, 250 gm. | 1/27 | 1.440 | 1.025 | Alk. | ++ | 0.17 | 2.43 | ++ | ++ | 0.34 | .... | 23 | 0 | .... |
| No meat; carbohydrate, 200 gm.; 4 to 6 eggs. | 1/28 | 1.230 | 1.030 | Alk. | ++ | 0.26 | 3.2 | ++ | ++ | 0.61 | .... | 30 | 0 | .... |
| Same | 1/29 | 1.560 | 1.022 | Alk. | ++ | 0.17 | 2.65 | 0 | 0 | 0.7 | 9.59 | 28 | 0 | .... |
| Same | 1/30 | 1.560 | 1.015 | † | ++ | 0.29 | 4.5 | 0 | 0 | 0.64 | 8.51 | 23 | 0 | .... |
| Same | 1/31 | 1.020 | 1.021 | Acid | ++ | 0.31 | 3.18 | 0 | 0 | 0.7 | 8.99 | 18 | 0 | .... |
| Meat once a day, bread, 100 gm. | 2/ 1 | 1.020 | 1.021 | Acid | ++ | 0.26 | 2.68 | ± | 0 | 0.97 | 6.57 | 22 | 0 | .... |
| Bread, 50 gm. | 2/ 2 | 1.380 | 1.018 | Alk. | ++ | 0.25 | 3.45 | ± | 0 | 0.92 | 6.95 | 26 | 0 | .... |
| Carbohydrate-free | 2/ 3 | 2.220 | 1.017 | Alk. | ++ | 0.26 | 5.75 | ± | 0 | 0.9 | 11.5 | 28 | 0 | .... |
| Carbohydrate-free | 2/ 4 | 1.410 | 1.024 | Alk. | + | 0.185 | 2.61 | 0 | 0 | 0.48 | .... | 31 | 0 | .... |
| Carbohydrate-free | 2/ 5 | 1.860 | 1.022 | Alk. | 0 | 0.2 | 3.76 | 0 | 0 | 0.54 | 9.37 | 33 | 0 | .... |
| Vegetables | 2/ 6 | 1.890 | 1.026 | Alk. | 0 | 0.18 | 3.4 | 0 | 0 | 0.45 | .... | 34 | 0 | .... |
| Oat gruel, 250 gm. | 2/ 7 | 1.260 | 1.024 | Alk. | 0 | 0.16 | 2.02 | ± | 0 | 0.38 | .... | 37 | 0 | 150 |
| Same | 2/ 9 | 2.190 | 1.012 | Alk. | 0 | 0.12 | 2.67 | 0 | 0 | 0.74 | .... | .. | 0 | .... |
| Carbohydrate-free | 2/10 | 2.610 | 1.015 | Alk. | 0 | 0.13 | 3.43 | 0 | 0 | 1.4 | .... | .. | 0 | .... |
| Carbohydrate-free | 2/11 | 1.890 | 1.012 | Alk. | 0 | 0.1 | 1.89 | 0 | 0 | 0.71 | .... | .. | 0 | .... |
| Outside of hospital; carbohydrate-free 5 days | 2 14 | 1.680 | 1.025 | Alk. | 0 | 0.5 | 9.24 | + | + | 0.37 | .... | .. | 0 | .... |

* In this table + means positive, 0 negative, ± trace and ++ strongly positive. † Plain. ‡ Amphoteric.

head injury in 1911, and might therefore be the result of hypophyseal hyperactivity. While it is true that the work of Cushing and his coworkers¹⁵ indicates that glycosuria due to the hypophysis would be associated with hyperglycemia, nevertheless the interesting practical result of the lumbar puncture in Herrick's¹⁶ case of diabetes insipidus seemed to warrant the procedure from a practical as well as a theoretical point of view. Accordingly, on July 30 the lumbar puncture was performed and the fluid analyzed by Dr. Dean Lewis. From 15 to 20 c.c. of a clear fluid under decided pressure were withdrawn. The blood-pressure tracings made by Dr. Lewis gave no sign of a pressure-raising substance.

The effect on the patient was quite unexpected. There was no change in the urine, either in amount passed or in the sugar excretion, but the day after the puncture the patient began to complain of intense headache and gastric distress. The headache was intractable and lasted for two weeks. It did not yield to phenacetin, pyramidon or bromids, but toward

heavy carbohydrate breakfast was acid, had a specific gravity of 1.016 and showed no albumin or acetone. The reduction of Haines' solution was so slight that at first the test was called negative, and it became positive only after standing. Quantitatively 0.2 per cent. sugar was found.

A blood-sugar determination showed the lower limit of normal.

A review of this unusual case shows a healthy young man in whose urine glucose was accidentally discovered during a life-insurance examination. The discovery of glucose followed about one year after a cranial trauma, but whether the two are related belongs entirely to the field of speculation. There were never any symptoms of diabetes mellitus. The excretion of dextrose has been practically independent of carbohydrate intake. The blood-sugar twice determined in von Noorden's clinic was normal. Furthermore, under conditions which in a man of his age would certainly intensify the symptoms and increase the severity of a true diabetes mellitus, the patient has continued to remain in perfect health, and

15. Johns Hopkins Hosp. Bull., 1911, xxii, 165.
16. Herrick, James B.: Report of a Case of Diabetes Insipidus with Marked Reduction in the Amount of Urine Following Lumbar Puncture, Arch. Int. Med., July, 1912, p. 1.

the urine has not taken on the characteristics of urine in diabetes mellitus. Therefore, not only does he fill the standards of renal diabetes, but also the clinical course of the case almost surely excludes the diagnosis of diabetes mellitus.

104 South Michigan Avenue.

THE ROENTGEN RAYS IN THE DIAGNOSIS OF GALL-STONES AND CHOLECYSTITIS

AN IMPROVEMENT IN TECHNIC *

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Shortly after the Roentgen rays had proved their value in the diagnosis of urinary calculi, a number of investigators made an effort to demonstrate biliary calculi, and in 1901 I conducted a series of experiments on the cadaver, and repeated them the following year, but discarded the method as being useless and unreliable.

The following difficulties are encountered in the diagnosis of gall-stones:

1. Their density differs little from the surrounding bile, and with this shadow of the bile we must reckon the shadow cast by the liver, which is also more or less saturated with bile. If the gall-bladder contains little bile the stones can be more easily demonstrated. If the biliary calculi are composed partially of calcium salts, they can be then more easily detected. Therefore, the greater the quantity of bile surrounding the gall-stones in the gall-bladder, or the liver, and the less the density, the greater will be this difficulty. Because of less surrounding bile, calculi in the common duct are more easily shown than in a distended gall-bladder.

2. Pure cholesterin stones can sometimes be recognized by their increased transparency as compared with the liver — giving a sort of mottled appearance. Especially is this true when they are covered with a thin deposit of lime. Biliary calculi occur more frequently in stout persons. Therefore, one meets the same difficulties that are involved in examining stout persons with renal calculi. The small shadow cast by the stone must be differentiated from the shadow cast by a great mass of soft tissues. In such cases, not only are we confronted with the density of a great mass of soft tissue, which in itself lessens the differentiation of our shadows, but we must also contend with the secondary radiation from this mass of soft tissue which by its cross-rays tends to obliterate the sharpness of differential shadows.

Therefore, the stouter the patient, the more difficult will be our task, though one must not conclude that the examination is impossible on this account. In a number of cases in which shadows of the calculi were shown the most clearly, the patients were very stout.

3. On account of the faint differentiation of the shadow of a gall-stone, it is necessary to have the liver and gall-bladder absolutely still. This can be accomplished by carefully training the patient to hold the breath, and by applying as much compression as possible.

4. It has been shown by a number of men that overexposure or underexposure, even when the stones are laid on the plate, will nearly obliterate the shadow. A very high or a low vacuum will have the same effect. Therefore the length of the exposure and the degree of

vacuum must be correct. This necessitates a number of plates, made with different time of exposure and different vacuum.

5. One must differentiate the shadow of gall-stone from that cast by calcified costal cartilages, renal calculus and fragments of bismuth, pills or other substances in the stomach or bowel.

In 1910, realizing that our improvements in technic should give us more satisfactory results in the diagnosis of biliary calculi, I renewed my efforts, and in October of that year presented a paper¹ on this subject before the American Roentgen Ray Society.

Since that time a number of investigators have taken up the work. Both Case and myself believe now that about 50 per cent. of gall-stones can be demonstrated, but that negative findings never can be interpreted as indicating the absence of gall-stones.

TECHNIC

1. *Preparation of Patient.*—The patient should be thoroughly purged. For this I prefer a bottle of magnesium citrate. If possible, the stomach should be empty. Therefore, I prefer to give a purgative in the evening and make the examination the next morning before the patient has eaten breakfast. In this way one eliminates the confusing shadows due to gastro-intestinal contents. One also reduces somewhat the total bulk of substance through which the rays must pass.

2. *Position of Patient.*—Having removed all clothing in the line of exposure, I place the patient on the abdomen with the plate under the gall-bladder region. The arms are extended toward the head so that the patient is resting with the chest, elbows and face flat on the table. The upper part of the body is then bent strongly to the left (not rotated). This opens the space between the lower ribs and the crest of the ilium to the widest possible angle, through which the rays can best reach the gall-bladder. Now I generally add a second examination by passing the rays directly through the liver, between the eleventh and twelfth ribs. This position will serve to differentiate foreign substances or concretions in the bowel. I believe this to be an improvement. I have found a third position useful. It consists in taking a board that will support an 8- by 10-inch plate, and with the patient in the position described above, it is placed under the abdomen, with the edge of the board toward the patient's feet. It is made to dip deeply into the abdomen by placing a triangular block under this lower edge. This brings the plate in closer contact with the gall-bladder.

3. *Position of the Tube.*—The tube with the compression-cylinder diaphragm (Albers-Schonberg) is set so that the rays will pass obliquely through the space between the last rib and the crest of the ilium toward the gall-bladder. By means of the diaphragm cylinder we eliminate many of the secondary rays which in the early days made this work impossible. At times a certain amount of compression can be added, which will lessen the total bulk of tissue, and lessen the distance of the tissue and the diaphragm from the plate.

4. *Exposure.*—This should be made as short as possible, and must of necessity be made while the patient is holding the breath. A little time should be spent in training the patient in holding the breath absolutely still. The absolute time cannot be set, for it will depend on the power of the apparatus, and on the skill of the

* Read before the Philadelphia County Medical Society in a symposium on gall-bladder disease, March 11, 1914.

1. Pfahler, G. E.: Am. Quart. Roentgenol., April, 1911.

operator, who must judge quickly at the time, according to the working of the tube. I agree with Rubaschaw² that several exposures are generally necessary with different tubes and different times.

5. *Vacuum of the Tube.*—This should be the same as that used in making kidney examinations, and should register from Nos. 6 to 7 on the Benoist scale.

6. *Improvement in Technic for the Demonstration of Less Opaque Calculi, the Outline of the Gall-Bladder and the Under Surface of the Liver.*—Inflation of the Colon and Stomach: After making the preceding investigation one will sometimes be able to demonstrate cholesterol stones and those containing a very minute quantity of calcium salts, which would otherwise be overlooked, by inflating the colon with air. Case suggested this for the demonstration of the lower border of the liver. For this purpose I use a moderate-sized rectal tube, and attach to it an atomizer bulb. With the patient on the fluoroscopic table I then gradually dilate the colon with air, watching the effect until the patient complains of some discomfort and until the lower border of the liver is well outlined. I then make some plates of the lower border of the liver in this position. With a screen directly over the liver, and with a small diaphragm, I watch until the gall-bladder is outlined. One or more plates are then made in this position. The patient is then placed in the vertical posture, which permits the gas to rise more definitely to the upper portion of the colon, and in this way outline the lower border of the liver more fully. When this procedure is not sufficient, or when the left lobe of the liver is under special consideration, air is pumped into the stomach by means of a stomach-tube, or the stomach is distended by means of a Seidlitz powder.

When it is necessary to study the stomach and colon by the bismuth method following this examination, the patient should be placed back on the fluoroscopic table, and the air expelled from the colon through the rectal tube. If this is not done the excess of gas in the colon will distort the stomach and interfere materially with the examination. All of these procedures must, of course, be modified to suit the particular portion of the stomach, or bowel, that is under examination. I find it very difficult to establish any routine method of examination. The technic must be modified in each case according to the probabilities of the diagnosis. After eliminating the air from the colon it can then be injected by the opaque solution, and the bowel studied regularly. It is sometimes difficult to eliminate all the air from the colon, and when obstruction or constriction of the bowel is under serious consideration, it should not be injected for preliminary study. This injection of the colon also interferes with the evidence of adhesions about the duodenum. One must therefore decide what evidence can be sacrificed best.

General Procedure: In general, I make a plate of the right kidney, then turn the patient on the abdomen in Position 1, and make two or more plates; then place the tube over the liver and make another plate in Position 2; then one in Position 3. I then inject the colon and make several plates.

Renal Calculus.—In one patient who had the symptoms of gall-bladder disease, I found a stone in the upper part of the right kidney. This can be determined usually by using the customary technic for a kidney examination, when the shadow of the stone will be more distinct and smaller.

Calcareous Deposits.—In the costal cartilages calcareous deposits are liable to occur in streaks, to be found on both sides and not to be confined to the region of the gall-bladder. There is, of course, nothing to prevent the occurrence of both gall-stones and calcifications in the costal cartilages in conjunction. In such instances the absolute differentiation is almost impossible.

The possibility of artefacts will occur to every experienced roentgenologist; but this can be eliminated by a repetition of the examination, and by multiple exposures on different plates.

Pericholecystitis.—In the diagnosis of cholecystitis by means of the Roentgen rays, the evidence obtained is less direct. One may find an enlarged gall-bladder at times without special technic, during the course of a general gastro-intestinal examination. This is recognized by the displacement of gas in the colon (there is usually some gas present in the hepatic flexure in the upright position), or by displacement of the bismuth content in the duodenum or colon. The enlarged gall-bladder can be demonstrated further by the injection of the colon with air.

Pericholecystitis is liable to be followed by or associated with adhesions to the duodenum or colon. By inference when adhesions of the duodenum are found this may indicate a preceding or associated cholecystitis. The interpretation of adhesions in the gall-bladder region must be made with great care. When in a relaxed, thin abdomen one finds the duodenum drawn up and to the right, to the under surface of the liver, moving upward with the diaphragm or liver, and occupying a relatively abnormally high position with relation to the normal attachments, one has little difficulty in deciding that adhesions are present. This is especially true when there is associated evidence in these cases of adhesions about the hepatic flexure, and when there is associated deformity in the outline of the duodenum; but when these conditions are not all present, and when one is dealing with a patient who is well nourished or even at times fat, the recognition and demonstration of adhesions is difficult, and should be interpreted with the greatest care, for a fat abdomen naturally holds the stomach high and crowds the stomach and duodenum up close to the liver. Sometimes one can hold a stomach down in such cases, and determine whether or not, during the forced expiration, the duodenum moves disproportionately upward with the liver.

In an effort to determine as nearly as possible the value of the Roentgen rays in the special studies of the gall-bladder, I have tried to trace the various cases that have been studied. I have received reports concerning fifty patients. Of these, seventeen have not yet been operated on, and therefore must be eliminated from our conclusions. Thirty-three have been operated on. Of this number stones were found by me in twenty. Stones were found by the surgeon in twenty-seven. The probability of stones was diagnosed in two others, which were not found. A probable diagnosis of stones was made in seventeen other cases, in which the patients have not yet been operated on, but in which the evidence obtained was strong enough to be reduced to lantern-slides. In all, twenty-seven patients had gall-stones removed by the surgeon. Of this number, twenty, or 74 per cent., were demonstrated by the Roentgen rays. I believe that this percentage is high, and that in general not more than 50 per cent. can be shown, unless, perhaps, by the improved technic described, which has been employed only in recent cases.

2. Rubaschaw: Fortschr. a. d. Geb. d. Roentgenstrahl., xxi, 533.

My percentage of positive findings is unusually high, probably because I have been making the effort to find the gall-stones. Contrary to Case³ and Cole,⁴ I do not expect to find the gall-stones during a bismuth study of the gastro-intestinal tract, but make a direct preliminary study for gall-stones by the special technic which I have described, and then follow with the bismuth study. In only one of the thirty-four cases in which I have found evidence of gall-stones did I find the stones during the bismuth study of the gastro-intestinal tract, and in that case the stones were so dense that no one could overlook them. Stones containing a high percentage of lime-salts can of course be demonstrated in this way, but in most of my cases the stones contained very little lime-salts, and could be seen only on a very clear plate by careful oblique illumination.

Likewise for the demonstration of these light stones, screens, as recommended by Cole, are unreliable. In nearly all cases I used screened and unscreened plates, and rarely was able to recognize the stones on the intensified screen plates.

CONCLUSIONS

1. Gall-stones can be shown only when they are composed of a substance of greater or less density than the surrounding tissues. This will usually mean that they must contain some lime-salts, though this quantity may be small.
2. My records show positive findings in 74 per cent., but I believe in general one cannot count on more than 50 per cent. being demonstrable. I believe that a negative diagnosis at present has no value.
3. It is possible that with the improved technic, when we find the gall-bladder small, and still find no stone, it may become of some value in negative diagnosis.
4. The estimation of the value of this method of diagnosis must be based only on the work of roentgenologists who have mastered a good technic, and who are thorough in their work.
5. Definite information will be obtained only by continued cooperation of the surgeon and the roentgenologist.
6. In the future I believe that we shall obtain valuable information concerning the liver and spleen by the roentgen method described.

1321 Spruce Street.

THE ABSORPTION AND TENSILE STRENGTH
OF CERTAIN ABSORBABLE ANIMAL
LIGATURES

A PRELIMINARY REPORT

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While much laboratory work has been done on the standardization of various therapeutic agents, before their introduction into the human organism, suture materials have, up to the present, been neglected. Too often the poor quality and careless preparation of catgut have been discovered only by its postoperative ill effects, whereas previous experiment might have averted such accidents.

This report is the result of 119 implantations, in animals, of various sizes and preparations of catgut and

kangaroo tendon. The animals used to yield the final standardization results were robust Belgian hares and small healthy dogs. It was noticed, that in a few of the animals which became infected with a disease characterized by a nasal catarrh and emaciation, the absorption period of the ligatures was much delayed. This may be the reason why in some patients the absorption time has been exceeded and may be due to a decrease in metabolic processes dependent on a lowered vitality.

In five of the cases in which the dressings were purposely not applied to the experimental incisions a staphylococcus infection was noted. In these cases the absorption of the ligatures was much delayed and sutures removed from the wounds were found covered by a cheesy exudate consisting of dead leukocytes, fibrin and detritus, which could be scraped from the attenuated suture, but which formed a coating sufficiently dense to prohibit the free access of tissue fluids and cells.

The catgut standardized so far has been prepared by the cumol method of Krönig, and has been compared with catgut prepared by different manufacturers using the same method, and also with catgut prepared by the liquid petrolatum and iodine method of Bartlett. Although catgut prepared by the latter process has less tensile strength and may not be heated, it otherwise has about the same properties as catgut sterilized by the cumol method.

TABLE 1.—ABSORPTION PERIOD

| Nature of Material | Tissue of Implantation | Absorption Period |
|--------------------------|-----------------------------------|----------------------|
| Plain Catgut— | | Days |
| Size | | |
| .00 | Human prepuce (circumcision)..... | 7 |
| 0 | Muscle | 11 |
| 0 | Fascia | 10 |
| 1 | Muscle | 13 |
| 2 | Muscle | 16 |
| 3 | Muscle | 21 |
| Chromic Catgut “20-day”— | | |
| 1 | Peritoneum | 18 |
| 1 | Muscle | 22 |
| 1 | Fascia | 20 |
| 2 | Muscle | 20 |
| 3 | Fascia | 20 |
| Kangaroo Tendon— | | |
| Fine | Peritoneum | 30 |
| Fine | Fascia | 39 |
| Medium | Fascia | 38 |

An important yet simple process, which, in the manufacture of chromic catgut, is frequently omitted or done in a careless manner, is the neutralization of the potassium bichromate in the catgut after the chromicizing bath. If this neutralization is not carefully carried out, the formation of a sinus extending outward from the offending suture often results, adding five or ten days to convalescence and sometimes interfering seriously with the proper healing of the wound.

From certain of the animals the suture materials were removed at various periods before absorption was complete, and then were tested as to their tensile strength. This has been done in only a few cases, and the series is not yet complete.

In the case of kangaroo tendon it was found that the period of absorption as usually stated is too long. Some of the tendons had disappeared by the thirtieth day, except in a few cases in which the tendon was attenuated to very thin strands, the size of fine hairs.

A rather unexpected result was the slightly more rapid disappearance of sutures from fascia than from muscle. If both specimens were unabsorbed there was invariably more attenuation of the catgut implanted in the fascia, and in cases in which the suture had disappeared from the fascia, small strands were found in the muscle.

3. Case: Arch. Roentgen Rays, September, 1913, 135.
4. Cole: Surg. Gynec. and Obst., February, 1913.

In our experiment with plain catgut it was surprising to notice the increased absorption time in all specimens. That mol has nothing to do with this was shown by similar tests with gut prepared by other methods.

As yet it has been impracticable to implant the coarser grades of kangaroo tendon in rabbits and dogs. On account of the stiffness and roughness of the suture material the implantation produces trauma in the more delicate tissues.

TABLE 2.—TENSILE STRENGTH

| Size | Plain Catgut Before Implantation Pounds | Plain Catgut Implanted 5 Days Pounds | Chromic Catgut Before Implantation Pounds | Chromic Catgut Implanted 5 Days Pounds | Chromic Catgut Implanted 10 Days Pounds |
|------|---|--------------------------------------|---|--|---|
| 00 | 12 | ... | 10 | 7.5 | 6.5 |
| 0 | 20 | 8.5 | 17.5 | 10.5 | 8.5 |
| 1 | 25 | 11 | 23 | 13.8 | 9.5 |
| 2 | 33 | 14.5 | 30.5 | 18.7 | 14.5 |
| 3 | 40 | 21 | 37.7 | 26.5 | ... |

"30-day Chromic" No. 0 at 9 days gave 16 pounds.
"30-day Chromic" No. 2 at 5 days gave 22 pounds.
"40-day Chromic" No. 2 at 5 days gave 28 pounds.

The figures in Table 2 indicate the breaking-point of the various kinds of suture materials when submitted to a sudden quick jerk.

I wish to express to Dr. Cassius H. Watson my sincere appreciation for aid and advice during the progress of these experiments and also my indebtedness to Dr. Henry A. Fisher and to Dr. William F. McKenna for their valuable assistance.

1899 Bedford Avenue.

A CLINICAL METHOD FOR THE RAPID ESTIMATION OF THE QUANTITY OF DEXTROSE IN URINE

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Methods for the clinical determination of the quantity of dextrose in urine have never been very satisfactory. Practically the only method used to any extent is that which employs the Einhorn fermentation saccharimeter. This method is very inaccurate, errors resulting from differences in the activity of the yeast used and in the temperature at which the instrument is kept while fermentation is proceeding. Another disadvantage of the fermentation procedure is that several hours at least must elapse before a final reading can be made.

Recognizing the inadequacy of this method, I have attempted to devise a method for the colorimetric determination of dextrose in urine which is simple, fairly accurate and rapid. Several colorimetric methods for the determination of dextrose in urine have been described. Among these are the methods of Neitzel,¹ Ruini,² Järvinen³ and Dehn and Hartman.⁴

These methods, however, are hardly suitable for the use of the physician. Nor is the method of Autentrieth⁵ and his co-workers easily carried out in the office of the practitioner. This method requires the use of Bang's⁶ solution, and necessitates the decolorization of most urines.

1. Neitzel: Chem. Ztg., 1894, 290.
2. Ruini: Gazz. chim. italiana, 1901, xxxi, Part II, 445.
3. Järvinen: Ztschr. f. anal. Chem., 1913, lvii, 14.
4. Dehn and Hartman: Jour. Am. Chem. Soc., 1914, xxxvi, 403.
5. Autentrieth and Tesdorf: München. med. Wchnschr., 1910, No. 34, 1780, Autentrieth and Müller: München. med. Wchnschr., 1911, lviii, 899, Autentrieth and Funk: München. med. Wchnschr., 1912, lix, 689.
6. Bang: Biochem. Ztschr., 1906, ii, 271.

The Autentrieth method has been modified by Forschbach and Severin⁷ for the colorimetric estimation of dextrose in blood; about thirty minutes is required for this procedure, and the method is quite successful.

My method is exceedingly simple and the time required for an estimation is from ten to twelve minutes. Besides an ordinary glass funnel and filter paper, test-tube and Bunsen burner, the only apparatus necessary is:

- 1. A small graduated cylinder, or a 15 c.c. pipet.
- 2. A 1 c.c. pipet.
- 3. A 7-inch test-tube.
- 4. Set of standard vials.
- 5. An extra vial.

The reagents are:

- 1. Benedict's solution.⁸
- 2. Strong ammonium hydroxid solution.

This solution is prepared as follows:

| | Gm. |
|------------------------------------|-------|
| Copper sulphate | 17.3 |
| Sodium citrate | 173.0 |
| Sodium carbonate (anhydrous) | 100.0 |

Dissolve the copper sulphate in from 100 to 150 c.c. of distilled water and add slowly, with stirring to a filtered solution (about 800 c.c.) of the other ingredients and make up to one liter.

The procedure is as follows: To 15 c.c. of Benedict's solution, 1 c.c. of urine is added (from the 1 c.c. pipet). The mixture is put into the 7-inch test-tube and is boiled four minutes. It is then filtered. Into the "extra vial," 5 c.c. of this filtrate and 1 c.c. of ammonium hydroxid solution are placed and the color of this solution is compared with the standard vials, the preparation of which is described below.

In the boiling, a certain amount of copper in the Benedict solution is reduced, leaving amounts of unreduced copper in the solution corresponding inversely to the quantity of sugar in the urine used. The ammonium hydroxid forms ammonium copper salts, giving a deep blue color and insuring, consequently, greater ease in comparing the color in the unknown solution with the standard vials, than if the untreated filtrates were compared. The standard vials that I used were ordinary 2-dram, long homeopathic vials, rubber-stoppered, and the solutions in them were prepared by the reduction of standard dextrose solutions of 0.0, 0.5, 1.0, 1.5, 2.0 and 2.5 per cent. in the same manner which has been described above.

It has been found convenient to have the "extra vial" marked at 6 c.c., then 1 c.c. of ammonium hydroxid can be placed in the vial first and filtrate is added to the mark on the vial.

Estimations have been made of the quantities of dextrose in urine by fermentation, polariscope, and the method described above. The results of these estimations are given in the accompanying table.

There are a few minor disadvantages about this method. In the first place, the estimations are practically all a bit higher than the polariscopic readings. Several factors no doubt contribute toward this error, which, however, is almost constant, and there are no inconsistent variations such as occur in the fermentation method. The range of the apparatus is small, but in more concentrated urines, dilution can be resorted to, and no appreciable error will result (*H*, *K*, in table). On the other hand, the range of the fermentation

7. Forschbach and Severin: Arch. f. exper. Path. u. Pharmak., 1912, lxxviii, 340.
8. Benedict, Stanley R.: Jour. Biol. Chem., 1911, ix, 57; The Detection and Estimation of Glucose in Urine, THE JOURNAL A. M. A., Oct. 7, 1911, p. 1193.

saccharimeter is limited to 1 per cent., and dilution as well as the quality of the yeast seems to modify its exactness considerably.

While the polariscope no doubt offers a very accurate means of determining quantities of glucose in urine, it has, however, two drawbacks. First, in cases of acidosis, it is necessary to rotate the urine before and after fermentation, as levorotatory substances present cause a considerable error, as is shown in the table (K). And, as fermentation consumes several hours, the rapidity of polariscopic determinations is diminished in these cases. Secondly, because of its considerable cost, the polariscope is not available to most physicians.

There are several advantages of the method of determining dextrose described above. The apparatus and reagents are simple and easy to procure. The ammonium hydroxid which I used was ordinary strong household ammonia. Benedict's solution is familiar to almost every physician; it keeps indefinitely, is very delicate and is rapidly replacing Fehling's solution. A liter can be prepared by anyone in twenty minutes at a ridiculously low cost.

TABLE OF ESTIMATIONS OF THE QUANTITY OF DEXTROSE IN URINES

| | Fermentation* Per Cent. | Polariscope Per Cent. | Author's Method Per Cent. |
|----------|----------------------------|--------------------------|------------------------------|
| A. | 0.04 | 0.10 | ± |
| B. | 0.48 | 0.43 | 0.5 |
| C. | 0.96 | 0.94 | 1.0 |
| D. | 1.68 | 1.44 | 1.0-1.5 |
| E. | 2.8 | 2.91 | 3.0 |
| F. | 1.56 | 1.52 | 1.5-2.0 |
| G. | 1.2 | 1.69 | 2.0 |
| H. | 2.4 | 5.2 | 5.25 |
| I. | 0.48 | 1.42 | 1.5 |
| J. | 0.2 | 2.0 | 2.25 |
| K.† | 2.2 | 4.19‡ | ... |
| | | 4.48§ | 4.5 |

* Fermentations were done under the same conditions as regards temperature.

† Urine was levorotatory after fermentation.

‡ Without fermentation.

§ With fermentation.

± Reaction positive, but less than 0.5.

The advantage of Benedict's over Bang's solution appears to me to be the fact that the former solution contains more copper sulphate per liter, and consequently less reagent is needed for the same quantity of urine, and decolorization of the urine is not necessary, because of the small amount of urine used, and because of the deep blue of the end-reaction.

It is possible that instead of making standards from actual determinations, standard bottles of a solution of a copper salt, for example, ammoniated copper ($\text{CuSO}_4 \cdot (\text{NH}_4)_2 \text{SO}_4 \cdot 6\text{H}_2\text{O}$) can be made and provided, either in sets of standard tubes, or for colorimeters. Experiments toward this end, as well as comparisons of this method with gravimetric determinations will be pursued at a future date.

It seems, at present, probable that this method for rough quantitative sugar estimation, merely for clinical work, will be highly satisfactory.

I wish to extend my thanks to Dr. Lafayette B. Mendel of the Sheffield Scientific School of Yale University for his kind advice and for the use of the facilities of the biological laboratory of that institution.

39 Howe Street.

A NEW FLUOROSCOPIC SIGN FOR THE DIFFERENTIATION OF PYLORIC SPASM OF EXTRAGASTRIC ORIGIN

FROM THAT ASSOCIATED WITH UNCOMPLICATED GASTRIC ULCER ON OR NEAR THE LESSER CURVATURE

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In young adults of both sexes the most common cause of gastric hyperacidity is pyloric spasm, associated with subacute or chronic inflammation of the appendix or gall-bladder, or both. This hyperacidity is not infrequently complicated by hypersecretion. These facts have been established by my personal study of 7,041 consecutive test-meal analyses at the Mayo Clinic and at Augustana Hospital. In 2,183 cases operative proof, with consideration of the postoperative course, was possible.

On account of clinical symptoms and signs, this group of cases is frequently confused with, or diagnosed as, "medical" gastric ulcer of the young. The clinical manifestations are: acid dyspepsia, epigastric distress and tenderness, occasionally nausea and vomiting, fluctuations in appetite, anemia and "hunger pain." Test-meal examinations of such patients generally reveal intermittent gastric stagnation (4 per cent.), hyperacidity and, if the ailment has persisted for an average time of 2.8 years, hypersecretion, periodic or continuous.

These observations are abundantly supported by the experimental work of Eppinger and Hess,¹ and by the clinical reports of Graham,² Aaron³ and Baar.⁴

In persons of the type under consideration, however, gastric ulcer associated with pyloric spasm not uncommonly occurs. My records show that this happens in approximately one out of nine such cases. With the exception of those instances in which hematemesis or melena has been demonstrated, the clinical manifestations most closely simulate those associated with pyloric spasm from appendix or gall-bladder disease. Inasmuch as, clinically, there is no differentiating feature, the problem in this 11.1 per cent. of cases becomes an important one from the points of view of diagnosis, prognosis and treatment. Both the extragastric and the intragastric lesions may be confused, or in the recognition of the former, the latter may be overlooked.

The recent rapid development of fluoroscopic examination of the stomach containing material opaque to Roentgen rays has contributed much to our better understanding of the factors underlying the clinical exhibition of pyloric spasm. By this diagnostic procedure, fully 60 per cent. of calloused and complicated ulcers are readily recognized and located with fair accuracy. Acute ulcers or those involving the pyloric half of the stomach or near the lesser curvature (particularly if these are of the uncomplicated type) must be judged to exist largely in the light of clinical history and laboratory data. This group furnishes the great majority of incorrect Roentgen-ray diagnoses. At laparotomy, appendix or gall-bladder disease is the usual finding when the mistake has been made. This fact has been commented on by Case,⁵ Carman⁶ and others. I have satisfied myself on

Efficient Versus Effective Health Departments.—A health department may be 100 per cent. efficient but only 15 per cent. effective by reason of a penny-wise and health-foolish policy in apportionment of funds for operation.—*Bull. Chicago School of Sanitary Instruction.*

1. Eppinger and Hess: *Ztschr. f. klin. Med.*, lxxvii, 205, and lxxviii, 345.

2. Graham: *Collected Papers of the Mayo Clinic*, ii, 39, 1910.

3. Aaron: *Arch. f. Verdauungskr.*, 1913, xix, 344.

4. Baar: *Die Indikanurie*, 1913.

5. Case: *Jour. Michigan State Med. Soc.*, 1913, xii, 577.

6. Carman, R. D.: Mayo Clinic, personal communication to the author.

this score from a personal study of the reports of more than 1,600 Roentgen-ray examinations of gastric function.

In the group of cases with the type of pyloric spasm under discussion, routine examination by the fluoroscopic screen presents very similar pictures. The evidence in these hyperacidity cases is: hypertonic stomach, vigorous peristalsis, rapid visualization of the duodenum, tenderness or muscle spasm over the region of the pylorus, and possibly abnormal contractures on the greater curvature, which are readily mistaken for incisurae. There may be "physiologic" hour-glass stomach.

From a somewhat extensive experience, I have found the following fluoroscopic observations of value in the differentiation between the pyloric spasm associated with uncomplicated ulcer near the lesser curvature and that present when the lesion is solely in the appendix or gall-bladder:

1. *Technic*—The motor function is estimated by examination for evidences of the bismuth or barium meal at the end of a six-hour interval following its administration. The patient is then screened during and after his taking a standard buttermilk-bismuth (or barium) suspension.

2. *Similar Findings*.—(a) Unless marked gastric atony is present, rarely retention of the motor meal; (b) hypertonic stomach; (c) usually vigorous gastric peristalsis; (d) prompt visualization of the duodenum; (e) free movement of the stomach, laterally or vertically, by palpation or kneading; (f) tenderness to moderate or deep pressure over the pyloric region.

3. *Variable Findings*.—(a) Abnormal peristaltic waves, that is, true incisurae or incisura-like niches on the greater curvature, especially if the stomach is kneaded or tapped; (b) tender areas along the lesser curvature which move with change of position of the stomach; (c) tenderness in the midepigastrum, in the right iliac fossa or in the anatomic region of the gall-bladder.

4. The patient then receives $\frac{1}{50}$ grain of atropin sulphate hypodermatically. He is rescreened in a half hour. If much of the bismuth or barium mixture has left the stomach, more should then be given.

5. *Findings at Second Examination*.—(a) In true, uncomplicated ulcers on or near the lesser curvature, palpation carried on vigorously along the lesser curvature will usually locate a point of maximum tenderness. Palpation at this point will generally be accompanied by such permanent spasm of the circular muscle fibers of the stomach wall as to bring out a readily recognizable incisura on the greater curvature. This is approximately at the same level as the local tender area on the lesser curvature. The phenomenon may be elicited with the stomach moved laterally or vertically. The incisura thus brought out after atropin is readily distinguished from normal peristalsis. Tenderness over the pyloric region is a variable finding. There may be spasm or tenderness in the gall-bladder or appendix regions if these parts are also diseased.

(b) In cases of pyloric spasm associated with appendix or gall-bladder lesions but with no gastric ulcer present, vigorous palpation along the lesser curvature may be accompanied by evidence of tenderness, but fails to delimit local foci of distress associated with incisurae or incisura-like niches along the greater curvature, or areas of local tenderness that correlate with the stomach on its being moved about. Tenderness over the pars pylorica is a variable finding. Tenderness in the right

iliac fossa or in the gall-bladder region (especially at the end of deep inspiration) is often exhibited.

6. Reexamination of the patient on different days should demonstrate the constancy of the differential sign outlined above.

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THE EFFECT OF OPERATION ON KIDNEY EXCRETION AS INDICATED BY THE PHENOLSULPHONEPHTHALEIN TEST *

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Although the use of phenolsulphonephthalein in estimating kidney function is of only a few years' standing, it is to-day probably the most accurate index of renal elimination which we possess. It has been put to test all over the world and in all classes of cases with a resulting uniform praise of its accuracy, being considered superior to a chemical and microscopic examination of the urine in showing the actual work that the kidneys are doing.

Geraghty says that albumin and casts are no index of the severity of a kidney lesion, being present frequently in marked degree when the pathologic change in the kidney is slight, while on the other hand severely damaged kidneys may be present when there are very few abnormal constituents in the urine, whereas the phenolsulphonephthalein test, according to him, will practically always tally with the kidney changes. As a demonstration of this fact, I shall cite a case of a woman who was sent to the University Hospital by Dr. Fussell in June, 1913.

REPORT OF CASE

The patient had been ill for four months with a mass in the left kidney region, and one month previous to admission she developed a similar mass on the right side. She walked into the hospital and a phenolsulphonephthalein test performed on admission showed no excretion in two hours. The blood examination was negative; the urine had a specific gravity of 1.011 and contained a trace of albumin; otherwise it was negative. In view of these findings, the phenolsulphonephthalein test was repeated with the same result, although the woman was apparently in no dangerous condition. The woman died in uremic coma about two weeks after admission, having had an attack of hematuria a few days before death. The highest blood-pressure reading was 160 mm. Hg systolic, which was two days before death. The diagnosis was not definitely settled, as no necropsy was permitted, but it lay between congenital polycystic kidneys and hypernephromas of the kidneys. This case, I think, demonstrates clearly the superiority of the phenolsulphonephthalein test over the usual laboratory test for kidney function.

Contrary to Geraghty's opinion, several cases of severely damaged kidneys with a phenolsulphonephthalein output greater than normal have been reported, such as those reported by Pepper and Austin¹ within the last year. Phenolsulphonephthalein is recognized as the standard test, however, and has been used as such in the cases which form the basis of this report.

* Read before the Philadelphia Pathological Society, Jan. 22, 1914.

1. Pepper, O. H. P., and Austin, J. H.: Some Interesting Results with Phenolsulphonephthalein Tests, *Am. Jour. Med. Sc.*, 1913, cxlv, No. 2, p. 254.

At the suggestion of Dr. F. E. Keene the phenolsulphonephthalein test was applied to about twenty patients on admission to the gynecologic ward at the University Hospital. These patients were selected without preference. All had been sent in for operation and consequently had been supposed to be good surgical risks by their respective attending physicians. It was decided to note the amount of elimination of phenolsulphonephthalein before operation, the duration of anesthesia, the character of the operation, the position of the patient while on the table and again the amount of elimination of the drug approximately twenty-four hours after operation. The patients all received the routine preliminary preparations, which consisted merely of a purgative the night before operation, there being no reduction in the amount of food or drink until the morning of operation. Each of those who had abdominal operations received an enema of 2,000 c.c. of sterile water on the table at the completion of the operation and a hypodermic injection of $\frac{1}{4}$ grain morphin sulphate and $\frac{1}{150}$ grain atropin sulphate soon after operation. In two patients the tests were never completed; one, who had a cholecystostomy, being too sick after operation to be disturbed, while the other who had a phenolsulphonephthalein excretion of 30 per cent. on admission, died the following day, not having been operated on. Necropsy showed a large hydronephrosis of the right kidney caused by a calculus occluding the renal duct.

The amount of phenolsulphonephthalein excretion before operation varied from 20 to 90 per cent., while the excretion after operation varied from 25 to 80 per cent. The average duration of anesthesia was about one hour, and the operations were for the most part pelvic and plastic, although there were two kidney cases and one case of intestinal resection. There were four positions used on the operating-table, namely, dorsal, lithotomy, Trendelenburg and the lateral posture for kidney cases.

The examinations showed that four patients excreted the same amount of phenolsulphonephthalein after operation as before; two of these had albumin and casts in the urine before operation. Eight patients showed a decrease after operation, this decrease amounting to 15 per cent. or less in every case but one. This patient had a cloud of albumin and granular casts in the urine before operation, but was excreting 90 per cent. of phenolsulphonephthalein; after operation, however, the excretion dropped to 25 per cent., although the patient merely had a plastic operation and showed no symptoms of any renal disturbance afterward. A case in which nephrectomy was performed for renal calculi showed a decrease of only 5 per cent. In this case the indigocarmin test also was performed before operation and showed that the diseased kidney was entirely functionless while the opposite kidney began to excrete the dye in twenty-six minutes, thus showing that the length of the delay in the excretion of indigocarmin does not always indicate the amount of decrease in the function of the kidney. The remaining six cases showed an increase in the excretion after operation; in two cases the increase amounting to 30 and 45 per cent., respectively, the latter case only showing 20 per cent. before operation.

Although ether has long been known as a renal irritant, and kidney irritation following its use, as evidenced by the appearance of casts in a previously normal urine, is a common observation, nevertheless there has been absolutely no relation between the length of anes-

thesia and the diminution in the excretory power of the kidneys in these cases—assuming, of course, that phenolsulphonephthalein is a reliable guide.

Bovée² states that chloroform and ether and also the Trendelenburg posture have little effect on the production of albumin and casts in the urine, although these agents all decrease the rate of urinary excretion and the amount of urea, but that in any event the quantity and quality of the urine is practically always normal at the end of twenty-four hours after operation. In this series the quantity of the urine and the amount of urea were not observed, but the position of the patient on the table, the character of the operation and the administration or omission of proctoclysis likewise gave no evidence of having any special effect on the kidney function. Although many of the patients had traces of albumin and even hyaline or light granular casts in the urine before operation, there was no greater diminution of excretion in these cases than in those with normal urine, and in some there was an increase after operation. The only patient who showed a marked decrease after operation was also the only one who had a cloud of albumin with casts in the urine before operation.

It is noteworthy that in all the cases which showed a diminution after operation, the diminution was most marked in the first hour, the excretion during the second hour usually increasing after operation, which seems to indicate that the damage to the kidneys is slight if anything.

TENTATIVE CONCLUSIONS

Although this series is entirely too small to serve as a basis for any definite conclusions, nevertheless, as far as it has gone it seems to indicate the following:

1. The effect of ether anesthesia on healthy kidneys is practically *nil* so far as reducing the excretory power of these organs is concerned.
2. Traces of albumin in the urine before operation should not give much concern, but clouds of albumin accompanied by casts should be considered seriously before the performance of elective operations.
3. The duration of anesthesia in any given case does not in itself signify the amount of injury which the kidneys will sustain.
4. The position of the patient on the table, the character of the operation and the administration of proctoclysis have not shown any effect of the percentage of phenolsulphonephthalein excretion after as compared with that before operation.
5. In one-third of the cases there is an increased excretion after operation.

I wish to express my indebtedness to Dr. John G. Clark and Dr. Floyd E. Keene for the privilege of reporting these observations.

1503 Girard Avenue.

2. Bovée, J. W.: Renal Excretion during the Administration of Chloroform and Ether in Gynecological Surgical Operations, Tr. Am. Gyn. Soc., 1909, xxxiv, 270. The Influence of the Trendelenburg Position on Quantity of Urine Excreted during Anesthesia, Tr. Am. Gyn. Soc., 1910, xxxv, 443.

Public Instruction in Temperance.—Drunkenness cannot be eliminated or materially reduced unless the public demands such reduction. The public obviously will not force the prevention of drunkenness until convinced of the harm caused by intemperance. It is of greatest importance, therefore, that the public should be continuously informed of the evil effects caused by the abuse of alcohol and of the cost of drunkenness to the state.—Report of Commission to Investigate Drunkenness in Massachusetts.

FORM OF THE ELECTROCARDIOGRAM

DIAGNOSTIC SIGNIFICANCE OF ITS
VARIATIONS *

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An attempt will be made to explain in an easily understandable manner a few basic facts about electrocardiographic records and their interpretation. I shall first discuss why and how an electric current is obtained from the heart, and then consider in detail the records obtained in normal and pathologic conditions.

When any muscle contracts it produces electricity. The potential is produced at the area which is entering into contraction, all quiescent parts of the muscle being electronegative, so that a current tends to flow toward every quiescent muscle area. This is called the *action current*. If a wire be placed with one end on a contracting part of the muscle and the other on a part which has not yet begun to contract or which has finished its contraction, a circuit will be completed and current will flow through the wire from the quiescent part back toward the contracting part of the muscle. The conditions are quite similar to those of an electric battery. Within the battery the flow is from *zinc to carbon*, but through the wires outside the flow is from *carbon to zinc*.

The contractions of the heart, like any other muscle, are accompanied by electric effects, but owing to the heart's complex muscle structure the current is also complex. Each normal cardiac contraction is considered to originate in the sinus node which lies in the part of the right auricle between the superior and the inferior venae cavae. The contraction spreads over the auricles in a wave-like manner and there is produced on the auriculoventricular node of Tawara some effect which results in the passage of an impulse, possibly also a contraction, along the bundle of His and its branches. The terminal branches of this bundle lie about the bases of the papillary muscles of each ventricle, and the impulse, reaching the bundle terminals in both ventricles at about the same time, causes the muscle of each chamber to contract synchronously.

The body-tissues form an excellent electric conductor, so that the heart's current may be obtained by attaching electrodes to any two of the limbs. A small German-silver plate may be bound about the limb by bandages soaked in strong salt solution, or the patient may be seated in a chair with the hands and feet immersed in a jar of strong salt solution containing a porous cup of zinc sulphate solution. The wires are connected to the silver plate or to a zinc bar immersed in the zinc sulphate solution. The current thus obtained is recorded by a galvanometer, the most satisfactory type of which is the string galvanometer of Einthoven. The principle of this instrument is that when a current is passed through a delicate fiber of platinum or silver-plated quartz which is suspended between the poles of a powerful magnet, the fiber is bent a varying distance to one side or the other according to the intensity and direction of the current. The movements of the fiber are photographed on a moving film or plate.

To obtain the heart's action current clinically, it has become customary to use but three of the various possible

combinations of the extremities. These are right arm and left arm, right arm and leg, and left arm and leg, and although the two legs are so situated in relation to the heart as to be practically equivalent, the left leg is always used. These combinations are called leads: Lead I, Lead II and Lead III, respectively, and are seen to be transverse, oblique and left lateral in relation to the trunk.¹

These three extremities form a triangle with the apex directed downward and the heart at its approximate center. Figure 1 represents this fact, and the triangle may be considered as represented, to be equilateral and to have the central point of the heart as its actual center. In each lead one extremity lies nearer to the base of the triangle, the other to the apex. In Lead I the right arm is basal, the left arm apical. In Lead III the left arm is basal and the leg is apical, etc.

When the extremities are connected to the galvanometer, the basal and apical extremities of each lead are always connected to corresponding poles, and a *current flowing through the instrument from an apical toward a basal extremity* will always produce an *upward move-*

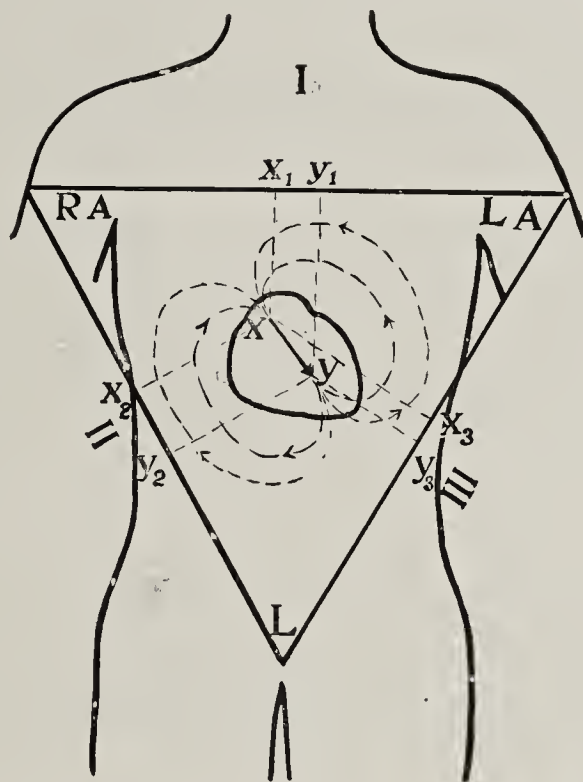


Fig. 1.—R A, right arm; L A, left arm; L, left leg. The Roman numerals outside of the triangle designate the number of the lead to which the respective sides correspond.

ment in the line of record. The reverse of this is also true: a *current flowing from a basal toward an apical extremity* will always produce a *downward movement*.

The instrument should be *standardized before each lead is taken* so that we can regard equal excursions in different records as being produced by equal currents. The usual standard is that a potential difference of 1 millivolt in the circuit containing the patient and the galvanometer string shall cause a movement of 1 cm. in the record.

Figure 2 is a quite typical record obtained by this technic. It shows in each lead repetitions of a group of movements of practically constant form separated by a level line, the abscissa or zero level of the record. Each group represents one heart cycle and consists of three upwardly directed and two downwardly directed waves or peaks. These were designated by Einthoven by the

1. For the construction of the galvanometer and technic of obtaining records: See Einthoven: *Le telecardiogram*, Arch. internat. physiol., 1906, iv, 132. James and Williams: *The Electrocardiograph in Clinical Medicine*, Am. Jour. Med. Sc., 1910, cxl, 408.

* Read before the Section on Medicine of the New York Academy of Medicine, Jan. 20, 1914.

* From the Department of Physiology, College of Physicians and Surgeons, Columbia University.

neutral letters P, Q, R, S, T, a nomenclature now almost universally used. If it is desired to speak of a wave in a certain lead the Roman numeral of the lead is affixed, as RI, RII, RIII, etc.

It is quite evident on looking over a series of records from different normal persons that there is no one form which can be called the normal electrocardiogram. Each peak is subject to variations within certain limits, and the resulting permutations are so numerous that though records from the same person at different times are practically identical, no two records from different persons are exactly alike. There are quite definite limits to the normal variations of the waves, and these will be outlined.

THE NORMAL WAVES

The first wave, called P, is known to be due to the action of the auricle. It is a small rounded or blunt-pointed elevation, varying in height from 1.5 to 2 mm., usually directed upward in all three leads, and highest in Lead II. Rarely its descending limb sinks below the

The wave Q, at times entirely lacking, is usually small, not over 2 mm. in height, and is regularly directed sharply downward in all three leads. Its ascending limb passes directly into the ascending limb of R, which is the highest and clinically the most important wave of the group. With normal hearts, R is directed sharply upward in all three leads. It may be quite small in Lead I or Lead III, but Lead III is usually higher than Lead I. Lead II always registers the highest value, varying from 10 to 20 mm. S is directed downward in all three leads, and begins in the descending limb of R. It is a sharp peak, usually larger than Q, and varies up to 5 or 6 mm. It also may be entirely absent, though more rarely so than Q.

The detailed explanation of these waves need not be discussed here. It must be remarked, however, that R does not mean that the potential which produced Q has ceased, but merely that potential in another direction has greatly predominated so as to change the direction of the flow of current. It will suffice to say that Q, R

and S together represent the initial electric currents of the ventricular systole. They occupy the time during which the contraction wave, starting from the terminal branches of the bundle of His about the bases of the papillary muscles, is spreading throughout the complex muscle bundles of the ventricles, affecting successively larger masses in different parts of the heart. The R wave denotes the direction of the predominant current of this period of the heart cycle, and is the only one of the three which is as

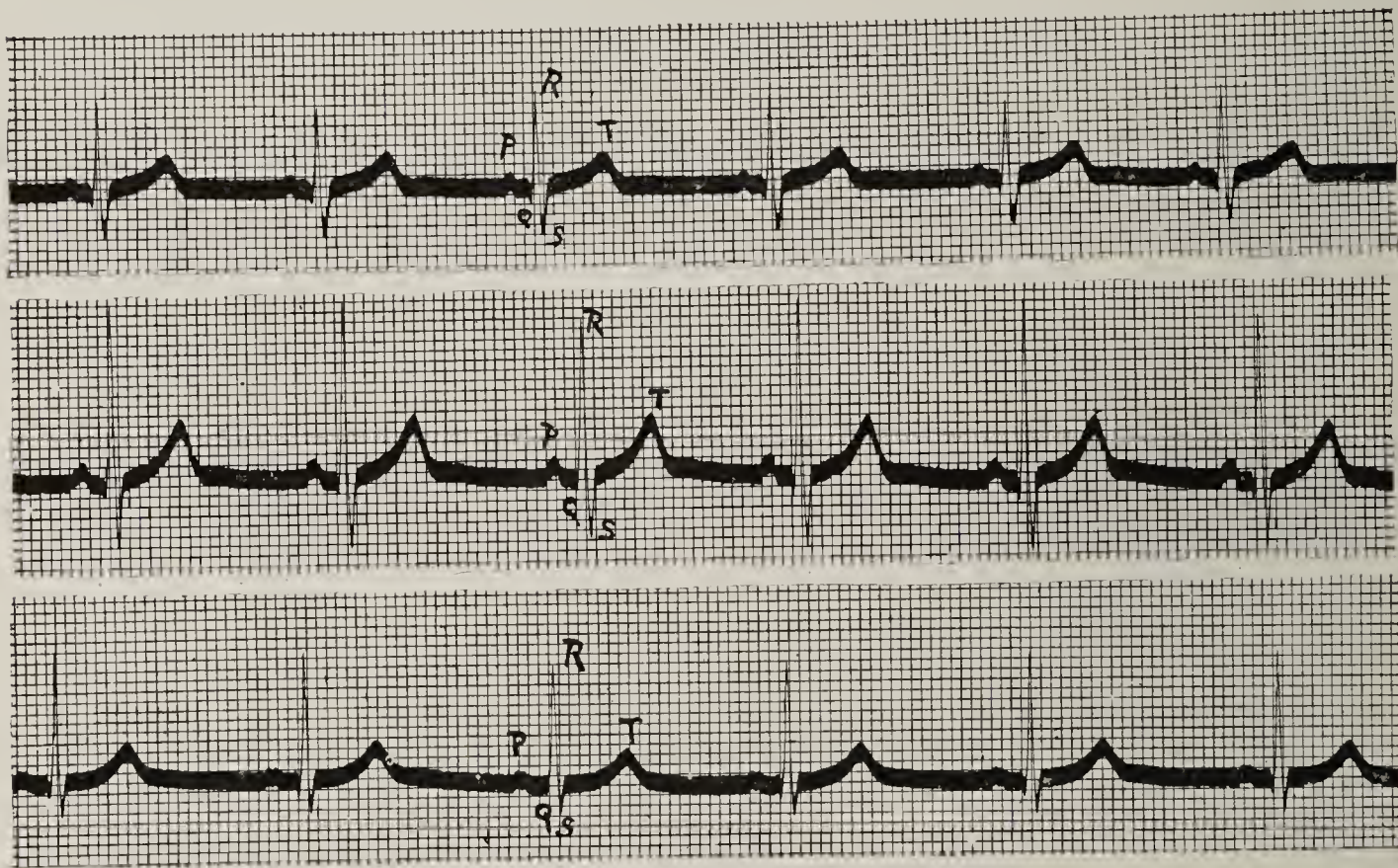


Fig. 2.—Electrocardiogram from a normal person, a member of the Columbia University cross-country team. In this and in all succeeding records one division of abscissae represents 0.04 second and of ordinates 0.0001 volt. In the originals these divisions are actual millimeters.

zero level. In some cases which cannot be considered abnormal PIII is downwardly directed, in which case PI is larger than PII.

During the interval between P and the next movement of the record, the impulse from the auricles is passing along the auriculoventricular conduction system toward the ventricles, but has not yet caused them to contract. Since the record is practically stationary at zero during this time we conclude that this impulse is not accompanied by an electric effect of any magnitude. This interval varies from 0.12 to 0.18 second, but probably nothing under 0.20 second should be considered as evidence of impaired function of the conducting system; that is, a tendency to heart-block.

The record of the ventricular contraction is ushered in by a series of three very brief waves: first, a downward one called Q, then an upward one, R, and another downward one, S. This of course denotes a rapid changing of the direction of the currents which occur at the beginning of the ventricular systole.

yet of any clinical interest. How early these currents occur is shown by the fact that Q is completed and R has almost reached its apex before sufficient muscle is affected to produce the beginning of the first heart-sound.²

At the end of S the contraction has spread so as to involve the whole of the ventricular muscle, and at this point the various potentials approximately neutralize each other. The galvanometer string, finding little or no current coming to it, remains undeflected. After a time the potential in the right ventricular or basal region begins to predominate and a flow of current toward the opposite part of the heart ensues. This current, gradually increasing, produces the characteristic slow rise of the T wave. It may be due to a decrease of the potential produced in the apical or left ventricular region because of a beginning relaxation of the muscle there, but on this point there is no agreement.

2. Fahr: Simultaneous Records of Heart-Sounds and Electrocardiogram, *Heart*, 1913, iv, 147.

The T wave is usually from 3 to 5 mm. high in one of the leads, and is usually directed upward in all three, though smallest in Lead III. In this lead it is sometimes directed downward in cases which are undoubtedly normal. The T wave returns to the base line more sharply than it left it, and the cause of this is the sudden relaxation of the ventricular fibers at the end of systole. The second heart sound² and the fall of intraventricular

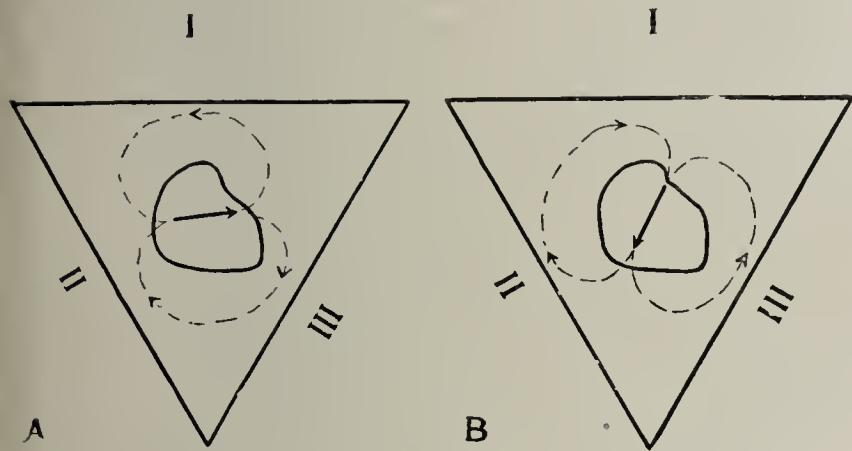


Fig. 3.—The triangle and heart of Figure 1 are readily recognized.

pressure³ come directly at the end of T. The line of the record is now again at zero, but this time because of the absence of any current within the heart, in direct contrast to the period at the end of S, when a similar result was due to a balance of opposing potentials.⁴

Before considering records from abnormal cases we must understand certain facts in connection with the normal record. Let us see what relation the direction and size of the waves bears to the direction and amount of the current within the heart. Why is the direction of some waves upward and of others downward? Why are corresponding waves of different heights in different leads?⁵

DIRECTION OF A WAVE

The direction of a wave in a given lead depends on the direction of the flow of current within the heart at that instant, for it is this current in the heart which, spreading out through the tissues, is led off from the extremities to the galvanometer. Suppose a current within the heart flowing in the direction of the arrow $x-y$ in Figure 1. It would spread out through the tissues as shown by the dotted curved arrows. This current in the tissues is led off to the galvanometer from the extremities, and is seen to flow in each lead from the apical toward the basal extremity, therefore causing an upward deflection in each lead. If the heart's current should flow in an exactly opposite direction, the current in the tissues would be reversed, and, since the current through the galvanometer would flow toward the apical extremity in each lead, the movement in the record would be downward in each lead.

A current flowing at right angles to the line of a lead would flow equally toward each extremity of that lead so that there would be no flow through the galvanometer and no deflection in that lead. The other leads would of course show a deflection.

Certain directions of current will produce deflections in opposite directions in different leads. Suppose a current flowing as represented by the arrow in Figure 3A. Here the current in the tissues, as the dotted arrows indicate, would flow toward the basal extremity in Leads I and II, but toward the apical extremity in Lead III. Leads I and II would therefore show an upward deflection, Lead III a downward deflection. A current in the direction of the arrow in Figure 3B would be associated with a flow through the galvanometer toward the apical extremity in Lead I, but toward the basal extremity in Leads II and III. Lead I is therefore downward, Leads II and III upward. If the direction in Figure 3A were reversed, Leads I and II would be downward, Lead III upward. The result of a current contrary to that in Figure 3B would be upward in Lead I and downward in Leads II and III.

SIZE OF THE DEFLECTION

The size of the deflection is dependent on the amount of current produced within the heart. This actual current is modified in each lead by the relation of the direction of the flow within the heart to the direction of the line of the lead. The variation in the leads can be plainly seen in Figure 2, in which the heights of corresponding peaks in the three leads, though dependent on the same current within the heart, are yet quite different.

This is explained by the diagram in Figure 1. The current whose direction is that of $x-y$ is represented quantitatively by the length of this arrow. The amount of current recorded in each lead may be measured by projecting the arrow vertically on the line of the direction of the lead. The recorded value along Lead I will

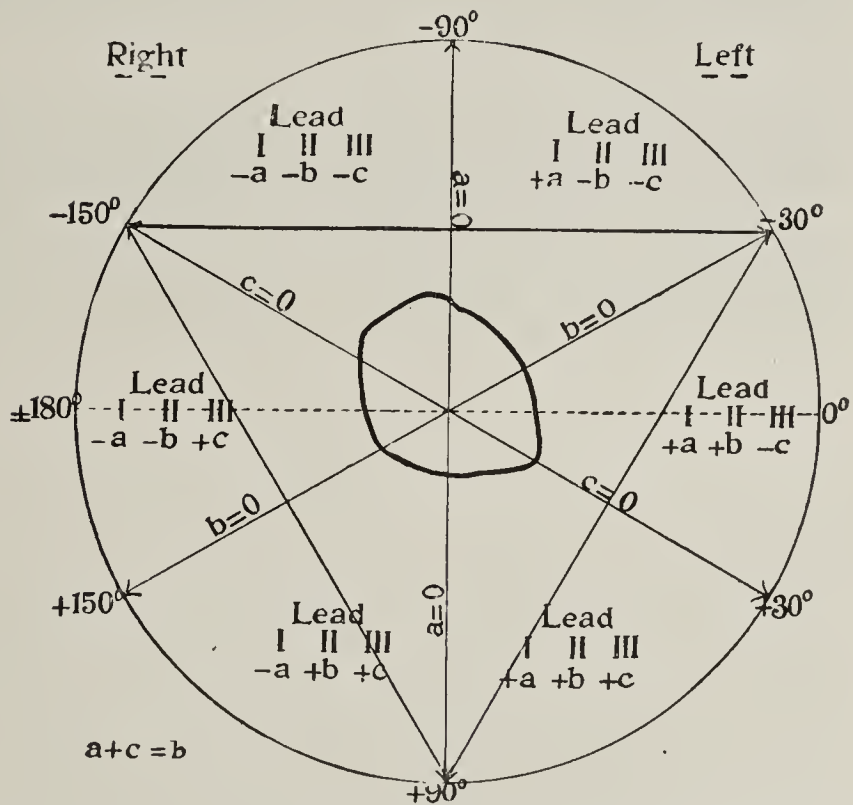


Fig. 4.— a , b , and c represent the numerical value of the deflection caused by an action current, in Leads I, II and III, respectively; $b = a + c$ and will be directed upward or downward according as the larger of a and c is directed; + before the letter signifies an upward deflection; — signifies a downward deflection.

be that of y_1-x_1 , the value along Lead II will be y_2-x_2 , the value along Lead III will be y_3-x_3 . It is seen that the percentage of the value of $x-y$ which could be recorded in any one lead would increase to a maximum as the direction of the heart's current became parallel to the line of that lead, and decrease to zero as the direction became perpendicular to the lead. In one of

3. Kaha: Beiträge zur Kenntniss des Elektrokardiogrammes, Arch. f. d. ges. Physiol., 1909, cxxvi, 197.
4. A small prolonged rise in the base line during early diastole, called U, will not be discussed, as its origin is obscure and its clinical significance unknown.
5. For a detailed discussion of the relation of the current in the heart to the current obtained in the leads, see: Einthoven: The Human Electrocardiogram, Lancet, London, 1912, i, 853. Einthoven, Fahr and de Waart: Ueber die Richtung und die manifeste Größe der Potentialschwankungen, etc., Arch. f. d. ges. Physiol., 1913, cl, 275.

the leads, however, no matter what the current's direction, there would be recorded at least 87 per cent. of the maximum value. For clinical purposes it is scarcely necessary to ascertain this maximum exactly, but the relation of the values in the three leads is of considerable importance in ascertaining the direction of the current within the heart, as will be explained more fully later.

These facts are capable of mathematical demonstration. They have been most clearly and ably brought forward quite lately by Einthoven and have as a corollary another most important fact:

Value in Lead I + value in Lead III = value in Lead II, when the values are expressed in millimeters of height or, with the usual standardization, in tenths of a millivolt. This also can be proved mathematically and is very useful at times in determining which peak in a given lead corresponds with peaks in the other two which are evidently analogous.⁶

Figure 4 is a diagram to enable us to find the direc-

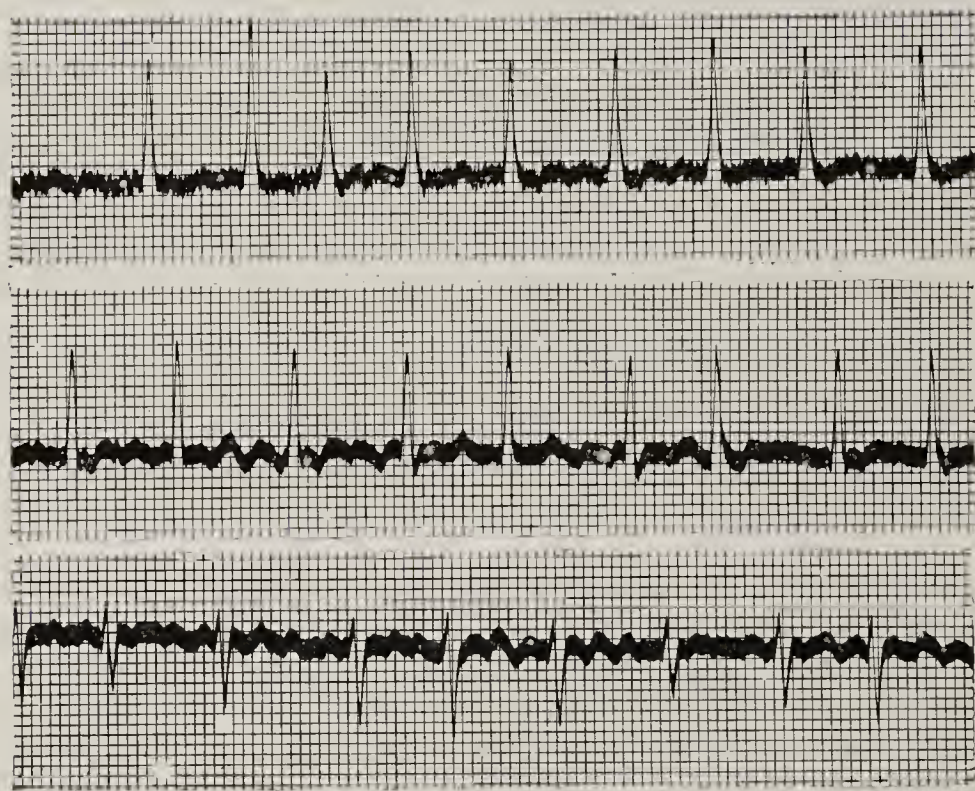


Fig. 5.—Auricular fibrillation: from a patient with chronic interstitial nephritis, arteriosclerosis, chronic myocarditis and hypertrophy of the left side of the heart.

tion within the body of the current causing a certain deflection from its relative direction and size in the three leads.⁷

Within the auricles or ventricles an action current may conceivably flow at any instant in any direction whatsoever. Einthoven points out that the usual leads obtain only those currents which flow in the plane of the three leading-off points, a plane with vertically and laterally directed axes. Any current flowing in a plane at an angle to this is represented in the plane of the leads by projection on it, just as the current

is represented in each lead by its projection on the line of the direction of that lead (Fig. 1). If the heart be projected on this plane of the leads, then the direction of any current may be represented by that of a line which will radiate from the central point of the heart. There are accordingly 360 degrees of possible variation, as represented in Figure 4. Let us divide the circle by a horizontal line calling the 180 degrees above the horizontal negative, those below it positive. Zero (0°) lies to the patient's left and 180° to the patient's right, so that + 30° lies to the left and downward, — 150° to the right and upward. It is seen that these figures express the degrees of deviation from the horizontal to the patient's left. This deviation is called by Einthoven the angle α .

This circle divides itself into six sectors of 60 degrees each. The sector between + 30° and + 90° may be called the normal sector. Currents whose angle lies within this sector give upward deflections in all three leads. Currents in the first sector to the patient's left, that between + 30° and — 30°, will give an upward deflection in Leads I and II, but downward in Lead III. The current of Figure 3A lies within this sector. In the first sector to the right of the normal, where we find the current of Figure 3B, the deflections are downward in Lead I, and upward in Leads II and III.

In the second sectors to the left and right, Lead II shows a downward deflection as well as the lead which was downward in the first sector.

In the third sector to the left or right, that is the sector opposite to the normal, we find all the deflections downward.

At the border of each sector, the lead which is changing from an upward to a downward deflection will show no deflection at all — its value will be zero — for at this point the direction of the current will be perpendicular to the line of the lead. On account of the formula Lead I + Lead III = Lead II, the values in the other leads will be found to be equal at this angle, though the waves may be oppositely directed. As the angle varies to one side or the other of this perpendicular, the deflection

will vary from the zero the more the angle varies, and will be upward or downward, depending on whether it is led off from apical toward basal extremity or vice versa.

If the angle lies at the center of a sector, the direction of the current will be parallel to that of one of the leads. In this lead we shall find the maximum value of that current which could be recorded, and according to the formula, the values in the other two leads will be found to be equal, and exactly half of the maximum, though here again they may have opposite signs.

The waves P, R and T of the normal electrocardiogram must be caused by currents having a direction between + 30° and + 90°, since their deflections are upward in the three leads. Q and S must have an angle between — 90° and — 150°, since their deflections are all downward. If the angle of these currents approaches the border of the sector, the size of the deflection in Lead I or Lead III will be small, and, as has been noted, PIII and TIII may even be directed downward, showing that their angle may lie above + 30°.

6. It is sometimes difficult to apply this rule owing to the fact that the apex of a wave does not always occur in all three leads at the same identical phase or instant of the heart's contraction. If this difference is marked it may make the application of the formula impossible with a quickly changing current as in the Q, R, and S waves, unless we ascertain some fixed point in the cardiac cycle from which to measure like intervals of time in the different leads. This could be done by taking a simultaneous record of the heart-sounds.

7. Einthoven has discussed the mathematics of this very fully and has published in *Archiv für die gesammte Physiologie des Menschen und der Thiere*, 1913, el. 275, tables for determining from exact measurements of a given wave the exact angle of the current producing it. If Figure 4 is borne in mind it will suffice for all ordinary clinical uses.

ABNORMAL VARIATIONS IN FORM

Let us now consider the variations in the form of the waves to which we have been able to attach a certain significance. These variations are due to changes in the mass, in the structure or in the function of the heart-muscle, and the information which they afford can be obtained in no way so surely as by electrocardiographic records.

Nothing will be said of the identification of cardiac arrhythmia, except in so far as it is accompanied by changes in the form of the waves of the electrocardiogram. This field has been most ably covered by others.⁸ The electrocardiograph makes exceedingly easy the diagnosis of auricular and ventricular extrasystoles, of the tachycardias, of auricular fibrillation and of sinus irregularities, since the waves produced by the auricles and by the ventricles have a characteristic and easily recognized form which greatly facilitates their timing.

Increase in the maximum value of the P wave is considered to indicate auricular hypertrophy, and necropsy records have confirmed this with much consistency. When the angle of P is normal as in Figure 6B, this increase is best seen in Lead II. There has been no adequate explanation of the small notches which at times occur in this wave, more frequently perhaps in the cases of mitral stenosis, but the P wave may take on a quite irregular form when the contraction starts within the auricle at a place other than the normal point of origin. It does this in the case of premature auricular contractions. Its anomalous origin and passage throughout the auricular muscle results in an anomalous direction and succession of the electric currents so that the P wave may be smaller or larger than usual, may have two peaks in the same or opposite directions, etc. Should a premature contraction start in the sinus node, the form of the P wave would be the usual one for that person, since the contraction, starting in the usual place, will spread in the usual direction and be accompanied by the usual electric currents.⁷

In auricular fibrillation the P wave is absent, as seen in Figure 5, but there is found in all three leads, usually best in Lead III, a series of rapid undulations of the line of the record. The form of a single undulation suggests the P wave at times, but the amplitude and rate are continually varying. The currents producing these movements are considered to arise from the muscle bundles of the auricle contracting incoordinately.

The Q, R and S waves, though multifarious in their normal variations in form, are usually completed within from 0.08 to 0.09 second. At times this group occupies even 0.16 second, and these cases are those showing myocardial impairment. It may be supposed that conduction is delayed within the heart muscle so that the contraction wave spreads more slowly through the ventricular mass, taking a greater time to involve the whole of it.

The R wave is subject to marked variations in pathologic cases. Possibly the most common one, seen in

Figure 6A, is a downward direction in Lead III, associated with a wave of greater amplitude in Lead I than in Lead II. This direction of the three leads has been shown to be due to a current within the heart whose angle is between $+30^\circ$ and -30° . Such a direction of the R wave is associated with hypertrophy of the left ventricle.

Since the ventricular contraction begins in or about the papillary muscles, and therefore at about the center of the heart, the predominant current at this time, that producing the R wave, may flow normally in a direction between $+30^\circ$ and $+90^\circ$, because in that direction from the papillary muscles there is a greater mass of fibers not yet contracting, and therefore electronegative to the contracting fibers. This direction is represented in Figure 1 by the arrow $x-y$, and because its angle lies between $+30^\circ$ and $+90^\circ$, the R wave is normally directed upward in all three leads. When the left ventricle increases in mass by hypertrophy, there is a change in the relation of the greatest muscle mass to the fibers at the center which start the contraction. This may

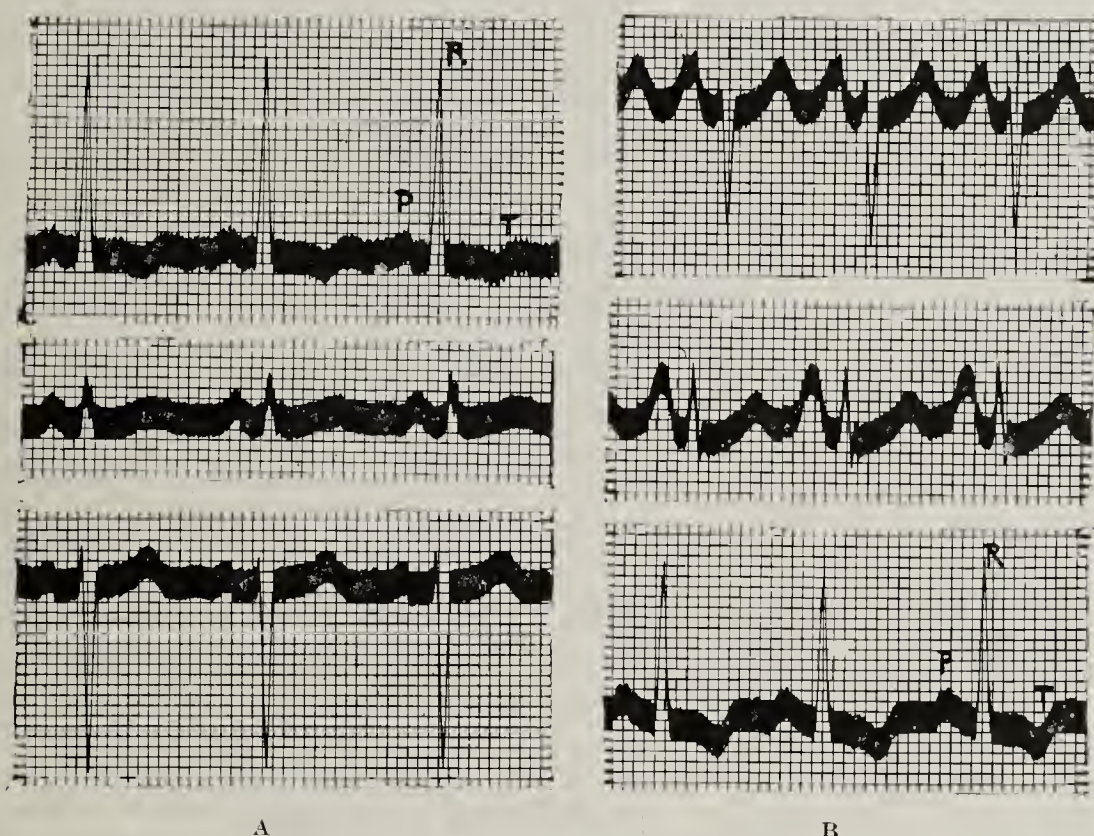


Fig. 6.—A, from a patient with chronic interstitial nephritis and hypertrophy of the left side of the heart. B, from a patient with mitral stenosis and insufficiency and hypertrophy of the right side of the heart.

deflect the current toward the increased mass, and may be the reason that the angle of R is rotated to the left and upward as shown by the arrow in Figure 3A. The angle of R here lies above $+30^\circ$, and RIII is downwardly directed.

Hypertrophy of the right ventricle may in a similar way affect the direction of the current of the R wave, leading to the change which is seen in Figure 6B. The increase in mass here lies to the right, so that the current would be deflected to the right as shown by the arrow in Figure 3B. The angle of R would lie to the right of $+90^\circ$, so that RI would be directed downward. If both right and left ventricles are hypertrophied, the electrical curve would be expected to take the form corresponding to the hypertrophy which is predominant, and it is found to do so. Very markedly predominant left hypertrophy may result in the angle of R lying between -30° and -90° , so that RI will be directed upward and RII and RIII downward, but I have never seen an angle to the right of $+150^\circ$ caused by hyper-

⁸ S. Lewis: Mechanism of the Heart-Beat, London, 1911. James and Williams: See Footnote 1.

trophy of the right ventricle except in hearts with a congenital lesion.

The amount of the current producing the R wave seems to bear some relation to the strength of the ventricular contraction, so that in weakly contracting dilated hearts the maximum value of R is small, while it is large in hearts contracting strongly. When the heart is dilated, the angle of the R wave is unchanged, for here the muscle masses are not changed in their relative disposition.

The T wave is found to have a small maximum value in hearts with myocardial disease, showing that in these cases the current producing it is for some reason small. We cannot at present say what is the cause of variations in the angle of the current causing the T wave, but this wave is not found directed downward in Lead I or Lead II in records from normal hearts.

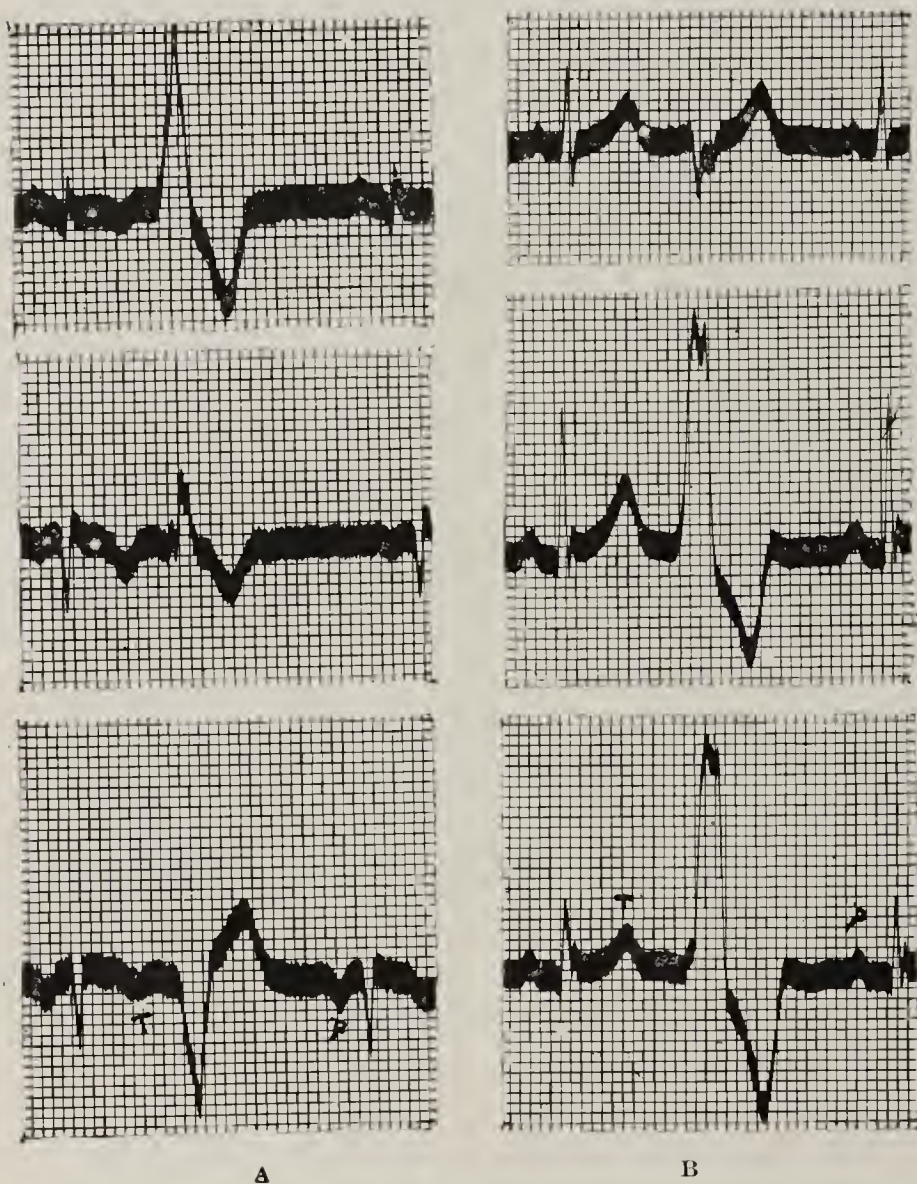


Fig. 7.—A, premature ventricular contractions originating in the right ventricle; the complexes of the normal contractions are of normal form; from a patient complaining of frequent attacks of palpitation but with no valvular lesion. B, premature ventricular contractions originating in the left ventricle; the complexes of the normal contractions indicate left hypertrophy; this case was clinically similar to that in Figure 7 A; cardiac dulness, though, was enlarged to the left.

The factors already mentioned affect in various ways the individual peaks of the electrocardiogram, but there are others which may change the ventricular complex as a whole. A most striking change is brought about by the premature contraction of the ventricles, as shown in Figure 7. In this case the ventricular contraction is not caused by the usual impulse along both branches of the bundle of His, but starts in some small part of the ventricular muscle and spreads from there throughout the whole mass. Its origin is ectopic, a term which we owe in this usage to Lewis. Whether the impulse originates in the ventricular muscle itself or in some of the

terminal arborizations of the bundle of His cannot be determined, but the result in each case is similar in that the contraction results from an impulse affecting only a small area of muscle in one chamber instead of a large area in each chamber. The resultant flow of current is quite different from that during a normal ventricular contraction, and is quite characteristic. The record shows two large movements in opposite directions from the zero level, the first being usually the larger and having a unique form, the second bearing a general resemblance to a T wave. The first limb of these complexes is of greater excursion than the R wave of the individual, possibly because the action current producing it, not starting simultaneously in the two ventricles, is not neutralized to any great extent by potentials in an opposing direction. This deflection, moreover, remains away from the base line for a longer time than the combined duration of Q, R and S. When it finally does reach the base line, the second limb of the complex follows, and this is usually in a direction opposite to the first. The second limb is larger than the T wave of the individual, and the reason is possibly analogous to that producing the great height of the first limb.

It is maintained that by analogy with animal experimentation we can refer these complexes to the region of the heart in which they originate.⁹ A complex as in Figure 7 A, showing the first limb directed upward in Lead III, is considered to originate in the right ventricle, while one like that in Figure 7 B with the first limb downward in Lead III is considered to originate in the left ventricle. A study of the direction and succession of the currents producing these deflections should lead, it would seem, to a much more exact localization of the point of origin of the contraction.

At times the ventricular complex following a premature auricular contraction will vary considerably from the normal for that individual. These variant types have been termed aberrant by Lewis, and are considered by him as possibly the result of an unequal rate of conduction in the right and left branches of the bundle of His, so that the impulse reaches one ventricle at a later time than the other.¹⁰ The type showing an increased height of the R wave in Leads II and III with perhaps a decrease in size or an inversion of T is what we might expect, by analogy with the complex of the premature ventricular beat, should the impulse reach the right ventricle slightly before the left. The type showing a decreased amplitude of RII and RIII with an increase of SII and SIII, and of TII and TIII, might similarly result from the impulse reaching the left ventricle earlier. Similar complexes are found to occur in records from auricular fibrillation.

Should the impulse to one ventricle be entirely blocked, as by a lesion in one of the main branches of the bundle of His, the ventricular complex takes on a form like that of an ectopic ventricular beat, depending for the direction of its limbs on the ventricle to which the impulse from the auricle is conducted.¹¹

There is one more factor which can lead to a change in the waves of the electrocardiogram. It changes the direction of the heart's current within the body, but not the direction of the current within the heart itself. Anything displacing the heart upward or downward

9. Kahn: Ueber das Elektrokardiogramm künstlich ausgelöste Herzkammerschläge, *Zentralbl. f. Physiol.*, 1909, xxiii, 444. Lewis: *Mechanism of the Heart-Beat*, London, 1911.

10. Lewis: *Heart*, 1910, ii, 35.

11. Eppinger and Rothberger: Ueber die Folgen der Durchschneidung der Tawaraschen Schenkel, *Ztschr. f. klin. Med.*, 1910, xiv, 1.

cannot carry the basal region with it, because this is relatively fixed by the attachment of the great vessels. The heart is rotated on the base as a fixed point, causing a rotation of the angle of the various peaks, which must be taken into consideration when confirming or denying a diagnosis of hypertrophy. The angle of each of the peaks deviates with the hands of a clock on descent of the apex, but in a counter-clockwise direction on ascent of the apex, so that abdominal distention by gas or fluid may by forcing the diaphragm upward produce a fictitious angle for the R wave which might be high enough on the left to be said to be the result of left hypertrophy. The respiratory movements of the diaphragm show this change of the angle by a rhythmic waxing and waning of the waves, which is best seen in the normal electrocardiogram in Lead III. In Lead III, Figure 2, the waves grow smaller with expiration and larger with inspiration. Ascent of the diaphragm makes the current more perpendicular to Lead III, so that the waves grow smaller; descent of the diaphragm makes the current more nearly parallel to this lead, so that the waves are larger. This is true whenever the angle of the current lies between $+30^\circ$ and $+120^\circ$. In Lead I of Figure 2 the waves have the opposite behavior to this, because ascent of the diaphragm makes their current more nearly parallel to this lead, and descent makes it more perpendicular. This is true when the angle of the current lies between $+90^\circ$ and 0° . In Figure 2 the R wave has an angle of 65° , and at this angle the respiratory variations in Lead II are the same as in Lead I.

When the heart is displaced laterally, as by gas or fluid in the pleura, by tumors or by fibrosis of the lungs, the base moves with the apex, the heart is not rotated, and the angle of the waves is unchanged unless the level of the diaphragm is also affected. This fact enables us to distinguish between a displaced and a hypertrophied heart. If cardiac dulness extends too far to the left or right, a normally directed R wave would be evidence against the change being due to hypertrophy.

In conclusion, I wish to emphasize the fact that we have in the electrocardiogram a new and valuable method of examining the heart action. The form of the waves can be referred to the direction and the amount of the flow of current within the heart. We have been able to correlate certain variations in the flow of this current with certain abnormalities in the function or the structure of the heart. Certain changes, as pericarditis or endocarditis, will not affect the electrocardiogram until they have existed for a long enough time to affect the function or structure of the heart muscle. Other changes, as hypertrophy, premature contractions and fibrillation, are shown more clearly and exactly by this than by the older methods, and still other changes, those resulting from myocardial disease, are shown exclusively by electrocardiographic records.

The electrocardiograph should be used in all cases in which there is any doubt as to the cardiac diagnosis, and its routine use will undoubtedly lead to an increase in our knowledge of the effect on the heart action of the various abnormal influences which arise in pathologic physiology.

I wish to express my thanks to Prof. F. S. Lee and to Dr. H. B. Williams for their interest and helpful suggestions.

156 East Sixty-First Street.

Suggestion.—The suggestible element is a component of our natures. It never leaves us, is ever with us.—Sidis.

ROENTGEN RAY AS A DIAGNOSTIC MEASURE IN TUBERCULOUS LYMPHADENITIS

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A clinical method that will be of assistance in a differential diagnosis of chronic enlargements of the cervical lymph-nodes and that, when it gives a positive finding is pathognomonic of the most frequent swelling of the neck, should undoubtedly be of service to clinicians.

The group of swellings of the neck, which in a general term may be classified as "chronic enlargement of the cervical lymph-nodes" and which comprises Hodgkin's disease or pseudoleukemia, lymphatic leukemia, lymphosarcoma, secondary carcinomatous lymph-nodes, syphilis of the cervical lymph-nodes, simple hyperplastic lymph-node inflammation and tuberculosis of the cervical lymph-nodes presents a clinical picture, which on

local physical examination might describe any of the various diseases mentioned.

It remains for the clinician to arrive at a final conclusion only by a careful history and a thorough physical examination, by blood examination, especially by differential blood-counts, by serodiagnosis, as tuberculin, which may be of doubtful value, or by Wassermann reaction and by other special laboratory methods such as removal of



Fig. 1.—Showing cervical enlargement in the posterior, anterior, and submaxillary triangles.

a piece of tissue for microscopic study, and as I wish to add, by roentgenoscopy.

Even as a diagnosis of cervical swelling secondary either to an intra-oral chancre or to a carcinoma of the breast is cleared up by a careful analysis of subjective symptoms and a routine physical examination; or as the lymphatic leukemias are so accurately diagnosed by a differential blood-count, and as primary new growths either lymphosarcoma or carcinoma are definitely determined by examination of a piece of the tissue under the microscope, so too, tuberculosis of the cervical lymph-nodes often may be definitely diagnosed by the use of the Roentgen ray. To call attention to the use of the Roentgen ray in cervical lymph-node enlargements and to lay stress on its importance as a diagnostic measure, which I think should rank in importance with the other laboratory methods before mentioned, is the object of this paper.

To illustrate this fact I wish to refer to a patient that came under my care at the Presbyterian Hospital, Chicago, while an assistant in Professor Bevan's clinic. I shall briefly consider the history, compare the Roent-

gen-ray pictures with the gross and microscopic pathologic findings and draw conclusions.

REPORT OF CASE

Patient.—A young man aged 16, American by birth, complained of an enlargement on the right side of his neck, which he said was not painful or tender but that his chief complaint

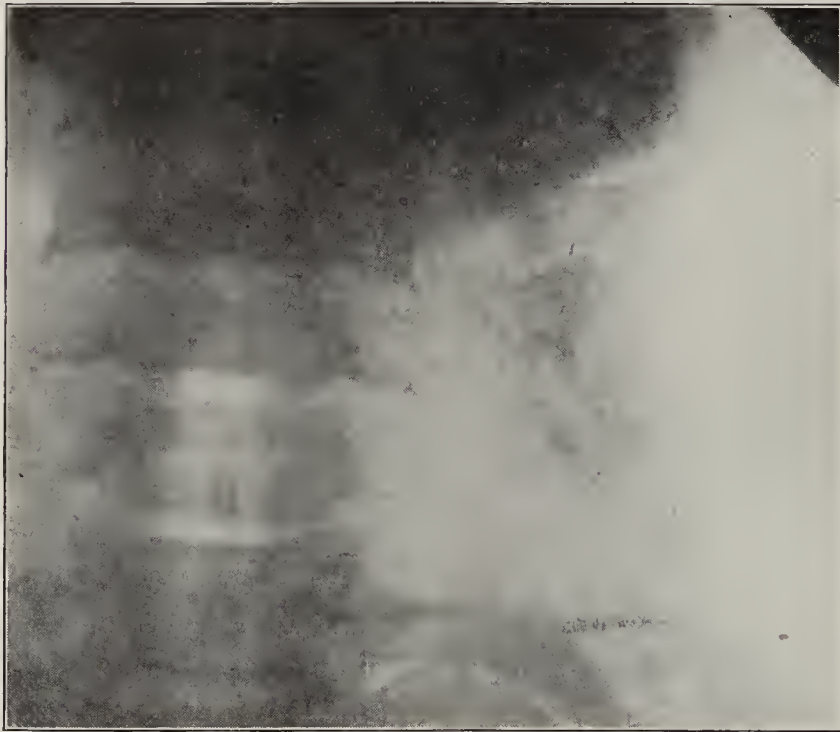


Fig. 2.—Roentgenogram taken in anteroposterior view showing shadow cast by the right-side mass. This and the following roentgenograms were taken by Dr. Hollis E. Potter, Presbyterian Hospital, Chicago.

was the cosmetic effect. He denied having had any venereal diseases and his family history was good. His habits also were good, as he never used tobacco, alcohol, tea or coffee, and his bowels were regular, his appetite was good, and he slept well, but he worked thirteen hours a day.

He did not remember having had any of the diseases of childhood, but had had frequent colds and had suffered from tonsillitis when 13½ years old and later the right tonsil was removed. It was two months after this attack of tonsillitis that the patient first noticed a small hard nodule on the right side of the neck at the angle of the jaw. This gradu-



Fig. 3.—Roentgenogram taken in lateral view, showing shadow cast by mass in submaxillary region.

ally grew larger and then others appeared and grew larger but were never painful or tender.

Examination.—The patient was a tall, blue-eyed, narrow-chested young man, whose lungs were resonant throughout and showed normal excursions. His heart was not enlarged but had a slight systolic mitral blow and a slight presystolic

murmur, also a small but palpable thrill at apex. The findings on examination of abdomen and extremities were negative and his reflexes were normal. The right side of his neck (Fig. 1) was markedly enlarged especially in the posterior triangle but also considerably in the anterior and submaxillary triangles. The swelling was composed of small nodular masses of variable size but of uniform firm consistency. The nodules were more or less discrete. There was but slight if any lymphadenopathy on the left side of the neck. The urine analysis was negative. The blood examination showed 65 per cent. hemoglobin and 10,600 leukocytes. A differential count was as follows: small mononuclear lymphocytes 52 per cent., large mononuclear 23, indented nuclear 3, mononuclear neutrophils 1, and polymorphonuclear neutrophils 23 per cent. Roentgenoscopy was done and two views taken; one an anteroposterior and the second a lateral. The anteroposterior view (Fig. 2) showed a shadow which extended from the level of the base of the skull and lateral to the transverse processes of the cervical vertebrae, downward to the level of and along



Fig. 4.—The gross specimen of mass removed from beneath the sternocleidomastoid muscle, which encroached on the anterior and posterior triangles of the neck.

the outer border of the first rib. The shadow was not solid, but mottled in character and varied greatly in density, some places being quite intense, while in others but faintly showing. The mottled or blotchy characteristic is quite noticeable. The lateral view (Fig. 3) shows a similar shadow in the submaxillary region and is especially dense just below the angle of the jaw and extends anteriorly along the lower border of the ramus of the mandible.

Operation.—A diagnosis of tuberculosis of cervical lymph-nodes was made and an operation was decided on. An S-shaped incision was made: the upper curve of the S following under the ramus of the mandible and the lower curve sweeping posteriorly at the level of the posterior belly of the omohyoid muscle parallel to the clavicle and the long central portion of the S lying over the sternocleidomastoid muscle. The sternocleidomastoid muscle was divided and the mass of enlarged nodes was dissected out in two pieces. One, the larger (Fig. 4), was dissected from beneath the sterno-

cleidomastoid muscle and occupied the anterior and posterior carotid triangles. The second (Fig. 6), or smaller mass was removed from the submaxillary triangle.

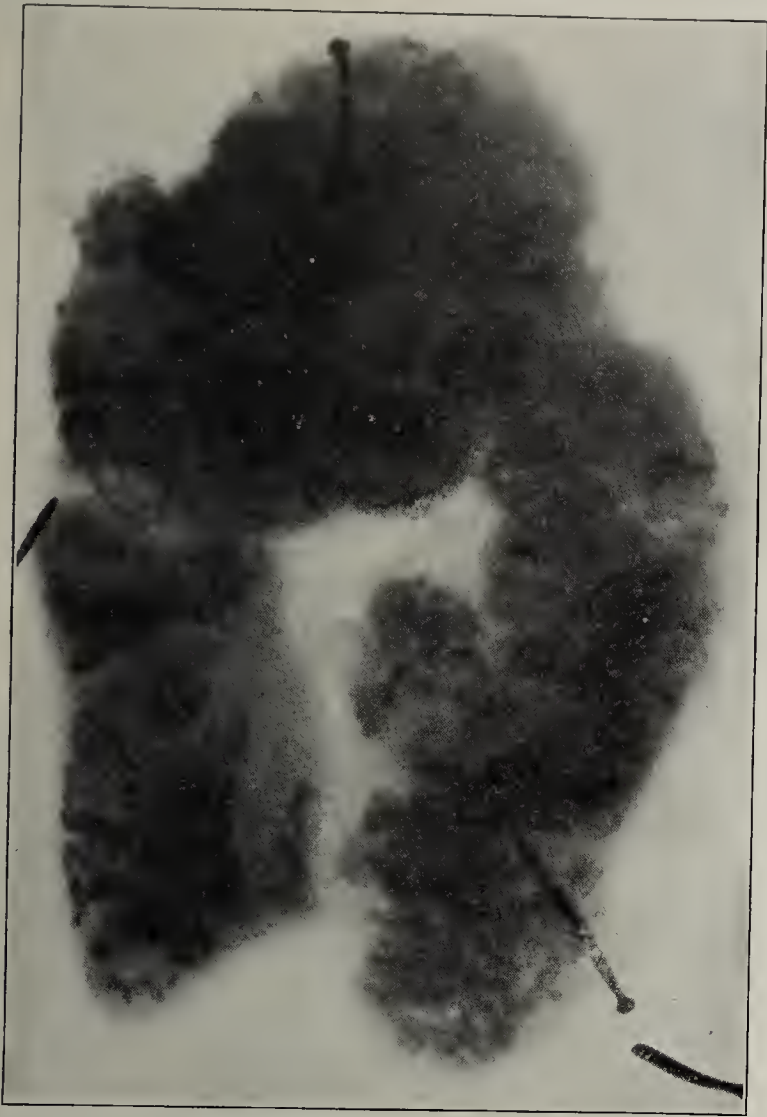


Fig. 5.—Roentgenogram of gross specimen removed from beneath the sternocleidomastoid muscle.

These two masses were again roentgenoscoped before being sectioned for pathologic examination. The larger mass cast a dense mottled or interrupted shadow (Fig. 5), but these shadows were so thickly and intimately intermingled that



Fig. 6.—The gross specimen of mass removed from submaxillary region.

almost the entire specimen is outlined in shadow. The roentgenogram of the smaller mass (Fig. 7) gave a similar picture but was even more intense than the former.

Pathologic Examination.—The gross specimens were then cut in cross section and pieces removed for microscopic examination. In cutting, the knife transmitted a grating, gritty sensation as it passed through the tissue. On cross section there were numerous soft whitish-yellow areas varying in size from that of a split pea to 1 inch in diameter. These areas were very soft and caseous and from them opaque whitish small particles of calcified material could be removed which, when pressed on by the knife, gave a hard gritty crumbling or breaking sensation. On microscopic examination of the tissue a typical picture of tuberculous infiltration of lymphoid tissue with areas of degeneration and calcification was diagnosed. The same was true of the smaller mass.

CONCLUSIONS

What conclusion can we draw from these findings?

1. Roentgenoscopy is valuable in making a differential diagnosis of enlargement of the cervical lymph-nodes.
2. Tuberculosis of the cervical lymph-nodes at times can be definitely diagnosed by the Roentgen ray.
3. The only times that tuberculosis of the lymph-nodes can be definitely diagnosed by the Roentgen ray



Fig. 7.—Roentgenogram of gross specimen of mass removed from submaxillary region.

is when necrotic and caseous changes in the nodes have taken place, as calcification only follows in the wake of such changes, and it is this calcification or calcium salt deposits alone which cause the shadows with the Roentgen ray.

Citrus By-Products.—The problem of utilizing waste oranges and lemons has recently been studied by the U. S. Bureau of Chemistry with interesting results. It is found that lemons which have previously been discarded will yield from 15 to 60 pounds of citric acid per ton, so that at the prevailing market rate of the acid these culls are worth from \$5 to \$25 a ton. Other promising by-products are the essential oils of orange and lemon, 60 per cent. of which can be recovered by methods recently devised. As much as 6¼ pounds of essential oil have been obtained from a ton of fruit, and it is worth from \$2.50 to \$5 a pound. The gross maximum income per ton from the best quality of culls would approximate \$45. It is understood that a number of companies are considering the manufacture of these by-products.—*Scient. Am.*

AN EXTENSIVE CASE OF PLANTAR
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The symptomatology of verruca plantaris, a puzzling but comparatively common disease of the skin, was first described by Gorju,¹ of Paris, over half a century ago. More recently the disorder has been carefully studied by Dubreuilh², Montgomery³, Bowen⁴ and others, but, despite the publicity given it by these contributors, the true nature of the condition is seldom recognized even to-day.

For this reason the following example, which is one of the most extensive I have seen, may be of general interest:

L. C., single woman aged 20, student, referred to me by Dr. Jabez N. Jackson of this city, was a native of Massachusetts and a resident of Boston. Four years previously she

single group of three lesions, arranged in a row, near the base of the great toe (Fig. 2).

The middle and oldest of the three was simply a yellowish, callus-like mass, but the other two were smaller and sharply circumscribed, with slightly elevated borders and brownish, tender centers.

When the outer layers of epidermis covering the lesions was removed by means of salicylic acid plaster, the typical, well-like cavities, partially filled with tough, stringy, opaque masses of transformed epithelium, were exposed. For laboratory study one of the lesions on the right foot and a portion of the large one on the left heel were excised with a sharp cutaneous punch. The histologic characteristics of the growths could best be studied in the specimen from the right foot (Figs. 3 and 4). The larger portion of the tumor consisted of imperfectly keratinized horny material. With the exception of a pronounced degree of papillary hypertrophy in the vicinity of the growth the corium was little changed. The border of the lesion was acanthotic, and many of the cells here and in the center of the area contained vacuoles. Both granular and horny layers were much thickened. The peculiar, small, round, highly refractile, protozoa-like, intercellular bodies which Bowen first described were

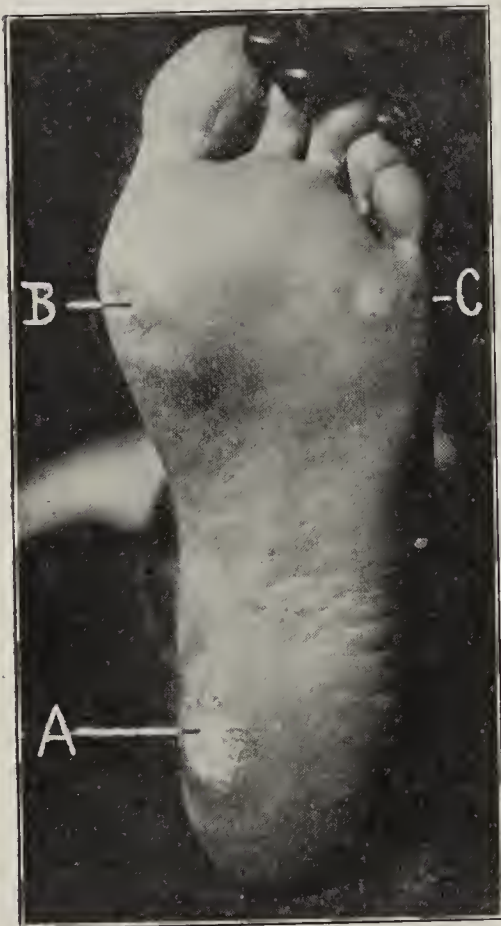


Fig. 1.—The epidermal "lid" has been removed at A, disclosing a group of five verrucae. The callus-like masses at B and C both contain typical plantar warts.



Fig. 2.—Group of plantar warts on right foot. The covering has been removed from the one in the middle.

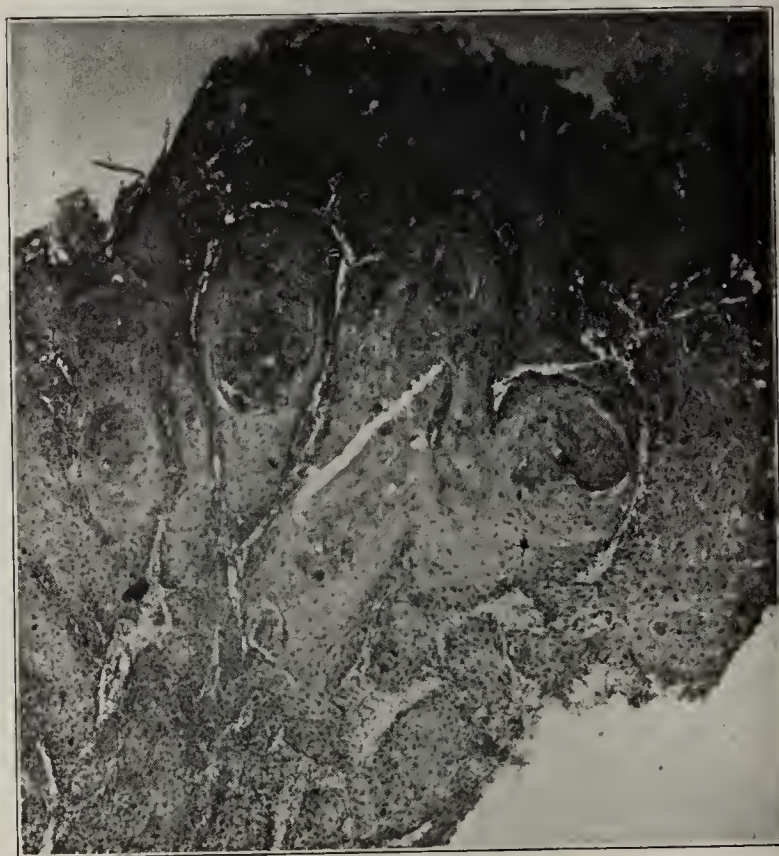


Fig. 3.—Plantar wart from right foot, showing general structure (low magnification).

had been troubled with a "soft corn" on the sole of her left foot, and at one time since then a college room-mate had had several growths on the bottoms of her feet similar to those from which the patient sought relief.

At first glance the lesions resembled large, oval callosities. The most troublesome one was situated near the inner border of the left heel, and measured 2 by 6 cm. (Fig. 1, A). The overlying epidermis was smooth and translucent and a superficial examination revealed no hint of the presence of verrucae. On deep pressure, however, the tumor was found to be exceedingly tender at several different points. Just posterior to the fifth metatarsophalangeal articulation was a similar but somewhat smaller growth (Fig. 1, C), which also was very sensitive to pressure, and near the inner side of the ball of the foot was a third (Fig. 1, B). The right sole presented a

present in considerable numbers. As he has stated, they probably represent some form of nuclear degeneration or alteration.

Plantar warts are notoriously resistant to treatment. The therapeutic measures usually employed in combating the disease elsewhere on the body often prove ineffectual here, and recurrence occasionally takes place even after excision.

Of all the methods tried, I should place Pusey's carbon dioxid snow first in value, with fulguration second and the Roentgen rays third. Before the snow or the electric current is applied the epidermal "lids" of the little tumors should be removed by means of a 10 per cent. salicylic acid plaster. Roentgenotherapy is particularly applicable in those cases presenting numerous lesions, and often following its use the growths disappear as if by magic.

1. Gorju: Thèse de Paris, 1857.
2. Dubreuilh: Ann. de dermat. et de syph., 1895, p. 441.
3. Montgomery, D. W.: Papilloma of the Sole, THE JOURNAL A. M. A., July 11, 1903, p. 100.
4. Bowen: Boston Med. and Surg. Jour., 1907, p. 781.

In the present instance the patient was exceedingly anxious to get well as quickly as possible, and all three methods were tried, the result being an apparently complete cure at the end of about four weeks.

613-614 Commerce Building.



Fig. 4.—Plantar wart, showing epithelial columns, with degenerated cellular changes and "ballooning." Protozoa-like bodies at A and B (moderate magnification).

CANCER OF THE SPLENIC FLEXURE

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The splenic flexure marks an intermediate position in the colon both anatomically and physiologically. The proximal segment, the cecum and the ascending and transverse colon, as observed by Cannon,¹ churn and mix the bowel contents until the moisture is largely removed. Starling² has compared this process with the contractions in the pyloric end of the stomach. The dry part of the intestinal mass begins to collect, therefore, at the splenic flexure, where there is frequently a sharp angulation in the colonic tract. This abrupt change in the course of the bowel causes a hindrance to the passage of its contents, resulting in one of the pressure-points in the colon. The predisposing causes of carcinoma, ulceration and chronic irritation exist here, no doubt, as in regions in which cancer is more frequent. A routine examination of this territory when the abdomen is opened reveals the fact that the costocolic ligament, an embryologic structure reduplicating the peritoneum from the omentum, varies considerably in its appearance and density, enough so to convince one that inflammatory changes here are more common than is generally believed. In spite of this, however, cancer at the splenic flexure is relatively rare, developing slowly and metastasizing late.

The lymphatic vessels and glands of this region are so related that the conditions for the spread of carcinoma are not favorable. Madeling³ reports seven cases

of his own and ninety-three from the literature, from which he draws the important conclusion that cancer of the splenic flexure is curable by intestinal resection even in the advanced stages of the disease. Mayo⁴ reports seven cases of cancer of the transverse colon, including the hepatic and splenic flexures. There was one operative death. Two patients were alive and well after one year. One was alive and well three years after operation. One could not be traced.

The following two cases of cancer at the splenic flexure presented a somewhat striking difference in the clinical picture:

CASE 1.—M. B., aged 63, housewife, native born (seen in consultation with Dr. George W. Parlow), was admitted to the Highland Hospital Nov. 5, 1912, for intestinal obstruction of three days' duration. For several weeks she had been troubled with unusual sluggishness of the bowels, associated with anorexia, distress after meals and a perceptible loss in weight. Vomiting began three days before admission, and distention of the abdomen steadily increased. Cathartics and enemas had failed. On examination the abdomen was distended but not tense. Deep palpation revealed no tumor. The abdomen was opened by a left rectus incision. The small bowel was considerably distended, the cecum enormously so. The descending colon was collapsed. Well up under the left costal arch was a tumor involving the splenic flexure of the colon. After mobilization of the bowel at the tumor site, a preliminary colostomy was made by bringing the transverse colon through the upper angle of the incision. November 25, a resection of the splenic flexure was done. The transverse and descending colon were freely mobilized. A division of the transverse colon was made adjoining the colostomy opening. The splenic flexure was then resected with a good margin of healthy bowel.

A lateral anastomosis was made after a method described by Bloodgood,⁵ wherein the closed end of each segment was sutured outside of the parietal peritoneum in the line of incision, thereby placing extraperitoneally the points of suture in which the danger of leakage is greatest. This safety measure was appreciated during the convalescence of this patient. The pathologic examination of the specimen removed showed it to be adenocarcinoma. December 15, there was a slight



Fig. 1 (Case 1).—Segment of colon removed at operation showing (A) annular adenocarcinoma which had occluded the lumen at the splenic flexure, and (B) colostomy opening in the transverse colon.

discharge of fecal matter from the wound. This gradually cleared up and the patient was discharged in good condition, Jan. 1, 1913. This patient presented herself for examination in February, 1914. During the year following her operation

1. Cannon: Am. Jour. Physiol., 1901, vi, 251.

2. Starling: The Physiology of Digestion, p. 146.

3. Madeling: Arch. f. klin. Chir., lxxxii, 1.

4. Mayo: Tr. Am. Surg. Assn., 1909, xxvii, 338.

5. Bloodgood: Tr. Am. Surg. Assn., 1909, xxvii, 340.

she had gained 20 pounds in weight and remained symptomatically well. She complained of a bloody vaginal discharge at irregular intervals during last December and January. Vaginal examination revealed a nodular growth involving the cervix, undoubtedly a carcinoma.

CASE 2.—I. Z., aged 66, retired, born in Poland, with negative family history, had had no previous illness of importance. The chief complaint was anorexia, progressively increasing weakness and loss of weight, 45 pounds in six months. There was no pain and no vomiting, but occasional nausea. The bowels were regular and caused no trouble whatever. Bloody or stringy stools had never been noticed. Physical examination showed a well-developed man who had recently lost much in weight. The tongue was coated; the heart was irregular; a loud, blowing, systolic murmur was heard over the precordia, loudest at the apex and transmitted into the axilla. The abdomen was level, soft and tympanitic, without revealing tenderness or spasm. In the left upper quadrant could be felt a hard, nodular, non-tender, freely movable tumor the size of a tennis-ball. From the location of this tumor it was apparent that either the greater curvature of the stomach or the splenic flexure of the colon was involved.

Several roentgenograms were taken showing the greater curvature of the stomach to be smooth, and a normal pylorus, although there was a slight six-hour residue. In the transverse colon there was a distinct interference with the normal

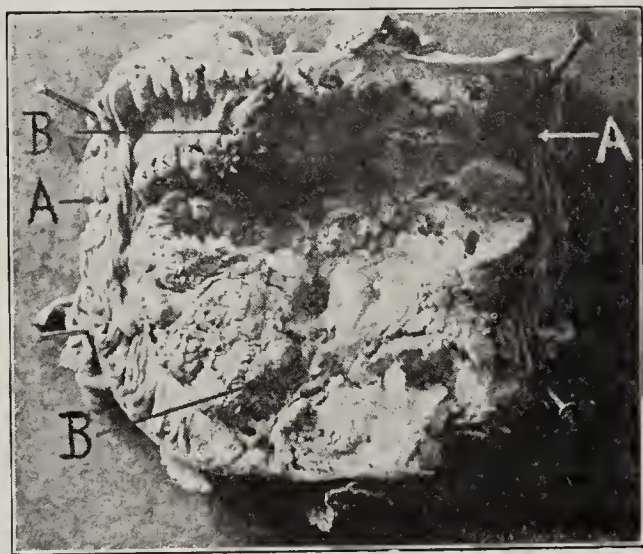


Fig. 2 (Case 2).—Specimen removed at operation showing large cauliflower tumor mass occupying the intestinal wall; A, A, normal mucosa; B, B, adenocarcinoma.

peristaltic movement. The bismuth appeared to collect in an irregular mass toward the splenic flexure, beyond which was a short segment in which the bismuth showed canalization. On this evidence the diagnosis of cancer of the splenic flexure was made. February 17, after a few days of preparation, the tumor was removed, including several inches of the transverse and descending colon. It was not possible to make an anastomosis of the large intestine; therefore, the ileum was divided at the ileocecal valve and an ileosigmoidostomy was done. The cecum was drawn out through a muscle-splitting incision, at which point it was subsequently opened for drainage. Pathologic examination of the specimen removed showed it to be an adenocarcinoma. The patient recovered and has gained in weight from 170 pounds, his weight on admission, to 220 pounds, his present weight, and is now apparently well.

Since the large intestine has become a source of great interest to the internist, the roentgenologist and the surgeon, cases similar to those just described are worthy of record. The first patient presented that picture of malignant disease of the colon in elderly patients so frequently manifested by acute intestinal obstruction following a prolonged period of obstinate constipation. It is not unusual for such patients to continue at work until nausea and vomiting occur. In August, 1909, I was called by Dr. Briggs of Assonet to operate for acute

intestinal obstruction. The patient was a stone-mason, aged 63, and had been at his work as usual on the day of the attack. An annular growth was found involving the sigmoid occluding the lumen of the intestine. On careful inquiry in similar cases one can always elicit a history of intestinal stasis for a variable period before the onset of acute symptoms.

On opening the abdomen of Patient 1, a condition was found which should always contra-indicate immediate resection. The transverse colon was distended with an abundance of solid fecal matter which had been unable to pass the carcinomatous ring. The cecum and ascending colon also contained semisolid masses of feces. Many of the earlier operations of resection were made perilous by the presence of such fecal impactions. In Madeling's list of cases, resection was carried out thirty-four times with fourteen deaths. He now recommends operating in two or three stages. When the proximal colon is filled with fecal matter, colostomy as a preliminary procedure is absolutely essential for success.

The second patient presented a somewhat striking contrast to the first. He was an ambulatory patient, in the advanced stage of cancer and seeking a diagnosis: a picture that is not so rare as it should be. The bowels were regular and he had no pain, but there was very little desire for food and a markedly progressive loss in body-weight. The tumor was palpable and though of considerable size it was found to be surrounded by a wide zone of inflammatory tissue. The colon having been very thoroughly emptied, it was deemed safe to do a resection and make the anastomosis in a single operation. The recovery of this patient would lead one to attempt the removal of very large growths in the splenic flexure. The absence of metastasis in organs adjacent or remote must remain the guide for complete extirpation of the tumor. Enlargement of the pericancerous lymph-nodes, here as elsewhere in the intestinal tube, frequently indicates only inflammatory changes, and is not to be accepted as a contra-indication to radical measures.

The cure of cancer in this region of the bowel by excision can be reasonably assured. Associated surgical principles, though not uniformly settled, are efficient and safe. The fate of one afflicted with cancer here, as in other parts of the body, must at present remain largely if not entirely in the hands of the physician who first hears his complaints.

It is in fortifying this individual or the department of medical practice which he represents that our hope for permanent cures will be realized.

APPENDICITIS FOLLOWING INGESTION OF SHOT FOR "CUBAN ITCH"

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CLEVELAND

The case to be reported is of interest on account of the use of shot as a therapeutic agent, the severe lead-poisoning which followed its ingestion, and, particularly, the weight of the patient's appendix and its contents, possibly the greatest ever recorded. While the view is now generally accepted that foreign bodies can pass from the cecum into the appendix, it was formerly thought that this could not occur. That the old idea was erroneous is strikingly shown in this case by both the number and, relative to the lumen of the appendix, the large size of the foreign bodies found therein.

The patient, an unmarried woman, aged 21, was first seen by one of us (H.) at midnight, Jan. 3, 1914. She said that

forty-eight hours previously she had had four teeth extracted under nitrous oxid anesthesia, and had had considerable subsequent hemorrhage. Twenty-four hours after the extraction she had had a chill with vomiting which persisted almost continuously until the patient was first seen. She then complained of rather severe pain all over her abdomen, occasional paroxysms of intense pain, and severe backache. The abdomen was found to be everywhere tender with slight accentuation over the appendix. Pulse 74, temperature 98.9 F.

Previous History.—When questioned the patient asserted that soreness over her right lower abdomen existed before December, 1912. At about that time she was treated by dilatation and curettage for dysmenorrhea, and was told that the right ovary was inflamed. Whether or not appendicitis was present then it is impossible to say. There was no further history of any inflammatory process affecting the uterus, tubes or ovaries, and, aside from the dysmenorrhea, the menstrual history was negative.

Ingestion of Shot.—About Christmas, 1912, in the patient's home town, there were a number of cases of an intensely itching and apparently contagious eruption which the patient said affected about one hundred people, and was called "Cuban itch." The patient said that she contracted it and that the treatment of four different physicians, who told her as many different things as to its nature (it was probably scabies), gave her no relief. A "kind" friend, similarly afflicted, advised her to take a "sure cure" in the form of bird-shot. Accordingly, beginning in March, 1913, the patient took from 15 to 20 small bird-shot every morning until she had taken about half a pound in all. The eruption disappeared, but some time later she began to have symptoms of lead-poisoning as shown by headache, colic, lead line and digestive disturbances. The history is not clear as to whether or not a severe attack of appendicitis and "peritonitis," from which she suffered and during which she was in the hospital for eight weeks, occurred at this time. At all events, in July, 1913, severe and prolonged convulsions, due to the lead-poisoning, almost caused the patient's death. They lasted for a week

and recurred at intervals after she left the hospital, the last being in September, 1913. After this she had almost constant attacks of colic, nausea, vomiting, gas in the stomach and intestines, shooting pains in arms and legs, severe constipation and a "dragging" feeling in the right side. As though previous experiments were not sufficiently unpleasant to teach her a lesson, about the middle of November the patient again began to take shot for a new kind of eruption on her face. This time she chose the large shot known to the trade as "BB" size. The dose was five or six every morning until about a tablespoonful had been taken. She asserted that she passed all she took. At 8 a. m., Jan. 4, 1914, the abdominal tenderness had increased, with great soreness over the appendix, enough soreness over the gall-bladder to be very suggestive of cholecystitis, a pulse of 100, and a temperature of 99.3 F. A diagnosis of acute appendicitis with not only a possibility but considerable probability of the presence of shot in the appendix was made, but was attended with a great deal of doubt as to how much part lead colic was playing. In consultation this diagnosis was agreed on, and immediate operation advised.

Operation.—A long median incision was made (S.) through which nothing abnormal could be found except the appendix, which was inflamed, particularly at the tip, and heavy from what later were found to be eight shot. When the appendix

was removed a ligature was tied around the proximal end in order to hold the shot in place. Later, through the kindness of Drs. Hill and Thomas, a roentgenogram was taken, the result being shown in Figure 1. It was then opened and photographed (Fig. 2). With its contents it weighed 125 grains (8.09 gm.).

Postoperative History.—Except for slight ether conjunctivitis in one eye the patient made a good recovery. She had no more abdominal pain for about three weeks. About a week after the operation she passed over forty shot by rectum. They were much eroded, and that considerable lead sulphid was present in the rectum was shown by the fact that the rectal tube was always coated black after being used. The urine at this time contained a very slight trace of albumin, and a few hyaline and finely granular casts, but was not examined for lead. January 31, a roentgenogram of the patient's abdomen revealed no more shot. February 1, she complained of darting pains in her arms and legs, stiffness in her knees, slight tendency to left wrist-drop, mild colic, and dull headache. Her hands showed a fine tremor.

Blood Examination.—The red corpuscles were paler than normal, showed slight poikilocytosis and occasional stippling. The blood gave the following differential count:

Corpuscles: white, 11,000; red, 3,250,000.
Hemoglobin, 85 per cent. (Tallqvist). Differential leukocyte count of 200 cells (percentages):

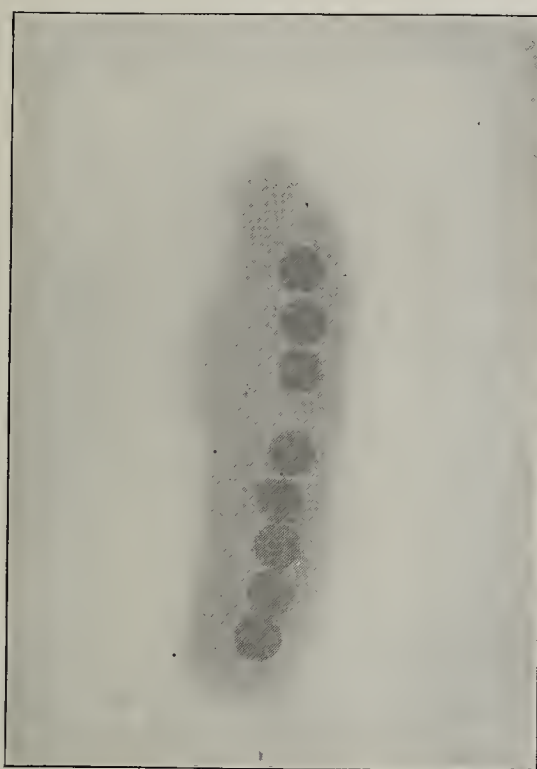


Fig. 1.—Roentgenogram of appendix containing shot.

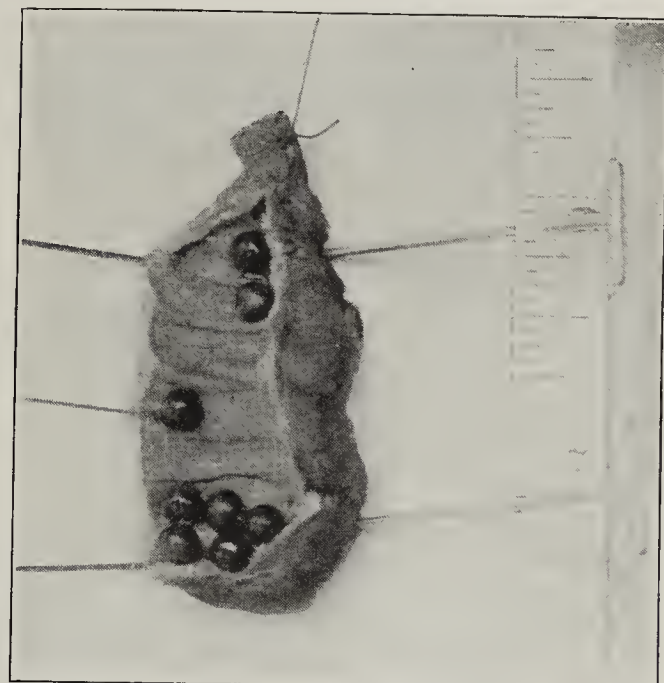


Fig. 2.—Appendix opened.

| | |
|------------------------------------|----|
| Polymorphonuclear leukocytes | 72 |
| Lymphocytes | 23 |
| Large | 18 |
| Small | 5 |
| Eosinophils | 3 |
| Myelocytes | 1 |
| Eosinophilic myelocytes | 1 |
| Megaloblasts | 0 |
| Normoblasts | 0 |

The patient was put on Bland's pills, 5 grains three times daily, saturated solution of potassium iodid, 5 minims three times daily, and an occasional dose of magnesium sulphate, and was referred to her family physician.

10406 Euclid Avenue.

The Lesson of Toledo.—Two hundred cases of small-pox were discovered in Toledo during the months of December, January and February. Of the entire number of sufferers, but one had been vaccinated, and that one was vaccinated thirty years ago. The story of the Toledo epidemic is the story of hundreds of localized epidemics the world over. An epidemic of equal severity would give to New York City 7,500 cases of small-pox in three months, or 30,000 cases in a year. Such an epidemic would be a calamity to the people and would be ruinous to the city's trade.—*Bull. New York City Department Health.*

New Instruments and Suggestions

ETHMOID KNIFE—ALLIGATOR ETHMOID AND TURBINATE FORCEPS—AN IMPROVED SINUS PUNCH

WITH ILLUSTRATIONS TO SHOW THE STEPS IN ENDO-NASAL OPERATION FOR PANSINUSITIS

W. PERRY REAVES, M.D., GREENSBORO, N. C.

The right-angle knife (A, Fig. 1, 4 mm. long) cuts on the pull. It is on the curved shank B (2 mm. in diameter and 40 mm. long), which slips in the barrel C (3.5 mm. in diameter). The hook D (8 mm. long) is adjustable right and left.

To cut the vertical plate of the ethmoid (septal side) from its roof, the knife is passed under the middle turbinate to the posterior nares, the shank between the middle turbinate

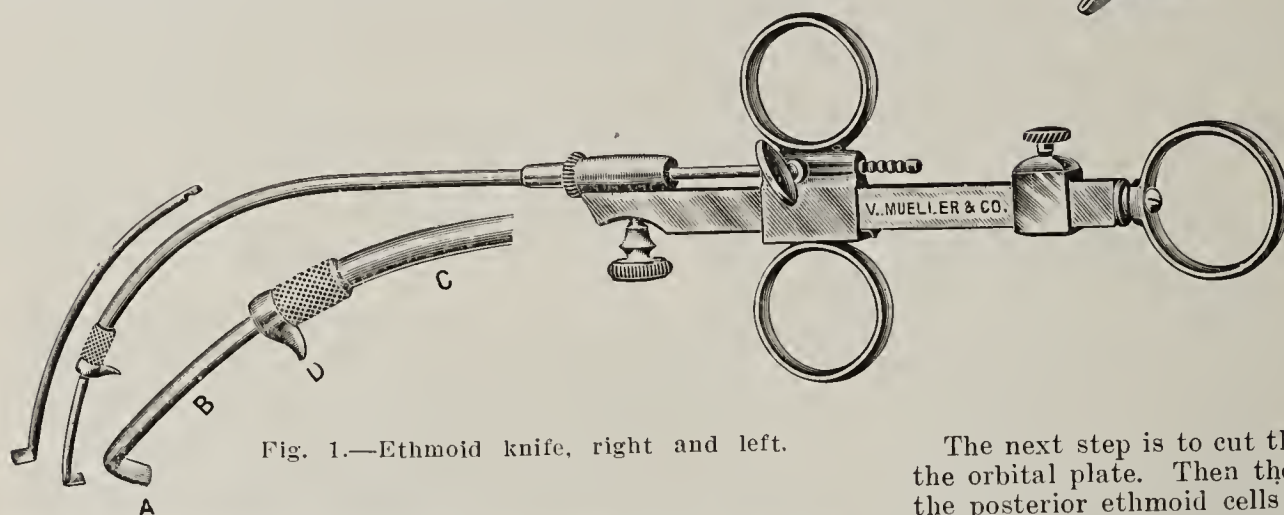


Fig. 1.—Ethmoid knife, right and left.

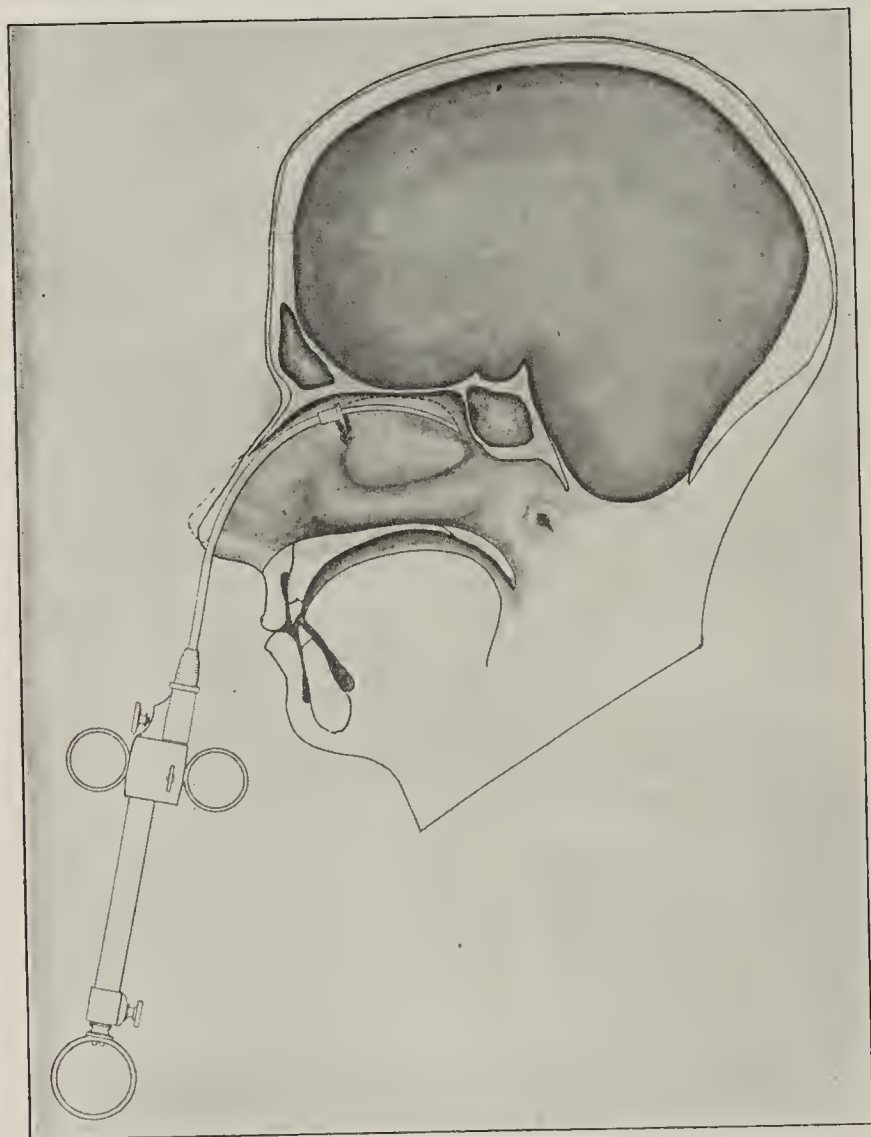


Fig. 2.—Ethmoid knife in place to cut ethmoid loose from its roof. A very slight pressure on the handle downward and backward as the knife begins to cut will make it follow the dotted lines, as the edge of the knife points a little above the shank.

and septum, and then the shank is pushed high up in the nose, which places the knife between the posterior tip of the middle turbinate and anterior sphenoidal wall.

If only part of the ethmoid cells and middle turbinate is to be removed, the hook (which should not be locked when introduced in a *close nose*, as it is easily anchored with a probe) is anchored at the junction of the anterior tip of the middle turbinate and ethmoid. If the high ethmoid cells, and the superior and middle turbinates are to be removed, the hook must be anchored higher in the anterior ethmoid cells, which have been opened with straight forceps as shown in Figure 2. The instrument is now in position to cut the ethmoid from its roof. Gentle pressure is made on the handle toward the patient's larynx simultaneously as the knife begins to cut, which will cause the knife's edge (which points 15 degrees above the shank) to follow the dotted lines to the roof of the nose, and also holds the barrel against the roof (the bridge) of the nose.

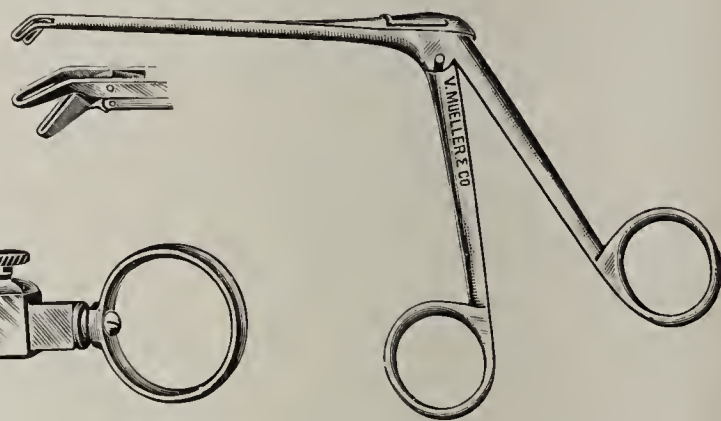


Fig. 3.—Small alligator ethmoid and turbinate forceps.

The next step is to cut the anterior ethmoid cells loose from the orbital plate. Then the operation is completed by cutting the posterior ethmoid cells loose with a snare.

In those cases in which the septum is deviated or the middle turbinate obstructs the nose so that the shank cannot be passed to the roof of the nose, I have had made small alligator forceps (Fig. 3), right and left, with the cutting part bent down 35 degrees from the shank, which, when introduced high into the nose, is parallel to its roof. With these punches an ethmoidectomy is just reversed, beginning

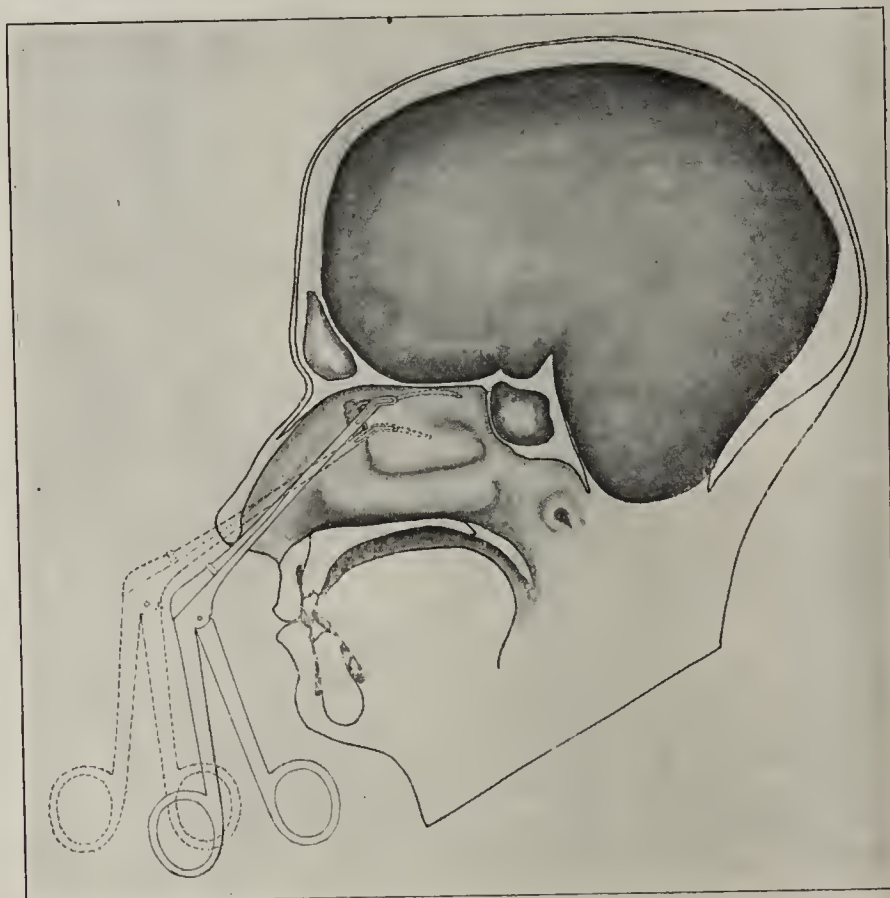


Fig. 4.—Small right alligator forceps cutting loose vertical plate of ethmoid. The dotted forceps shows position for removing middle turbinate.

at the anterior ethmoid cells. The vertical plate is cut loose from the cranial plate from before backward, and then the operation is completed with forceps and snare.

The alligator forceps is also very handy for removing part or all of the middle turbinates.

Figure 5 shows ethmoidectomy shown in Figures 2 and 4 completed with superior and middle turbinates, making the maxillary, sphenoid and frontal sinus openings accessible.

The maxillary opening has been enlarged with a sinus punch, which was described in *THE JOURNAL*, Dec. 16, 1911, p. 1989. The improved small 4-mm. punch is introduced into the frontal sinus to enlarge the frontal duct by nibbling away any encroaching ethmoid cells.

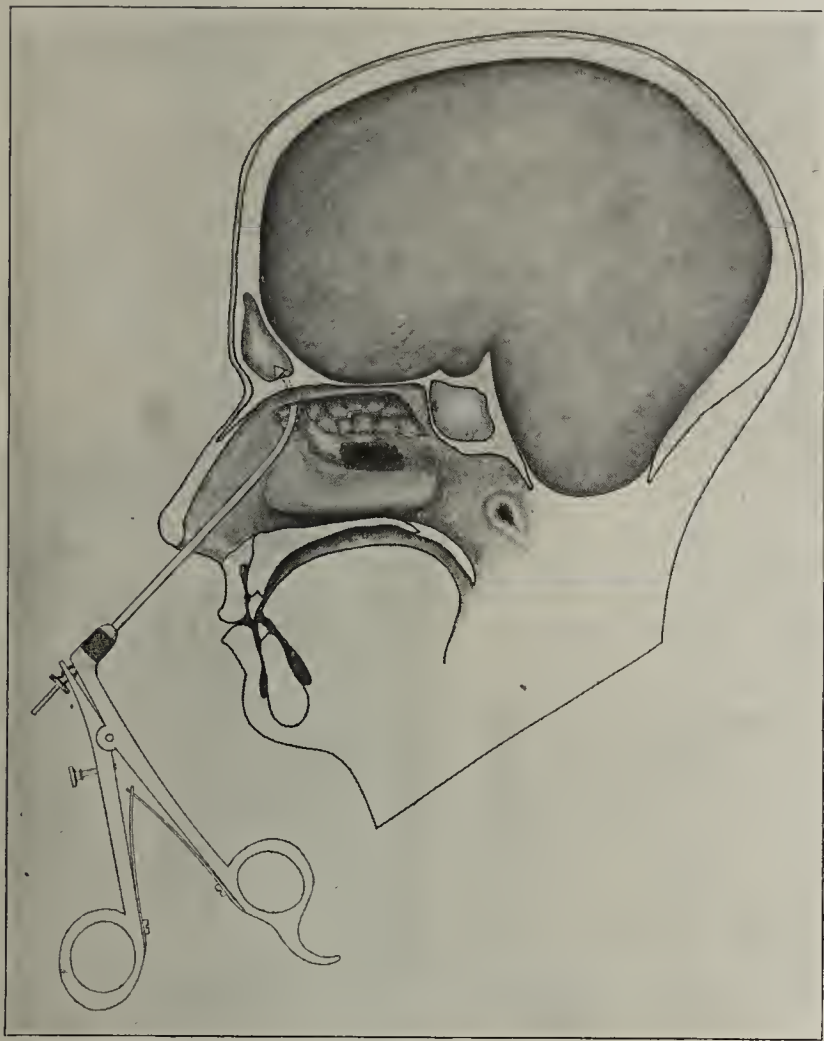


Fig. 5.—Completion of the operation in pansinusitis. The 4-mm. punch passed into frontal sinus through the nasofrontal duct. Ethmoid and middle turbinate have been removed and opening made into maxillary sinus in middle fossa.

The punch should never be introduced into the frontal sinus until the location and size of the duct are ascertained with a probe. In those cases in which the duct is found to be too small to enter with the cone tip of the punch, the duct should first be enlarged forward and laterally with Goode's rasp; then the operation is completed with the punch.

NEW BRACE FOR TREATMENT OF SCOLIOSIS

PRELIMINARY REPORT

S. KLEINBERG, M.D., NEW YORK

Chief, Orthopedic Department, Lebanon Hospital Dispensary;
Assistant, Hospital for the Ruptured and Crippled; Assistant,
Orthopedic Department, Mount Sinai Hospital Dispensary

After about two years' experience with the Abbott treatment of scoliosis in a series of seventy cases, it occurred to me that some of the difficulties in the treatment with plaster jackets might be overcome if a brace were used, and the one illustrated was devised.

The brace consists of pelvic and thoracic bands, three upright bars, and an accessory bar to guide the direction of the three canvas bands used to exert pressure. The pelvic band (Fig. 1, *a*) grips the pelvis firmly, and is reinforced by curved bars (Fig. 1, *b*) fitted accurately over the crests of the ilia. On the side of the deformity in front, it is provided with a hinge (Fig. 1, *c*) to allow for opening up of the brace during its application or removal. The thoracic band (Fig. 1, *d*) is so constructed that on the side opposite the deformity it lifts the shoulder up as high as possible, holding it forward also, while on the side of the deformity it is interrupted in its course across the axilla, allowing the

shoulder to drop down, and is held here only by a buckle and strap; on the hollow side at the axilla it is provided with a hinge (Fig. 1, *e*). The three upright bars connect the pelvic and thoracic bands and are distributed as follows: one along the middle of the back and another parallel to the posterior axillary line on the hollow side. It is essential that this bar be on a plane behind the most prominent part of the deformity, usually from 3 to 6 inches distant from the surface of the chest. The third bar (Fig. 1, *f*, and 2, *f*) is placed in front. It is fixed to the pelvic band and adjusted

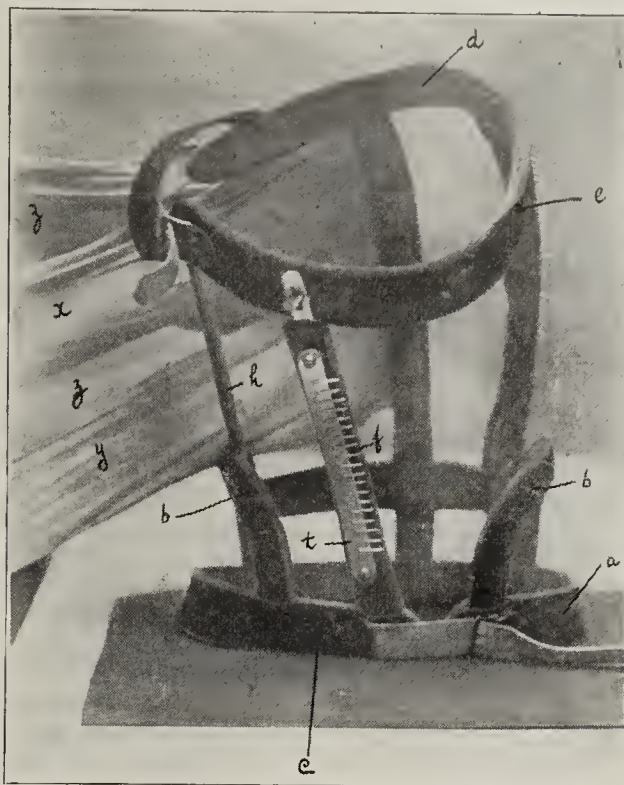


Fig. 1.—Anterior view of new brace for treatment of scoliosis.

to the thoracic band by means of a screw lock, so that it is easily detachable. This bar is bent to conform to the flexed chest.

The posterior lateral and anterior vertical bars are provided with steel teeth (Fig. 1, *t*) for the attachment of the canvas bands. The accessory bar (Figs. 1, *h*, and 2, *h*) extends upward from the pelvic band to the axilla on the side of the deformity, and serves as a guide for the canvas straps, preventing them from compressing the chest.



Fig. 2.—Lateral View.

To the median posterior bar are attached three canvas bands (Figs. 1 and 2, *x*, *y*, *z*). Bands *x* and *y* encircle the chest and are attached to the lateral posterior bar. Both when pulled push the ribs on the side opposite the deformity backward, tending to unrotate the spinal column; they take the place of the felt pads in the Abbott jacket. Band *y* serves also by its pressure across the abdomen to maintain flexion of the body. Band *z*, equal in width to the area of the deformity, attaches to the anterior bar, and by hugging the deformity tightly helps the action of the other bands.

To make the brace, one places the patient in an Abbott jacket, being sure to adjust the pelvis and especially the shoulders as taught by Dr. Abbott, and obtaining as much correction as possible. This jacket when sufficiently hard is cut off and filled with plaster for a torso, over which the

brace is constructed. In the brace the body can be held well flexed.

I desire to emphasize the fact that I apply the method described by Dr. Abbott in all its details, only replacing the jacket by a brace. The following advantages of the brace over the jacket seem worthy of mention:

1. It is lighter.
2. The patient tolerates the pressure more readily.
3. The corrective force can be more accurately applied and more easily controlled.
4. The one brace suffices for complete correction, and the change of jackets, with their accompanying discomfort that is indispensable with Abbott jackets, is avoided.
5. The patient's chest is more easily inspected, and the effect of the corrective pressure better observed.
6. Through better exposure it is easier to keep the body clean.
7. It is easier to examine the spine with the Roentgen rays.

I believe this brace to be useful in the corrective treatment of scoliosis. It has all the advantages of an Abbott jacket and lacks many of its disadvantages. The brace is especially applicable to fixed deformities when there is a long single curve. In the cases thus far treated, nine in number, most of which were rigid S-shaped curves, improvement has been obtained in every instance, though no patient has been under treatment long enough for a final report.

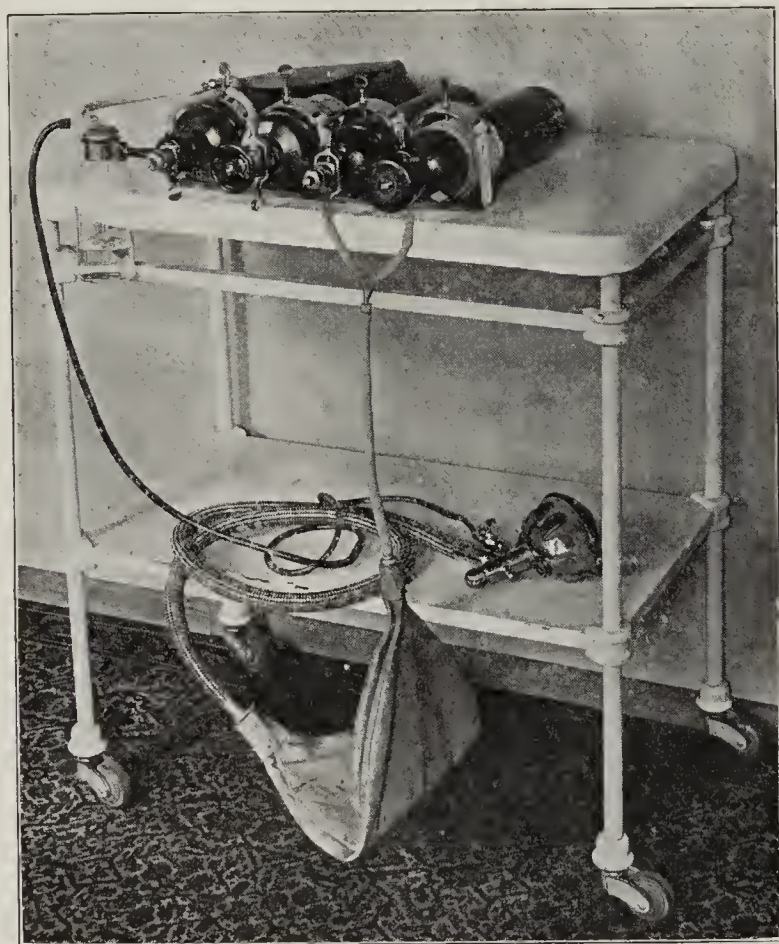
1 West Eighty-Fifth Street.

A PORTABLE NITROUS OXID-OXYGEN APPARATUS

S. W. MOORHEAD, M.D., PHILADELPHIA

Surgeon to the Outpatient Department of the Howard Hospital

The device illustrated is a portable nitrous oxid-oxygen apparatus, embodying some of the points emphasized by Dr. Flagg (THE JOURNAL, Jan. 3, 1914, p. 35). The oxygen is admitted close to the face-piece, a feature which has been found of great practical value. The flow of oxygen is esti-



Portable nitrous oxid-oxygen apparatus. The two cylinders on the right contain nitrous oxid. The oxygen passes from the cylinders on the left through the small bag and the Woulfe bottle directly to the face-piece.

mated by watching the bubbles of gas pass through water in a Woulfe bottle. It can be entirely shut off if desired by turning a cock on the face-piece; in this case the small bag placed between the cylinder and the bottle receives the gas till the cylinder can be closed. A more rapid flow of gas from the cylinder, with or without a shutting off of the nitrous oxid, suffices to give the patient all the oxygen ever required.

The holder for the cylinders consists of a board 15 inches long fitted with four loops of webbing for their reception. A curved steel plate with set-screw is inserted in each loop to prevent rotation of the cylinders, which to give additional security rest on the points of screws driven through the base-board. The holder can be made to accommodate two, three or four cylinders; the four-cylinder type is the most convenient, as it enables one to empty the cylinders completely without danger of running short of gas in the midst of an anestheticization.

The whole apparatus with four or five cylinders can be carried in an ordinary traveling-bag, but on account of the weight of the cylinders division into two bags is more convenient. The weight of the apparatus exclusive of cylinders is about 7 pounds.

1523 Pine Street.

AN IMPROVED FACE MASK

W. L. BROWN, M.D., AND C. P. BROWN, M.D., EL PASO, TEX.

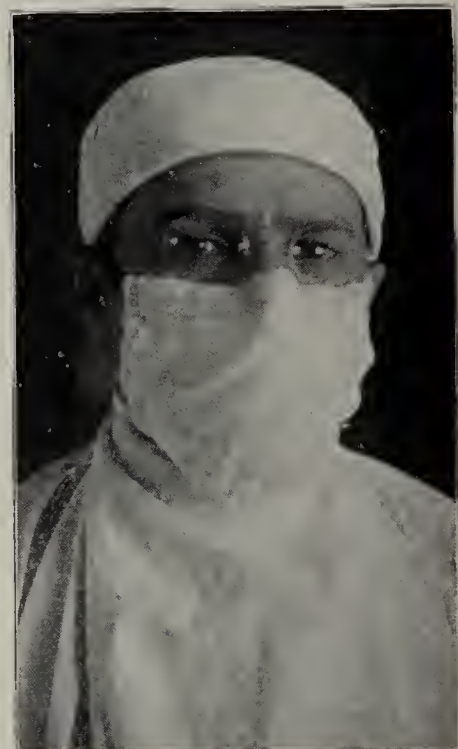
To avoid the frosting of eye-glasses by the breath, and to get the upper edge of the mask out of the way of the vision, we have devised the following little improvement:

The mask is made after any desired fashion. Then a piece of lead-foil $\frac{1}{2}$ inch wide and about $4\frac{1}{2}$ inches long is slipped into the hem in the upper edge of the mask. The lead is of sufficient weight to retain its shape when molded down over the bridge of the nose on the cheeks. We have been using four-ply lead, such as is used about the Roentgen-ray room for protecting plates. The two thicknesses of the mask should be so folded that there will be no seam above the lead, which would be inclined to fall down or stick out and obscure the vision.

The lead is removed when the masks go to the laundry and reinserted on their return.

We have also adopted the plan of having black tapes on the upper edge, indicating which side goes

up, and avoiding the possibility of getting it on upside down. The upper tapes should be tied above the ears and below the occiput, the lower, which is also a puckering string, loosely back of the neck.



Face mask with lead-foil in upper hem.

VASCULAR SUTURE IN TRANSFUSION

A SIMPLE DEVICE TO FACILITATE THE WORK *

BERNARD FRANCIS McGRATH, M.D., ROCHESTER, MINN.

The therapeutic value of blood transfusion in severe anemia resulting from hemorrhage is generally recognized. Because of the nature of this principal indication, a device for transfusion, in order to be ideal, should be generally available.

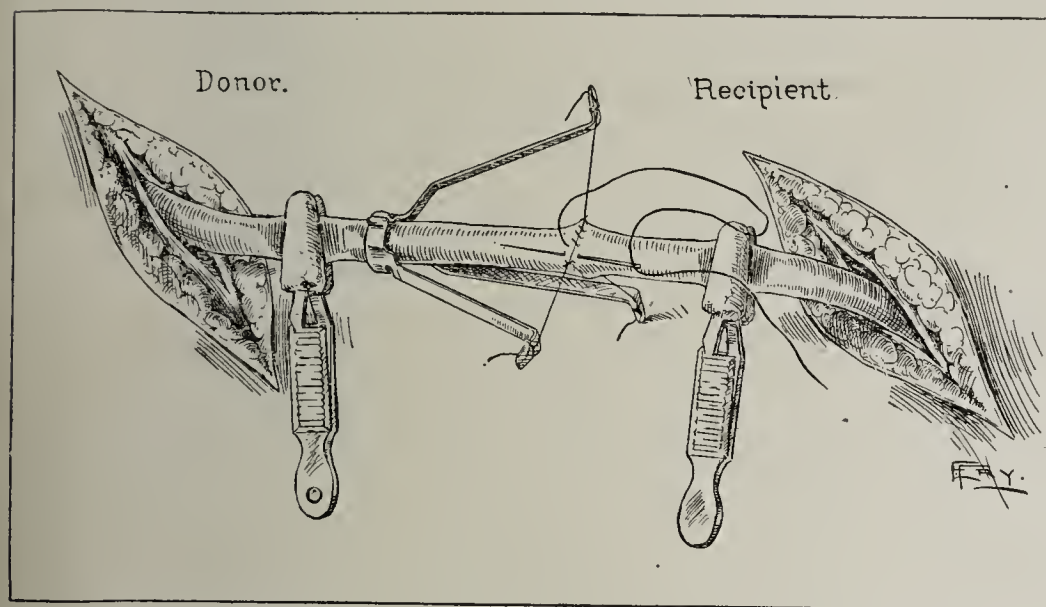
Many apparatus have been contributed, but, whereas most of them possess some of the essential qualities, none comprehends all.

The methods of transfusion are the *indirect* and the *direct*. In recent times the indirect method has been revived and various devices for its execution have been advanced. The advantages obtained by this method, assuming the employment of the most efficient of these devices, are sureness in transmitting the blood, indication of the amount of blood transmitted and comparative ease of execution. Many successes have been reported from the use of the indirect method, but, despite this fact, it has strong opponents among physicians

* From the Mayo Clinic.

of extensive experience. Viewed from the physiologic point of view, the burden of proof still appears to rest on the shoulders of its advocates. The appliances employed in the direct method may be divided into two general groups, namely, one in which a tube is interposed between the vessel of the donor and that of the recipient; the other, in which the intima of the donor's vessel is applied to the intima of the recipient's vessel. In the strict physiologic sense, the latter of these two groups is the true direct method, since the blood comes in contact with no foreign substance, and, consequently, is transmitted in its normal condition.

The various apparatus of the present day for aspiration-injection, together with connecting tubes, are modifications of conceptions which date far back in the history of the subject; while all cannulas for applying intima to intima are based on Crile's conception. I have already advanced a device



Instrument for vascular suture in transfusion as used in anastomosing the vessels. Particularly in transfusion, strong silk may be employed for the stays, the suture being made with the usual fine material for this purpose. Human hair is a very good substitute for the latter in case of emergency.

for the indirect method. This is a modification of the Aveling apparatus and consists of a rubber bulb drawn out into two cannula tips. This has been effective in experimentation. To avoid the possible results of retained clots, a new apparatus should be used in each transfusion. Considering the work, the cost would be negligible. Features in its favor are sureness in transmitting the blood, indication of the amount of blood transmitted, and slight demand for experience. Against it are all the arguments which prevail against the indirect method.

For the direct method I have presented a forceps-cannula. This consists of two very short cannulas which are applied to one another by means of an ordinary forceps, made suitably small and refined for the work. The principle of *cuffing* the vessels, as employed in the Soresi instrument, was adopted. Qualities in its favor are sureness in transmitting the blood, transmitting the blood in its normal condition, and comparative ease of application. Against it may be stated that it is not applicable to very small vessels, and that in case a knowledge of the amount of blood transmitted is desired, it can be acquired at present only by a calculation based on certain factors and indicated by the increase of the recipient's hemoglobin. According to my experience, however, the occasion must be rare in which a vein-to-vein transfusion cannot be accomplished with this instrument. If the veins are of small caliber, the ends may be sufficiently dilated with a forceps without detriment to the procedure.

Vascular suture for transfusion has been but limitedly adopted. The reasons are obvious. Cases are encountered, however, in which the object is best accomplished by this means, for example, when the diameter of the vessels is small. Because of this possible indication for its application, and also for the utility of vascular suture in other fields of surgery, any contribution which aims to simplify its technic has a reason for its existence.

The apparatus shown in the accompanying illustration is intended to facilitate the procedure of suturing blood-vessels in transfusion or whenever indicated.

Bearing in mind the possible difficulties, the operator should approach every case of transfusion adequately equipped to surmount any obstacle which presents itself.

SPINAL-PUNCTURE NEEDLE

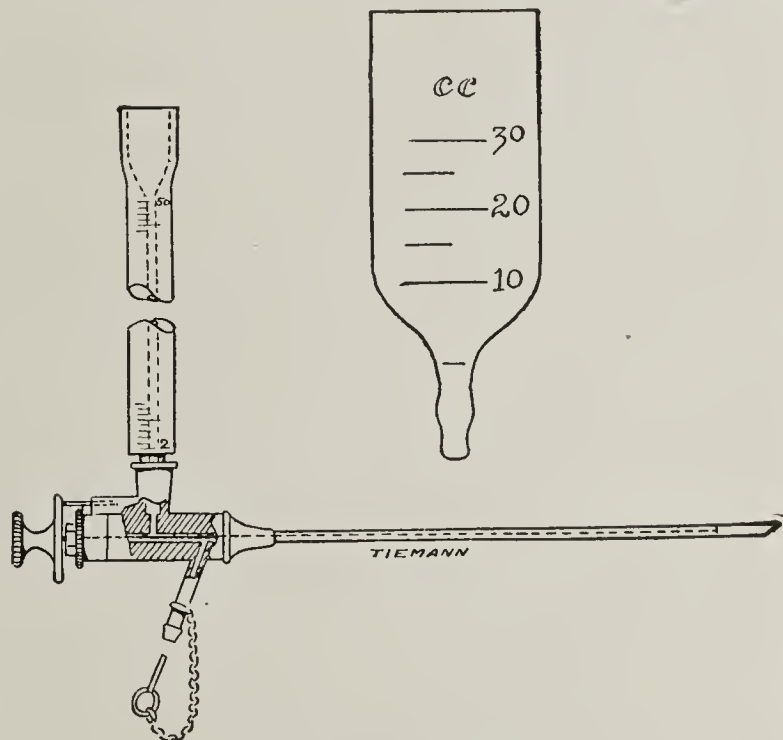
I. STRAUSS, M.D., NEW YORK

The purpose of a needle for the puncture of the spinal canal is threefold: (1) to measure the pressure of the spinal fluid; (2) to withdraw fluid through it for examination, and (3) to inject substances into the spinal canal.

The needles devised for this purpose, heretofore, have depended on the use of the three-way cock. Such mechanism is very apt to get out of order, and requires an undue amount of attention on the part of the operator in order that the flow of fluid may take its proper course.

For the past two months I have used a needle which I think overcomes these difficulties. It is efficient and at the same time easy to take care of. The needle possesses a stylet which is made so as to fit the barrel accurately, and is likewise so fashioned that it cannot be withdrawn during the use of the needle. It can be taken out for cleansing by unscrewing the cap at the end of the barrel. This cap also contains a small leather washer to prevent the leakage of fluid around the stylet, and is the only part of the instrument which may in time require renewal. The barrel of the needle has two openings. In one is inserted a glass manometer of the style used by Crohn in his spinal needle. Opposite to this opening and nearer the needle point, there is another opening, which is fitted with a plug, out of which fluid can be drawn and caught in a test-tube for examination. The manometer is of the same caliber as the needle, and registers in millimeters the height of the column of fluid from the needle level.

When in use the stylet is pulled out as far as possible. The fluid will then rise at once in the manometer. There will be no loss of fluid. The amount necessary to register 120 mm. is only 0.25 c.c. of fluid. Then the stylet is pushed back into the needle a short distance so that no more fluid can come out. The plug can then be withdrawn and the manometer emptied, if desired, or the fluid can be allowed to flow out immediately by merely drawing the stylet back again. When enough fluid has been obtained the stylet is pushed forward a short distance, stopping the flow at once, and the plug is



Spinal-puncture needle.

inserted. If then it is desired to measure again the pressure of the fluid, all that is necessary is to pull the stylet back and the fluid will rise at once in the manometer.

A graduated retainer, holding at least 40 c.c. of fluid, is provided for the introduction of medication, such as serum, into the spinal canal. This is connected by a small rubber tube to a male obturator, which fits into the opening used for the manometer. After enough fluid has been withdrawn from the spinal canal, the manometer is removed, the retainer

is attached to the instrument and the serum allowed to flow in by gravity. One important advantage of this instrument is that it can be used in removing fluid in cases of tumor cerebri, especially of the posterior fossa, without any danger, as there is no loss of fluid and the pressure can be measured without altering the intracranial pressure. In such a case, if desired, fluid for examination may be removed by adjusting the stylet in such a manner that the fluid comes out only drop by drop, and the flow can be stopped instantly.

Since devising this needle, I have found that Kausch's instrument is somewhat similar in construction, but is also complicated by stop-cocks.

116 West Fifty-Ninth Street.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

The following preparations have been accepted for inclusion with the appendix to New and Nonofficial Remedies:

Antiseptic Supply Co., New York.

Causticks (Silver Nitrate 75 per cent.).—Wooden sticks $1\frac{1}{2}$ inches long, tipped with a mixture of silver nitrate 75 per cent. and potassium nitrate 25 per cent., packed in amber glass bottles. Each stick is to be used but once.

Caustick Applicators (Silver Nitrate 75 per cent.).—Wooden sticks $6\frac{1}{2}$ inches long, tipped with a mixture of silver nitrate 75 per cent. and potassium nitrate 25 per cent., packed in amber glass bottles. They are intended for use in throat and gynecologic work. Each stick is to be used but once.

Cupricsticks (Copper Sulphate 60 per cent.).—Wooden sticks $1\frac{1}{2}$ inches long, tipped with a mixture of copper sulphate 60 per cent., alum 25 per cent. and potassium nitrate 15 per cent., packed in gelatin tubes. Each stick is to be used but once.

Stypsticks (Alum 75 per cent.).—Wooden sticks $1\frac{1}{2}$ inches long, tipped with a mixture of alum 75 per cent. and potassium nitrate 25 per cent., packed in gelatin tubes. Each stick is to be used but once.

Factors Involved in Juvenile Delinquency.—A background for misconduct is found sometimes in moral shocks, in mental struggles or conflicts about various experiences or even in knowledge which has been repressed. Hidden worries (these are not uncommon in children) react sometimes in the same way, as also does the belief that immorality rules in the social order. A definite grudge against society is to be readily perceived in some offenders, or a disgust with the world, as the basic reason for criminalism—the individual then seems to be taking the general attitude of revenge. Another most promising subject of inquiry are the thoughts and pictures which some delinquents describe as forcefully coming up and up in their minds, driving them to misconduct. The ever-recurring idea of special criminalistic acts and the formation of a definite delinquent habit of mind are also important to discover. In general this all means a serious attempt to analyze the individual's attitude toward himself, how he became an offender, and his memory of the earliest formative influences of his whole character. For practical ends in any situation where delinquents are dealt with, such study is invaluable and our scientific knowledge of criminal beginnings may thereby be greatly enriched. For this a complete record of facts, opinions and typical expressions is obviously most desirable.—W. Healy, M.D., Bull. 12, Am. Inst. Crim. Law and Criminol.

Therapeutics

THE TUBERCULOSIS PROBLEM

(Concluded from page 1253)

Tuberculous Peritonitis.—This condition uncomplicated with tuberculosis elsewhere must, of course, be differentiated from many abdominal conditions. If there is fluid, other causes of ascites, as inflammation of the liver, serious cardiac insufficiency and ovarian cysts must be excluded. Tuberculous peritonitis may appear in several forms: the miliary form which causes ascites, the fibrocaseous, the fibro-adhesive and that which causes tumor-masses. The range of temperature (although in chronic tuberculous peritonitis there may be no increase of temperature, and it may even be sub-normal), the localized tumor-masses and fluid confined to one portion of the abdominal cavity by adhesions, will aid in the diagnosis. In tuberculous peritonitis there may be more fluid on the left side of the abdomen than on the right, as the diseased mesentery retracts and draws the bowel to the right. As frequently tuberculosis is not present in other organs, the diagnosis is often difficult, and a tuberculin test is indicated. The fluid in the abdomen in tuberculous peritonitis does not contain pus, unless there is a mixed infection, as the tubercle bacillus does not produce pus. The drawn serum very frequently does not show tubercle bacilli, but a guinea-pig inoculated with the serum will, in due time, develop tuberculosis, if that is the infection from which the patient is suffering. If the exudate found on laparotomy or withdrawn for examination is bloody, it shows the disease is active. Tuberculous peritonitis may originate from infected mesenteric glands. Much false membrane is formed, which causes many adhesions of the intestines.

A patient may apparently be very well and still suffer from tuberculous peritonitis, and the prognosis is rather favorable if such a patient is operated on. It is not advisable to operate for tuberculous peritonitis if tuberculous infiltration is already in the lungs. At times, withdrawal of fluid from the abdomen by aspiration, tonic treatment, rest and the exposure of the abdomen to the rays of the sun will cause a cure. Many sanatoriums are installing the necessary equipment for giving heliotherapy, or sun baths. The direct rays of the sun are thrown on the chest or abdomen. The electrochemical action of the Roentgen ray has also been tried, but its value has not been well proved.

If the ascites tends to recur, or remains, laparotomy should be done, and sunlight let into the abdomen. Laparotomy may cure tuberculous peritonitis when there are simply tuberculous masses or tumors, but no fluid in the abdomen. It has been thought that small doses of mercury administered for a long period, especially in the form of corrosive sublimate, was of advantage in tuberculous peritonitis.

The results of operation may be summed up about as follows: There is slight danger from the operation itself. Temporary improvement may almost always be expected. Fatal cases usually terminate in a few months after the operation; while not far from one-third of all cases seem to recover in about one to two years after the operation. Antiseptic injections or continuous drainage after operation are not indicated and are useless.

Tuberculosis of the Genito-Urinary Tract.—Tuberculosis of the bladder and prostate is rarely primary,

and often has gonorrhea as an antecedent. Tuberculosis of the testicle is by no means infrequent. Removal of the testicle is of course advisable, and operative interference in the bladder and prostate may be indicated. A tuberculous kidney should be removed as soon as it is diagnosed provided the other kidney is normal. The general treatment is the same as in all tuberculosis.

Tuberculosis of the Cervical Glands.—Although this subject has already been quite largely discussed, it should be urged that while surgical removal is necessary and very frequently indicated, every gland that is needlessly removed weakens by just so much the ability of the system to protect itself against all infections. Roentgen-ray treatment, while lauded by some men, seems unsatisfactory to many clinicians. While infected or broken-down glands are being removed, the dissection should be very carefully done, lest the surrounding parts be infected with liberated germs, or if not locally infected, lest the bacilli be absorbed into the lymph circulation and cause general infection.

While a gland should not be removed merely because it is enlarged, at the same time it is a serious mistake to allow enlarged glands to cause such inflammation of the surrounding tissues as to render it necessary to remove parts of muscles, to say nothing of the danger of such chronic inflammation necessitating, during operation, injury to important blood-vessels and nerves. Glands should be removed before they cause injury to the patient or the surrounding tissues.

The tuberculin treatment of tuberculosis of the glands, especially in children, is now much in vogue, and if the tuberculin is used in carefully graded doses the results seem to be satisfactory. Caseated glands should be eradicated or curetted, however, as the tuberculin treatment will not cause resorption. Also, the exact value of the tuberculin treatment for tuberculous glands cannot be determined, as fresh air, good food, iron tonics, and medical supervision are active aids in the cure of this condition. Too large doses of tuberculin may overstimulate the diseased glands and cause general infection. Also, one does not know how many concealed diseased bronchial glands will be stimulated by the tuberculin injections; hence a very careful study of focal reaction should be made throughout the treatment. Bier's hyperemic treatment is probably inexcusable.

Bone and Joint Tuberculosis.—In tuberculosis of these parts of the body, according to Fiske, there may be a slight leukocytosis of not far from 12,000, while in osteomyelitis the leukocytosis is generally not far from 16,000.² Children who have bone tuberculosis frequently do well at sanatoriums or in hospitals especially arranged for their out-door or veranda treatment. They do especially well at the seashore, and direct sunshine makes a valuable addition to the treatment of this kind of tuberculosis.

Tuberculous Meningitis.—Tuberculous meningitis, sometimes called basilar meningitis, or water on the brain, may be a part of acute miliary tuberculosis, but it frequently occurs in children without other apparent tuberculosis, though careful necropsies in children dying of this disease may show signs of tuberculosis in the lungs. Tuberculous meningitis is generally a disease of childhood, occurring most frequently between the ages of 2 and 5. Measles and whooping-cough seem to be predisposing causes, simply because they irritate

already infected glands, and these glands then pour out tubercle bacilli which cause a local acute infection. Tuberculous meningitis may also follow, in rare instances, a bone tuberculosis.

Enough cases are now on record to show that recovery from tuberculous meningitis is possible, so that the prognosis is not absolutely hopeless, although very dire. The little patient should be kept very quiet, and in a darkened room, and lumbar puncture should be done for relief of any symptoms of pressure, as well as for diagnostic purposes. If the child is suffering pain, codein or some form of opium should be administered, in doses found sufficient for the individual, but not large enough nor so frequently repeated as to produce coma; that is, if coma occurs it should be known that it is caused by the disease and not by the drug. The little patient should not be compelled to suffer severe pain. If food is refused, forced feeding may be advisable, but if the child is thirsty he will generally drink milk. The value of hexamethylenamin is still doubtful. It has for the last few years been thought to be a most valuable treatment in all infections of the meninges or adjacent parts, as the middle ear, etc., and in colds and sinus disturbances. Late investigations, however, show that this drug does not give up its formaldehyd radical except in such acid mediums as are found in the bladder. The drug in ordinary doses, with the kidneys intact, is harmless, however, and should be given until it is certain that it is of no value.

Acute Miliary Tuberculosis.—This occurs in several forms; one in which all the organs of the body are attacked, others in which only certain organs are diseased. In another form the tubercles may be larger and show degeneration. The disease is always serious, generally fatal, and clinically occurs as the meningeal form just described or as a general acute bronchopneumonia of both lungs, or as the typhoid type. In the lung form the sputum is loaded with tubercle bacilli and the diagnosis is readily made. In the typhoid form there may be no cough, and no real lung signs, although lesions may be found in the lungs on necropsy. It may be difficult at first to distinguish this form from typhoid fever, but the temperature is likely to be very high in the evening with considerable of a drop in the morning, and profuse sweatings. Such morning remissions occur early in the disease as distinguished from typhoid fever. The pain and tenderness in the abdomen, and the joint and cerebral symptoms, will soon make the diagnosis positive. Diarrhea generally does not occur with acute miliary tuberculosis; in fact, the patient is generally constipated—another symptom different from most cases of typhoid fever.

The treatment is similar to that of any acute infection with the exception that great care should be exercised to sterilize every excretion from the body.

ARRESTED TUBERCULOSIS

A patient who has even a temporary return to health must generally go to work, and the question of vital importance is, What shall the work be? There is no light outdoor work suitable for such recovered patients; hence, unless the occupation is one that is a menace to his health, a patient should return to his previous work. The education received during his cure should have taught him how to live to keep his health. The next important rule for him to follow is to return to his physician for observation and advice at shorter or longer intervals, depending on his general condition.

2. Fiske: Boston Med. and Surg. Jour., 1913, clxviii, 606.

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THE BEHAVIOR OF MALARIAL PARASITES

Now that the cultivation of malarial plasmodia outside of the body has finally been successfully accomplished through the technic devised by Dr. Charles C. Bass and his co-worker Dr. F. M. Johns of the Tulane School of Tropical Medicine, and the splendid results have been verified by Lavinder, Thompson, Ziemann and others,¹ it is time to turn attention to some of the lessons which the new experiences are suggesting. Bass² has lately offered some ideas relative to reproduction of the organisms, suggested by his observations of malarial plasmodia growing *in vitro* and from experiments made with his cultures. He believes that in the living body the plasmodia can pass from cell to cell only when one cell is in direct contact with another containing a segmenting parasite, and then only when the opening for the exit of merozoites occurs opposite the neighboring cell. The substance of malarial plasmodia is very different in consistency from that of red blood-cells, and therefore they cannot pass through the smallest capillaries so readily as can the more yielding fluid-like erythrocytes.

Because of their unyielding consistency, Bass believes that malarial parasites, after they attain a sufficient size, lodge in the capillaries of the body, especially where the blood-current is weakest, and where slight obstruction is produced by the protruding inward of nuclei of the endothelial cells. Here they remain and develop until they segment. In the meantime other red blood-cells are forced against them, and if the opening in the infected cell occurs in a favorable location, one or more merozoites pass directly into another cell. Otherwise the merozoites are discharged into the blood-

stream and speedily killed. Whenever a segmented parasite has become sufficiently broken up it can pass on through the capillary into the circulation, where the remaining merozoites are almost instantly destroyed. The debris and pigment are phagocytized by the mononuclear cells of the blood and the endothelial cells of the vessels, and finally are either destroyed or stored in the spleen and other tissues of the body. A very heavy infection may result in plugging the brain capillaries to such an extent as to produce coma and "cerebral malaria."

Bass offers the suggestion, further, that quinin has no direct destructive effect on malarial plasmodia, the red blood-cell harboring the parasite possibly being rendered more permeable to the all-sufficient destructive influence of the serum through the undoubted detrimental influence of the alkaloid. If this be true, quinin would affect only the parasites in the circulation and not those lodged in the capillaries, which would not be reached by the drug until they segment. The effect of quinin would accordingly be defeated by any measure, either dietary or physical, whereby the permeability of the red corpuscles is likely to be decreased. This must, however, be looked on as purely hypothetical.

The size of the capillaries and the blood-pressure have an important influence on the stage at which malarial plasmodia recede from the peripheral circulation. They may be important factors in the production of "cerebral blocking." A growing appreciation of the possibilities involved may greatly facilitate the treatment of a disease in which the essential etiologic agent is at length under some degree of intelligent experimental control.

THE OCCURRENCE OF URINARY CALCULI

Owing to the fact that in this country the occurrence of urinary calculi in man appears to be rather evenly distributed and favors no particular locality, we are liable to forget that in certain parts of the world there are circumscribed "stone districts." Some of the Scandinavian countries have been reputed to be free from the existence of these concretions; whereas in certain other regions of the world stone is a common malady. The incidence of urinary concretions can scarcely be correlated with climate or geographical location, for the "stone regions" occur in both warm and cold countries, inland as well as along the coast, in the highlands and the lowlands alike. Some indication of the wide-spread, though not uniform incidence is obtained from the statement of a recent writer who reports that there are "stone districts" in England (Norfolk, Bristol, etc.), the west of France, about Moscow in Russia, in some parts of Germany, lower Egypt, upper India and in Holland.

On the authority of A. Hirsch¹ it may be assumed that the Asiatic continent ranks first in prominence in

1. Bass, C. C.: A New Conception of Immunity: Its Application to the Cultivation of Protozoa and Bacteria from the Blood and to Therapeutic Measures, THE JOURNAL A. M. A., Nov. 4, 1911, p. 1534. Bass, C. C., and Johns, F. M.: The Cultivation of Malarial Plasmodia (*Plasmodium vivax* and *Plasmodium falciparum*) in Vitro, Jour. Exper. Med., 1912, xvi, 567. Lavinder, C. H.: A Note on the Cultivation of Malarial Plasmodia after the Method of Bass and Johns, THE JOURNAL A. M. A., Jan. 4, 1913, p. 42. Thompson, J. H., and Thompson, D.: The Cultivation of Benign Tertian Malarial Parasites (*Plasmodium vivax*) in Vitro by Bass's Method, Ann. Trop. Med. and Parasit., 1913, vii, 153. Ziemann, H.: Ueber die Basssche Kultur der Malariaparasiten in Vitro und die daraus sich ergebenden Resultate, Centralbl. f. Bakteriologie, 1 Abt., Originale, 1913, lxvii, 482.

2. Bass, C. C.: Cultivation of Malarial Plasmodia in Vitro, Am. Jour. Trop. Dis. and Preventive Med., February, 1914, p. 546.

1. Hirsch, A.: Handbuch der historisch-geographischen Pathologie, 1883, iii, 319.

the distribution of urolithiasis throughout the world. Even in Asia, however, there are areas of immunity, so to speak, mingled with those in which stone is common. The northwestern provinces of India are said to be pre-eminently afflicted, whereas urinary calculi are rarely reported in the region of the lower Ganges. Similar differences exist between north and south China; the former is free from stone, which is so common in the south that special hospitals for those suffering from urinary lithiasis have been developed, in Canton for example. Indeed, this form of disease has been described as endemic for the province of Canton.

The hypotheses regarding the etiology of calculus have been so varied that it need not be considered strange if the explanations for the peculiar distribution of urolithiasis have been equally divergent. So long as the cases were grouped together in a common category quite independent of the real chemical nature of the calculi themselves, one could scarcely expect much progress in the interpretation of such disease. It would be quite as rational to class all fevers, as was once done, in a single group and hope to unravel their etiologic significance from a single symptom-complex. Concretions of inorganic salts of calcium and magnesium, oxalates, uric acid and urates, cystin and rarer components have too often been taken without further analysis as the indication of a common malady — stone. No stretch of chemical or physiologic imagination will permit so heterogeneous a group of compounds to be ascribed to a common origin, or their deposition in the kidney, bladder and urinary passages to be uniformly charged to an identical cause.

The investigations of recent years leave no doubt, further, that the individual "stone districts" show an unlike predominance of the different chemical types of calculi. In India, for example, oxalates appear to be quite prominent, pure uric acid concretions being relatively scarce. In Egypt, mixed calculi composed of oxalates and urates predominate; whereas in England they are said to be found rarely, if ever, although urate concretions are in turn extremely common there. A careful investigation made by Abderhalden and Hanslian² on calculi from the inhabitants of Asia Minor showed that they are essentially inorganic in character, calcium and magnesium being conspicuous. In contrast with these varied types is the latest report regarding the calculi of the Chinese, in which uric acid appears to be even more dominant than it is among the European specimens.³ It is as yet almost futile to account for such group variations — for the incidence of oxalate concretions in Egypt and India, of urate calculi in Europe and China, or the comparative immunity of the

negro races of Africa.⁴ Certain hypotheses appear now to be excluded, as for example that of the peculiar posture assumed by certain of the races during micturition. This has been believed by some to favor a retention of urine in the bladder and thus facilitate precipitation of less soluble urinary components. Parasitic invasion of the urinary tract can likewise scarcely be called on to account for the diversity of phenomena reported, though at one time the frequency of stone in Egypt and Natal was attributed to *Bilharzia* eggs in the tract providing a nucleus for the deposition of urinary salts. A comparable hypothesis has been furnished for the conditions in China where the parasitic agent is the *Schistosomum haematobium*. The doctrine of the coincidence of parasitic invasion of the urinary tract and the occurrence of stone cannot be applied very broadly.

The most tenable theories undoubtedly center in nutritional causes. The intake of food and drink, varying as it does within wide limits of racial habit, geographic opportunity and economic necessity, provides factors of such unlike and manifold character that only further statistical studies can reveal the true etiologic relationships. We realize to-day that it need not be a preponderance of meat or vegetable diet, respectively, which occasions the presence or absence of urinary urate deposits. The balance of acids and bases in the organism, the equilibrium between these factors as illustrated in the resulting reaction of the urine, may be the determining cause of precipitation or solution. There is an interplay of many chemical components, the upset of which may spell disaster. The symptoms of gout, for example, are not confined solely to the meat-eating peoples. Typical vegetable dietary products like wheat and potato bring about quite unlike consequences in respect to the metabolic "rubbish" which they leave behind them. Until a more detailed knowledge of the diet of diverse peoples becomes available we can scarcely hope to solve the problems of the incidence of urinary calculi. Increasing knowledge in respect to the chemical features of both food and urine is likely to lead more speedily to defensible conclusions than are hypotheses involving questions of race, geologic conformation or contemporaneous disease.

PROSECUTION OF RESEARCH WORKERS

Elsewhere⁵ appears an account of the trial of Dr. Joshua E. Sweet, one of the six members of the faculty of the Department of Medicine of the University of Pennsylvania, charged with wanton and unnecessary cruelty to dogs. Indictments were brought under the state law forbidding cruelty to animals. The principal witness of the prosecution was a former employee of the university, who testified that the cruelty consisted

2. Abderhalden, E., and Hanslian, R.: Beitrag zur Kenntnis der Zusammensetzung der Blasensteine von Bewohnern Kleinasiens. Versuch, die Ursache ihrer Entstehung zu ergründen, Ztschr. f. physiol. Chem., 1912, lxxx, 113.

3. Pfister, E.: Chinesische Blasensteine, Ztschr. f. Urol., 1913, vii, 945.

4. Pfister, E.: Die Steinkrankheit bei der Negerrasse, Arch. f. Schiff- u. Tropenhygiene, 1913, p. 599.

5. See page 1341, this issue.

in the character of the food fed to the dogs, but who was forced to admit on cross-examination that he kept for his own profit eight hundred dogs and fed them on the same food. The other leading witness for the prosecution was a woman member of the local society for the prevention of cruelty to animals, who fainted on the witness stand when forced, under cross-examination, to contradict her direct testimony. Against the objections of the attorneys for the defense, the court allowed the prosecution wide latitude in the admission of testimony, refusing to limit the evidence to the specific instances of cruelty on the specified dates charged in the indictment. The court also permitted lay witnesses to testify on technical subjects. In his charge to the jury, the judge instructed that the legal aspect of the case was not affected by the object of the experiments and that the fact that the investigations were conducted to obtain information for the alleviation of human suffering was not an adequate defense. Here is a quotation from the judge's charge to the jury:

I charge you that the law of Pennsylvania does not allow pain and suffering, torment or torture to be inflicted on dogs for any purpose except the relief of the suffering of the dog itself.

If there are any dog-pounds in any of the cities of Pennsylvania, the keepers would do well to inquire into the law as interpreted by the learned judge in this case, else they might find themselves liable to indictment under the same law and ruling.

According to the newspaper reports, when the case went to the jury, it developed that one member of the jury had already made up his mind, although whether his decision was reached before or after the evidence was introduced is not stated. This juror, it is said, refused even to discuss the case with his colleagues. One is led to suspect that he must have been an anti-vivisectionist. At any rate, the jury after forty-six hours' deliberation reported that it was unable to agree on a verdict and was discharged. The majority of the jurors were for complete vindication.

Commenting on the charge to the jury, the Philadelphia *Public Ledger* says, editorially:

To accuse men of the foremost scientific standing in America of performing operations on dogs for the sake of gratifying their own bloodthirsty instincts is the height of wicked absurdity and comparable only with such a campaign of wilful and persistent misrepresentation as that of the recent exhibit, in the windows of a building on Chestnut Street, of practices which scientific vivisectionists do not perform, either in the manner or for the purposes indicated.

The Philadelphia incident, regardless of its ultimate outcome, is of value as an illustration of the general principles underlying the position of the scientific medical profession on this subject. Briefly stated, these are that the use of animals for experimental purposes is absolutely essential to the progress of scientific knowledge for the control and suppression of human diseases. No greater calamity could befall the public than the curtailing of the liberty of scientific men to

carry on such experimental work. Such a privilege, however, carries with it the responsibility on the part of all scientific men and institutions in which experimental research is carried on to take every possible precaution to avoid even the appearance of inflicting any unnecessary pain, hardship or suffering on the animals which are the subjects of such experiments and through whose pain the human race is the gainer. This case, therefore, emphasizes what is generally recognized as a fact, that it is the duty of research workers at all times and under all circumstances to avoid inflicting unnecessary pain or discomfort on the animals that are being utilized for humanity's sake. We make this as a general statement without any reason for believing that unnecessary pain and discomfort are inflicted, at least in recognized research laboratories. Heads of departments and college authorities should—and we believe do—recognize their responsibility, not only for their own acts, but also for the acts of their assistants, subordinates and employees. It is no excuse for the head of a department to say that he has done nothing for which he can be criticized or that he has given directions to his subordinates to do certain things. He is responsible for their actions. It is directly incumbent on the responsible head of each department in which animal experimentation is necessary to see to it that everything possible is done to avoid inflicting pain, discomfort and suffering on the animal so far as possible. When this is done, the responsible person should be held, not only morally, but also legally, accountable for any unnecessary or avoidable pain or suffering.

This leads to the statement of another fact, that the general laws relating to cruelty to animals, now in existence in practically all the states, are amply sufficient without any special legislation on the subject. This has always been the contention of *THE JOURNAL*. There is no need of special laws against the infliction of pain on animals during scientific experimentation—such laws already exist. The same law that punishes the cruel or thoughtless teamster or cab-driver will also punish the cruel or thoughtless scientific man, if such exists. The Philadelphia incident is ample proof of this. The Pennsylvania law against cruelty to animals is sufficient to punish the person guilty of such cruelty, whether he be a professional man or a day laborer.

The Philadelphia case, it is understood, will be retried—let us hope before a more judicial judge and an impartial jury. As to the ultimate vindication of the members of the university faculty; *THE JOURNAL* has no doubt. This case can be made of untold value to the cause of scientific research as a demonstration, on the one hand, that general laws against cruelty to animals are entirely adequate for the control of scientific experimentation, and, on the other hand, of the grave responsibility which rests on all scientific men carrying on such experiments to avoid every possible cause for criticism.

THE BEHAVIOR OF TIN IN THE BODY

Although the salts of tin are no longer used therapeutically, the behavior of this metal in the body demands consideration for more practical reasons. Tin enters into the composition of all sorts of vessels and containers which are employed in the preparation, distribution, serving or preservation of food; and it is present in the parts of various machines or mechanical devices with which various edible products or potable liquids come into contact in the course of their manufacture into marketable form. There can be no doubt that tin has been contained in preserved foods, as a result of its being dissolved off the vessels used. Apparently, it is not often, if ever, present in sufficient quantities to induce detectable poisoning; for although some cases of "tin-poisoning" are reported in medical literature, in no instance has it been satisfactorily established that tin was the real cause of the intoxication. How little attention has been given to the toxicologic problem presented by the wide-spread use of tin is evidenced by the fact that prominent text-books on hygiene neglect to mention it at all.

The question has been raised whether or not any absorption takes place when the salts of tin enter the body by way of the mouth. The new investigations in the pharmacologic laboratory of the Bureau of Chemistry of the U. S. Department of Agriculture in Washington,¹ like earlier ones by the local government board in London,² leave no doubt of the possibility of absorption of tin from the gastro-intestinal canal. Indeed, it is suggested that when salts of this metal are fed over a prolonged period the alimentary mucosa may experience changes which favor the absorption of tin. Animals which had received daily doses of sodium stannous tartrate, for example, showed no tin in the urine during the first week, though it made its appearance in this excretion at a later period.

When tin is actually introduced into the circulation and thus distributed through the body, the gastro-intestinal tract appears to be the chief organ for its elimination. It is now well known that other chemical elements, like iron and calcium, are excreted through the bowel. The kidneys play a subordinate though an important rôle. Elimination of the metal is very slow, though appreciable amounts are excreted during the first day or two after its introduction into the organism.

An analysis of the organs and tissues of the body after the injection of soluble salts of tin has shown that its distribution, when once it actually reaches the circulation, must be very general. The tin disappears from the blood-stream within two or three hours after an intravenous introduction of its salts and can then be found in the liver, brain, muscles and elsewhere in the organism. The facts thus far available make it seem

desirable to obtain far more extensive observations before any far-reaching conclusions concerning the hygienic relations of tin can be formulated. The studies begun by the government are timely.

THE RATIONAL STUDY OF THE ACTION
OF MINERAL WATERS

Those who have followed the progress of investigation in the biologic sciences fundamental to the study of medicine cannot have failed to notice the change which the past decade or two has brought about with respect not only to the lines of inquiry, but also to the materials forming the objects for experimental attack. Increasing attention is being given to the study of the lower forms of life, using simpler structures and more diffuse phenomena to elucidate the more general properties of living matter. As the late Sir Michael Foster expressed it in a memorable address before the British Association for the Advancement of Science meeting in Toronto in 1897, by far the greater part of the results obtained in physiology in the past half century have been gained by inquiries restricted to about half a dozen kinds of backboneed animals; the frog and the myograph, the dog and the kymograph have almost seemed the alpha and omega of the science. Of late, however, we have witnessed the return to the study of the lowest forms, as they are sometimes called; and "general physiology" with its immediate relations to the minute masses of protoplasm exemplified in the unicellular organisms and individual cells is claiming a large share of attention. First it was the morphologist who directed his energy to unraveling the secrets of the simpler units of living matter; and subsequently the physiologist began to search for the solution of the problems of function at the same source.

The classic researches of Jacques Loeb may be cited as an illustration of the far-reaching knowledge derived from the newer field of inquiry. The study of the metabolism of the egg-cell, in which morphologic and chemical transformations with their attendant energy exchanges proceed hand in hand, has revealed how profoundly the inorganic medium of the cell may affect its behavior. The developmental changes in the egg-cell have been shown by Loeb and his followers to be modified by the osmotic pressure of the fluid environment, its chemical reaction, and the specific nature of the individual ions contained therein. It has been found possible to measure the respiratory processes in these small units of living matter and to modify their production of carbon dioxide and consumption of oxygen.

The time has come to turn back from the lower forms and single-celled organisms and to ask whether the facts which have been exemplified in relation to them can be applied to the higher organisms. In the modification of such essential processes as cell oxidations the nature of the solution in which the cells are bathed has been found to be of directive moment. Can similar influ-

1. Salant, W.; Rieger, J. B., and Treuthardt, E. L. P.: Absorption and Fate of Tin in the Body, *Jour. Biol. Chem.*, 1914, xvii, 265.

2. Buchanan and Schryver: Local Government Board (Med. Dept.) Report of Inspector of Foods, London, 1908, p. 18.

ences, retardations and accelerations of the function of agglomerations of cells, such as the tissues and organs of man represent, also be exerted by variations in concentration and composition of the inorganic medium which forms their environment? In attempting to bring about such changes in the higher types we are confronted by a complicating factor in the regulatory devices constantly functioning to prevent these very alterations in the medium, the blood, which determines the surroundings of the cell. The kidneys, in particular, are charged with the physiologic duty of preventing any considerable changes in osmotic concentration or elementary composition in the circulating fluid; and in health the task is well performed.

The health resort which emphasizes the virtues of the mineral waters which its visitors are advised to drink, attempts in essence to do what the physiologist has accomplished in his experiments with the isolated cell, namely, to modify cellular function by changing the inorganic medium in which the organism exists. The development of certain eggs is almost entirely retarded, for example, in the absence of one of the three essential ions, sodium, potassium or calcium. Ions of a single element, such as sodium, may be toxic when present alone, whereas the egg which exhibits the harmful effects thereof may be maintained intact in pure, distilled water. Thus it has come about that the conception of physiologically balanced solutions of various ions has been developed, the relative proportions in which they exist in sea-water being looked on as especially favorable. Can mineral waters effect any detectable metabolic changes by altering the environment of the cells, in the face of the efficient counteracting regulatory devices of the complex organisms of the higher animals? The problem is being put to the test, in the interest of rational balneology, in the physiologic laboratory of the Agricultural College in Berlin under Zuntz' guidance.¹ Experimental details are of little interest here. It may suffice at present to note that the oral administration of different combinations of ions — anions and cations — in quantities representative of the practice prevailing at various spas has actually shown the possibility of altering, though slightly, the respiratory quotient in some of the cases and of modifying the oxidative or metabolic processes in the organism. Carbonates, phosphates and chlorids of the same cations (sodium, potassium, magnesium, calcium) by no means behave alike. This experimental undertaking of Zuntz marks the beginning of a new chapter in the exposition of the rôle of mineral waters, the publication of which must await the progress of research. The completed story ought to prove of distinct value in the field of practical medicine.

1. Zuntz: Die Einwirkung der Salze und ihrer Ionen auf die Oxydationsprozesse in unserem Körper. 1. Einleitende Bemerkungen, *Ztschr. f. Balneol., Klimatol. u. Kurort-Hyg.*, 1914, vi, 333. Mäder, W.: II. Untersuchungen über den Einfluss von Salzen auf den respiratorischen Stoffwechsel, *ibid.*, p. 363.

Current Comment

TEETH, HAIR AND DUCTLESS GLANDS

The ductless glands have been held responsible for so many functions in recent years that one hesitates to add to their share of the responsibility for the proper performance of physiologic activities. Nevertheless, new suggestions of possible influences exerted by the organs of internal secretion are still frequently being brought to the attention of scientific observers. Dr. Arnold Josefson¹ of Stockholm has sought to defend the thesis that dentition and the early development of the hair are under the dominance of some of the ductless glands. In general, his argument centers in the fact that disturbances in the normal development of the teeth and the appearance of hair on the body are associated in many cases with known defects in the behavior of some of the glands of internal secretion, and that the anomalies can be corrected in some cases by suitable organotherapy. There is nothing fundamentally new in this doctrine. It has long been maintained that the thyroid and hypophysis, for instance, exhibit what has been interpreted as a functional hypertrophy during pregnancy. It is not at all unbelievable that if these maternal glands fail to contribute a due share of their determinative products during this developmental period, the embryo may suffer in its correlative growth. Serious irregularities in the dentition or the appearance of hair in the young may become the expression of some defect in the glands like the pituitary or thyroid which, if understood, may be remediable by administration of preparations of the corresponding tissues. Josefson has furnished clinical illustrations of the simultaneous occurrence of delayed dentition and persistence of fetal hair which could be corrected by administration of thyroid extract. Abnormal dentition is common in infantile myxedema and has likewise been improved by thyroid therapy. Hypertrichosis has frequently been observed in connection with rapid development of the sexual glands. The interrelations thus brought out raise the question whether organotherapy may not have an unexpected field of usefulness during the pregnancy of mothers in whom the family history warrants the suspicion of possible hereditary defects in the offspring.

PATHOGENIC TUBERCLE BACILLI AND STREPTOCOCCI IN FRIEDMANN'S VACCINE

In our comments on the occasion of the first announcement by Friedmann of his alleged cure for tuberculosis, it was pointed out² that the secrecy maintained in regard to important details was not in accord with the prevailing ethical standards of the medical profession, that the proposed treatment was without any justification of an experimental nature, and that the possible danger of acquirement of or reversion to virulence of the bacilli injected appeared to overbalance whatever promises of

1. Josefson, Arnold: Dentition und Haarentwicklung (Zahn- und Haarwechsel) unter dem Einfluss der inneren Sekretion, *Deutsch. Arch. f. klin. Med.*, 1914, cxiii, 591.

2. Friedmann's Inoculation against Tuberculosis, *Current Comment*, *THE JOURNAL A. M. A.*, Dec. 14, 1912, p. 2158.

benefit the exploiter of the treatment might make. That this danger is not groundless is shown by the results of certain experiments and observations recently published by Lydia Rabinowitsch,³ who found that of guinea-pigs injected with acid-proof bacilli from Friedmann's vaccine, some developed small foci with bacilli in them and that one presented the picture characteristic of tuberculosis produced by the inoculation of feebly virulent tubercle bacilli of the mammalian type; furthermore, in rabbits injected with large quantities, slight changes resulted. Hence the bacilli constituting the vaccine vary from the type of tubercle bacillus, namely, that of cold-blooded animals, to which it has been announced by Friedmann that it belongs and which is not pathogenic for guinea-pigs and rabbits. To say the least, this observation places doubt on the methods employed in the preparation of the product, but there are also other ways in which to account for the presence in it of pathogenic tubercle bacilli. That the methods used in the preparation of the material sold for injection are crude in supreme degree is indicated by the fact that in a large proportion of different samples Rabinowitsch found streptococci which were pathogenic for guinea-pigs. No wonder that abscesses frequently appear at the site of inoculation. In one such case Rabinowitsch found tuberculous granulation-tissue in the wall, and she quotes Westenhöfer as having made a similar observation, so that we now know that Friedmann's so-called remedy not only is subject to contamination with streptococci, but actually may contain tubercle bacilli that are pathogenic for guinea-pigs and rabbits as well as for human beings. Hence this remedy for which much has been claimed, including harmlessness, fails in this respect also—it is not harmless.

MENTAL HEALING AS A COMMERCIAL ASSET

We live in an age of wonders and of progress. The conditions of yesterday are lost sight of in the amazing progress of to-day. So great have been the advances of scientific knowledge in the last fifty years that one is prepared for almost anything. Not only in the scientific world but in commercial matters as well is progress truly astonishing. Business enterprise to-day uses the worthless by-products and waste material of yesterday. The fact that the squeal of the pig is the only thing that goes to waste in the modern stockyards has long since passed into the realm of commonplace. Yet it remains for an accident insurance company to show systematically the financial value of the denial of human ills. In the Correspondence Department this week⁴ appears a letter regarding the Preferred Accident Insurance Company of New York which, it seems, employs as an adjuster in Chicago a devotee of Christian Science. He is said to be a very valuable official on account of his ability to make the people insured in his company regard their injuries from a Christian Science point of view. Heretofore, the possibilities of a healer in any of the "mental science" cults have been restricted to "absent treatment" and "mental treatment," with the acceptance

of such fees as the customs of the sect have prescribed. Thanks to the Preferred Accident Insurance Company of New York, a new and brilliant future is now open to the mental healer. He can be employed on a salary by accident insurance companies to convince the policyholders that they are not really hurt and consequently have no claim against the company. But why limit such beneficent activities to insurance companies? Why cannot each railroad and street-car company have a mental healer in its employ who can hasten to the scene of the accident and convince the victims that the unfortunate event was only a delusion of their mortal mind and that nothing has really occurred to them? Nor can the development of this new and brilliant method be limited to commercial and industrial conditions. Our government is standing on the brink of war with Mexico. Why send surgeons with the battle-ships, or ambulances and hospital trains with the Army? A sufficient corps of mental healers, sent out on the battle-field after each engagement, will convince each wounded soldier that the bullet which struck him was only a delusion and that nothing has really happened. Bandages, dressings, anesthetics, instruments, hospitals, sanitary precautions and regulations are all useless. If the teachings of the "mental healer" are to be accepted, we have only to convince ourselves that everything painful, dangerous or unpleasant to ourselves or others is non-existent, in order to become prosperous, individually and nationally.

AN ENDOWED TEACHING HOSPITAL IN CHICAGO

As stated elsewhere,¹ an endowment of one million dollars has been given by Mr. James E. Deering to the Wesley Hospital, Chicago, an institution which on previous occasions has received generous aid from Mr. Deering's father and brother. Aside from the fact that the gift is large, it is worthy of special mention because of the unusual appreciation by the donor of how the gift can be made to do the most good. The income is to be used to help real charity patients, and the trustees have been requested to investigate the worthiness of those who apply, so that the gift "shall contribute everything to real charity and nothing to pauperism." Even more worthy of note, however, is the statement by Mr. Deering that "the best hospital is that which is closely related to a good medical school." He stipulates that the Wesley Memorial Hospital is to be a teaching hospital, an adequate staff to be provided by the Medical Department of Northwestern University. It is also stipulated that the medical school "must maintain and strictly enforce a high standard of preparatory studies for the admission of students." Provision is also made for the maintenance of a free dispensary and of clinical laboratories, the medical school and the hospital to share equally the expense. Power also is given to the trustees if they deem it wise to provide for lectures in public health and hygiene to be "given to the poor public either in the hospital or elsewhere." In fact, Mr. Deering gave it as his purpose "to give to the trustees of the hospital the largest possible latitude in the expenditure of the interest on the fund, provided that it shall be used for the benefit of the deserving poor." That this gift need not prevent future mergers of medical colleges or the devel-

3. Rabinowitsch, Lydia: *Deutsch. med. Wchnschr.*, 1914, xl, 686; abstracted in the *Berlin Letter*, this issue, p. 1343.

4 See page 1348.

1. *Medical News*, page 1337, this issue.

opment of medical education in Chicago is made clear by the statement that "nothing in this deed of gift shall be construed as in opposition to the consolidation at any future time of the Medical Department of Northwestern University with one or more medical schools." One who wishes to do for the deserving sick who are unable to care for themselves could not plan better than Mr. Deering has done. The bequest which he has made, however, will not only help the thousands of sick poor who will be cared for in the Wesley Memorial Hospital, but will also help thousands of others in the future, since it is to aid in the education of physicians who thus may be more practically trained in the care of the sick.

THE PATHOGENESIS OF EPIDEMIC POLIOMYELITIS

The theory that the virus of epidemic poliomyelitis may be communicated to man by the bite of infected blood-sucking insects found a ready acceptance at a time when this mode of transmission of infectious diseases achieved so much prominence through a number of well-authenticated instances; but a new argument against the introduction by insects of the virus of epidemic poliomyelitis has just been furnished by Flexner and Amoss.¹ Their experiments emphasize the relatively great difficulty of infecting monkeys by direct introduction of the virus into the blood, which represents essentially what happens when insects bite. The infection even from very large doses of active poliomyelitic virus injected directly into the circulation is much delayed, whereas infection is promptly brought about by direct introduction of the virus into the brain, subarachnoid spaces or peripheral nerves. We may suppose, therefore, that the route by which the virus contained within the blood reaches the central nervous system is an indirect one. It is now generally conceded that the poliomyelitic virus enters the body by way of the upper respiratory passages, and in particular through the nasopharyngeal mucous membrane. Once within this membrane, the virus may pass, as Flexner and Amoss have pointed out, through the lymphatic channels surrounding the filaments of the olfactory nerve to the leptomeninges, where it reaches the cerebrospinal fluid; or it may first enter the blood and be conducted to the central nervous organs by the general circulation. The newer experiments afford valuable support to the hypothesis that infection of the nervous organs in man occurs by way of the cerebrospinal fluid. The virus readily traverses the nasal mucous membrane to reach this fluid, which is capable of carrying the virus to the interstices of the nervous tissues. Apparently, when the circulation forms the channel of entry, the virus enters the intimate structures of the nervous tissues, not directly from the blood, but indirectly in passing from the blood into the cerebrospinal fluid. To accomplish this transfer time is required, since the barrier of the choroid plexus must first be overcome. The micro-organism of poliomyelitis seems unable ordinarily to penetrate the capillaries to

gain direct access to the interstices of the central nervous organs. Interstitial lesions of the leptomeninges are caused in the development of the specific lesions of the disease; and these pathologic conditions, with those of the cerebrospinal fluid itself, play an important part in the pathogenesis of epidemic poliomyelitis.

THE STORAGE OF PROTEIN IN THE LIVER

The importance of the liver as a depot for carbohydrate has been appreciated since the epoch-making discovery of glycogen by Claude Bernard more than half a century ago. A consideration of the constituents of that highly prized delicacy of diet, *pâté de foie gras*, and of the household remedy, cod-liver oil, brings to mind the function which the liver may perform in the storage of fat. How about proteins? Can these also be deposited in the largest of all our glandular organs, when suitable dietary conditions arise? Intimations of an increase in the size of the liver incident to a diet rich in protein have not been wanting. The older histologists believed that they discovered an appropriation of protein by the liver-cells under advantageous feeding, and an increase in the relative size or weight of the organ has been alleged to occur. It is quite conceivable that one or both of two conditions should arise, namely, (1) a mere deposition or retention of protein and (2) an actual hyperplasia of the liver. If new tissue actually is formed one would expect the other essential components which go to make up the protoplasm of the cells to be retained along with the augmented supply of protein. The experiments which Tichmeneff¹ has conducted in Hofmeister's laboratory lead to the conclusion that both the size of the liver (in relation to the total weight of the person) and the actual content of protein can be distinctly augmented by protein feeding. It would appear, therefore, that a store of all of the familiar nutrients can be retained in the liver.

SPRING TONIC

In April the "patent medicine" tonic (?) flourishes. As the first warmth of spring brought a feeling of lassitude, the farmer's wife in older days would go searching through the woods for "yarbs" from which to make a brew as a tonic for the whole family. The city man, feeling the laziness of "spring fever" coming over him, brought from the corner drug-store a 49-cent package of "Old Doc" Somebody's spring tonic, consisting of the same useless "yarbs," a liberal dose of pure alcohol, and perhaps a touch of strychnin. But things are changing; there are not so many taking "spring tonics" as in the older days. Men have learned that the best spring tonics are the gifts of a beneficent Nature. A full breath of fresh spring air, a brisk walk along a grass-grown road, a plunge into the cool waters of the old swimming-hole—if the water is pure and cold—or the morning shower if in the city, fresh green food, or the pursuit after a bounding golf-ball over a spring course—those are real invigorators, true tonics.

1. Flexner, S., and Amoss, H. L.: Penetration of the Virus of Poliomyelitis from the Blood into the Cerebrospinal Fluid, *Jour. Exper. Med.*, 1914, xix, 411.

1. Tichmeneff, N.: Ueber Eiweiss-speicherung in der Leber, *Biochem. Ztschr.*, 1914, lix, 326.

Medical News

ALABAMA

Personal.—Dr. Russell M. Cunningham, former lieutenant-governor of Alabama and founder of the Cunningham Infirmary, Ensley, has been elected health officer of Birmingham, vice Dr. Robert Nelson, retired.—Dr. Jesse E. Robins has been appointed health officer of Ensley.

Jerome Cochran Lecture.—At the meeting of the Medical Society of the State of Alabama at Montgomery, the Jerome Cochran lecture, established in 1898 in memory of Dr. Jerome Cochran, first health officer of Alabama, was delivered by Dr. Frank W. Smithies, Chicago, on "Contributions of the Twentieth Century to the Better Understanding of Gastric Cancer."

CALIFORNIA

New Society.—The Los Angeles Obstetric Society was organized March 25, with an initial membership of forty-seven. Dr. Titian J. Coffey was elected president, and Dr. George E. Malsbary, secretary.

Personal.—Dr. Merrill W. Hill, Redlands, was seriously injured in a collision between his automobile and another motor car, April 11.—Dr. Wilfred E. Chambers, Oakland, was thrown from his automobile April 4, fracturing his right clavicle.—Dr. Norman B. Williamson, city health officer, assumed his duties at the head of the local health board at Sacramento, April 11.

County Physicians Exonerated.—The grand jury has filed the report of the investigation into the deaths of the eight patients in the Los Angeles County Hospital, alleged to have been due to the administration of neosalvarsan, placing no responsibility on the staff of the hospital, but recommending that the federal authorities be requested to exercise more stringent supervision of the importation of the remedy in order that the fresh supply may be available at all times.

ILLINOIS

Personal.—Dr. W. S. Black, Port Byron, who was stricken with cerebral hemorrhage recently, is reported to be improving.—Dr. J. Levitan of the staff of the Peoria State Hospital has been transferred to the Elgin State Hospital.

Urges Colonies for Insane and Epileptic.—In the report submitted to the governor and board of administration, April 15, Mr. A. L. Bowen, executive secretary of the State Charities Commission, recommended that the new state hospital for the insane, Alton, and the Epileptic Colony, Dixon, be constructed on the colony plan, using one-story buildings for one type of insanity and for all epileptics.

Chicago

Society Changes Title.—The Chicago Surgical Society, recently incorporated, has changed its name to the Chicago Academy of Surgery.

Typhoid Carrier.—Several cases of typhoid fever in the southwestern part of this city are said to have been traced to the Rosedale Dairy Company, an employee of which was found to be suffering from ambulant typhoid.

Endowment Fund of Rush Alumni.—Steps are being taken by alumni of Rush Medical College to create a permanent fund of \$30,000, to be used for the benefit of the alumni association and a fellowship. About \$10,000 has been subscribed to date. An initial gift by Norman Bridge of Los Angeles was the foundation of the fund. Life memberships in the alumni association are to be secured by those eligible, and over forty have already been paid in. At the June commencement the faculty of the college will give a dinner to the students and alumni, at which further steps will be taken.

Foreign Surgeons Visit Chicago.—Eighty-three European surgeons who were in attendance at the Fourth International Surgical Congress, New York City, arrived in Chicago, April 20, on a special train. Local members of the American Surgical Association gave a dinner in their honor at the Blackstone Hotel on that day. The next day was spent in sight-seeing and visiting clinics at the various hospitals. They were given a luncheon at noon by the members of the Chicago Surgical Society and left for Rochester, Minn., in the evening. The local committee on entertainment consisted of Dr. John B. Murphy, Arthur Bevan and Lewis L. McArthur.

Gift to Wesley Hospital.—Under the head of bequests and donations in this issue was noted the gift by James Deering of \$1,000,000 to Wesley Hospital. This munificent gift is to

be used as an endowment fund for charity beds in connection with the Northwestern University Medical School. It is provided that Wesley Hospital shall be a teaching hospital, and that the staff shall be the faculty of the Northwestern University Medical School. Part of the income may be used for clinical laboratories and dispensaries for the school. The administration of the gift is vested equally in the hospital and in the medical school. The gift is a perpetual endowment and is made in memory of William Deering, father, and Abby Deering Howe, sister of the donor. The institution will hereafter be known as the Wesley Memorial Hospital.

Baby Week.—The Infant Welfare Society has been carrying on a campaign during the last week against the mortality of children. The week began with a public meeting at the Olympic Theater on Sunday, over which Dr. Lucius Teeter presided. Addresses were delivered by Mrs. George Bass, president of the Chicago Women's Club, on "The Interest of Women in Child Welfare"; by Judge Julian W. Mack on "The Community's Responsibility for Infant Welfare"; by Dr. S. Josephine Baker, director of the Bureau of Child Hygiene of New York City, on "The Result of Infant Hygiene in New York City," and by Miss Julia C. Lathrop, Washington, D. C., on "National Interest in Infant Welfare." The object of the campaign is to obtain funds to open fifty infant welfare stations in the city for saving of babies when the hot weather comes. Appeals to the public appear in all street-cars and on hundreds of bill-boards throughout the city, and an illuminated electric sign has been installed at State and Madison streets, bearing the legend "Baby Week, April 19-25. Help Chicago's Sick Babies. Watch the Fund Grow. Infant Welfare Society." Under this sign appears the sum added to the fund during the day.

INDIANA

Drinking-Water on Trains Tested.—The state health authorities will hereafter test the drinking-water provided for passengers on steam and electric trains. Besides the chemical and bacteriologic tests, investigation is to be made as to how often the coolers are cleaned, the quality of ice used and whether or not sanitary methods are used in handling both water and ice.

Conviction for Sale of Diseased Meat.—The Board of Health of Indianapolis, under the leadership of Dr. T. Victor Keene, has begun an investigation into the sale of diseased meat in that city. The first case tried resulted in the conviction of Charles J. Gardner, one of the more prominent packers, and a maximum sentence of six months in jail, together with a fine of \$500 was imposed. "The specific offense for which Gardner was sentenced," says the Indianapolis News, "was charged by W. A. McConnell, chief meat inspector for the City Board of Health, who averred at the trial that Gardner, on April 2, had in the cooling-room of his meat plant the carcass of a sheep that had not been slaughtered as sheep are usually slaughtered, but had died before being butchered, and from which came an offensive odor, indicating a corrupt and unwholesome condition. Corroborative evidence to the effect that tubercular cattle and cholera hogs were also butchered in the packing-house was introduced and in the argument on the case, Robert Hughes, special attorney for the Board of Health, denounced Gardner as a "potential murderer." "It is understood this case is only one of a number that the city health officers will prosecute in order to insure clean food in the city." An appeal from the decision of the lower court is expected and the outcome of the investigation is awaited with interest.

KANSAS

New Officers.—Golden Belt Medical Society, twenty-fifth annual meeting at Junction City, April 2: president, Dr. Walter A. Carr, Junction City; secretary, Dr. Schuyler Nichols, Herington.

Personal.—Dr. John G. Horne, Coffeyville, fell April 5 and sustained serious injuries to the head.—Dr. Charles H. Kaiser, Goessel, who is suffering from a mental breakdown, has been taken to a sanatorium.

KENTUCKY

Trachoma Hospital.—The government has just located the third hospital for treatment of trachoma at Beattyville, under the direction of Dr. John Mullen, U. S. P. H. S. The other hospitals have been located at Hindman, Knott County, and Hyden, Leslie County. They are located so as to serve an area of approximately 80 by 100 miles.

Hospital Houses Medical Society.—The Board of Public Safety has granted permission for the Jefferson County Medical Society to occupy the basement room underneath the cen-

tral ward of the New Louisville City Hospital building, which the society is to fit up as its headquarters. The understanding is that the society is to furnish the room in conformity with the finish of the remainder of the hospital.

Personal.—Dr. James R. Howell, Buffalo, has been appointed United State Deputy Marshal, succeeding Dr. Lewis Ryans, Louisville.—Dr. John C. Moseley, Henderson, has been reelected second vice-president of the Henderson Anti-Tuberculosis Association.—Dr. Richard R. Elmore has been elected president of the Louisville Automobile Club.—Drs. Dunning S. Wilson, George S. Coon and Eugene Y. Johnson have been appointed members of the board of trustees of the Louisville Tuberculosis Hospital.

Changes in State Hospital Staff.—At the last meeting of the State Board of Control of Charitable Institutions the following changes were made in the state hospitals for the insane, necessitated by the resignation of Dr. William E. Gardner as superintendent of the Lakeland Hospital: Superintendent at Lakeland, Dr. Frank L. Peddicord, Boone County, now first assistant; Dr. William E. Render, Brownsville, Eastern State Hospital, Lexington, as first assistant at Lakeland; Dr. W. E. Campbell, Bowling Green, first assistant at Hopkinsville, second assistant at the Eastern State Hospital, succeeding Dr. Render; Dr. Harry G. Sanders, Campbellsville, first assistant at Hopkinsville. The changes will become effective May 1.

MARYLAND

Board of Osteopathic Examiners Created.—A bill creating a board of osteopathic examiners has been passed by the general assembly and signed by the governor.

Personal.—Dr. Delano Fitzgerald, Baltimore, has returned from a four-months' trip to the West Indies.—Dr. George Y. Massenburg, who has been connected with the government hospital in Panama, has returned to his home at Towson.

New Officers.—Somerset County Medical Society at Crisfield, April 7: president, Dr. Rastus R. Norris, Crisfield; secretary, Dr. Henry M. Lankford, Princess Anne.—Anne Arundel County Medical Society at Annapolis: president, Dr. Thomas H. Brayshaw, Glenburnie; secretary, Dr. Louis B. Henckel, Jr., Annapolis.

Concert by the Physicians' Orchestra and Chorus.—At the annual meeting of the Medical and Chirurgical Faculty of Maryland, April 28 to 30, there will be a concert by the Physicians' Orchestra and Glee Club for the benefit of the building fund of the library. Dr. William L. Rodman of Philadelphia will deliver the annual oration on "Gastric Ulcer and Its Treatment." Dr. John Shelton Horsley of Richmond, Va., will read a paper on "Surgical Repair of Blood-Vessels."

Typhoid Disappearing.—Statistics collected at the Health Department show that typhoid fever has been decreasing steadily for several months. Only three new cases have been reported to the department since April 1. Treatment of the reservoirs with hypochlorite of lime is given as one of the causes of the reduction of typhoid fever. The belief is current that by the time the filtration plant is in operation, possibly a year hence, Baltimore will have even less typhoid than at present. Filtration of the drinking-water will go far toward the elimination of city-bred typhoid.

Foreign Surgeons Visit Baltimore.—A large party of foreign surgeons who have been attending the International Surgical Congress in New York have arrived in Baltimore to attend a series of clinics which will be held at the Johns Hopkins Hospital. Those taking part in the clinics will be Dr. Howard A. Kelly, John M. T. Finney, William S. Baer, Richard H. Follis, Hugh H. Young and Joseph C. Bloodgood. Among the distinguished visitors are Professor Schuller of Germany, Prof. H. Morestin of Paris, Dr. Lexer of Germany, Professor Proust of the University of Paris and Prof. Carlo Gangitano of Naples, Italy, and many others.

Vaccination Campaign Ends.—Health Commissioner Nathan R. Gorter has announced that the small-pox situation in Baltimore is clearing up and that the twenty-four extra vaccine physicians recently employed will be laid off. They have worked thirty days and have vaccinated less than ten thousand persons. The number was not greater, it is asserted, because the physicians sought only those who had never been vaccinated. Their work is regarded as satisfactory and highly beneficial to the city. There have been but eleven new cases of small-pox this week and the Health Department feels that it has the situation so well in hand that it can be looked after by the regular staff of twenty-four health wardens.

MASSACHUSETTS

Personal.—Dr. William L. Richardson, Boston, has been appointed trustee of the Perkins Institute and Massachusetts School for the Blind.—Dr. William H. Davis, statistician in the vital statistics department of the Boston Health Department, has been retired on account of the abolition of the office.

New Contagious Disease Building.—Work on the construction of the new contagious disease building of the Boston City Hospital, for which an appropriation of \$267,000 was made last year, is to begin very soon. The site of the building is occupied by a block of tenement houses on Massachusetts Avenue, opposite the hospital.

Children's Hospital Dedicated.—The formal opening ceremonies of the Children's Hospital, Longwood Avenue, Brookline, were held April 15. Addresses were made by President Lowell of Harvard University, Mayor Curley of Boston, Dr. Francis H. Brown, secretary of the medical staff, Dr. Edward H. Bradford, dean of the medical department of Harvard University, and others. The hospital has cost about \$650,000.

MICHIGAN

Open-Air School for Battle Creek.—An open-air school is to be established at once on the second floor of a building on Champion Street, for children who will be benefited by fresh air and sunshine.

State Board Officers Reelected.—At a meeting of the State Board of Health at Lansing, April 11, Dr. Victor C. Vaughan, Ann Arbor, was reelected president, and Dr. Thomas M. Koon, Grand Rapids, vice-president.

State Epileptic Colony.—The State Epileptic Farm Colony at Wahjemeja, will open a temporary building May 1, which will accommodate twenty-five patients. The contract for the first permanent building of the colony has been let for \$58,000. This building will house fifty patients, and is to be completed early in October.

Personal.—Dr. William G. Bird, wife and son, Flint, sailed from New York for Europe, April 16.—Dr. Rudolph J. E. Oden, Cadillac, will sail for Germany, May 5.—The unoccupied sanitarium owned by Dr. Charles A. Fletcher, Kalamazoo, was burned down April 9, with a loss of \$40,000.—Drs. Floyd E. Westfall, Raymond A. Clifford and Harry B. Britton, advisory Board of Health of Ypsilanti, resigned April 5, it is said, because their recommendation of compulsory vaccination was vetoed by the Board of Health.—Dr. Nelson M. McLaughlin, Lake Odessa, has been appointed a member of the State Board of Registration and Medicine, vice Dr. G. W. Nafe, Fremont, deceased.—Dr. Flemming Carrow, Detroit, has been appointed consulting ophthalmologist on the staff of the Michigan Home and Training School, Lapeer.—Dr. George B. Gesner, Marshall, is reported to be very ill.

MISSISSIPPI

Personal.—Dr. Charles E. Catchings, Woodville, has been elected president of the State Board of Health, vice Dr. Morris J. Alexander, Tunica, resigned.—Dr. W. N. Reed, Fulton, has succeeded Dr. J. H. Stone, Tremont, as health officer of Itawamba County.

State Association Meeting.—At the annual meeting of the Mississippi State Medical Association held in Columbus, April 14-16, \$200, or as much thereof as may be necessary, were appropriated for the expenses of the president in conducting the affairs of his office. Dr. Hugh L. Sutherland, Benoit, was elected an honorary life member of the association, the only one on its roll, and the following officers were elected: president, Dr. Jacob S. Ullman, Natchez; vice-presidents, Drs. James W. Lipscomb, Columbus; Thomas H. Seay, Laurel, and John H. Portwood, Kosciusko; councilors, first district, Dr. Thomas M. Dye, Clarksdale; second district, Dr. John C. Culley, Oxford; delegate to the American Medical Association, Dr. Lucien C. Feemster, Tupelo. Hattiesburg was selected as the place of next meeting and the date of meeting was changed from the second Tuesday in April to the second Tuesday in May.

MISSOURI

Southwest Physicians to Meet.—The Southwest Missouri Medical Society will hold its annual session at Springfield, April 30 and May 1, under the presidency of Dr. Columbus J. Pike, Willard.

Would Avoid Publicity.—The Shelby County Medical Society at its March session adopted resolutions requesting editors of newspapers of the county not to use the names of any regular physician or any consultant, either in reporting cases

of sickness and accidents, or other happenings of a professional nature.

Society Incorporated.—The Buchanan County Medical Society has made application to the circuit court through Drs. Joseph J. Bausbach, president; William F. Goetze, secretary, and John M. Bell, treasurer, for a pro forma decree of incorporation. The organization will include physicians and surgeons of Buchanan and Andrew counties.

Personal.—Dr. John E. Locke has been elected mayor of Webb City.—Dr. Edgar J. Geisinger has been appointed postmaster of Unionville.—Dr. C. Vilas Martin, Maryville, underwent operation for mastoid abscess recently, and is reported to be doing well.—The office of Dr. William P. Rowland, Bevier, was destroyed by fire recently.

St. Louis

Subscriptions to Mount St. Rose.—The campaign for the Mount St. Rose Hospital closed with subscriptions amounting to \$38,805.85.

Office Building for Physicians.—Ground has been broken for the Lister Annex, the second and third floors of which will be devoted exclusively to offices of physicians. The addition will cost about \$60,000.

Hospital Addition Opened.—St. Luke's Hospital has just opened its new addition of seventy-five beds. This with other improvements recently made at a cost of \$200,000 gives the hospital a capacity of 175 beds.

Psychopathic Court.—A psychopathic ward has been established in connection with the juvenile court, and Drs. Lister H. Tuholske and Henry J. Scherck have volunteered to make free visits to the ward twice a week to examine the juvenile offenders.

Reciprocal Concession.—In Consideration of the privilege given by the United States Government to St. Louis to use the road through the government reservation at Jefferson Barracks to reach the Robert Koch Hospital and Infectious Hospital, south of the barracks, the Board of Hospital Commissioners has agreed in the event of an epidemic that the city shall take charge of government patients.

Pure Ad Bill Passed.—The municipal assembly at St. Louis has passed the "Pure Ad" bill, making fake ads illegal. The bill had the indorsement of the St. Louis Medical Society, the Advertising League of St. Louis and other civic bodies. The bill was opposed by optometrists, the publisher of a medical journal and some retail merchants. The bill fixes a penalty of \$100 to \$500 for violation, and applies to all forms of advertising.

Prevention of Cancer.—The American Association for the Prevention of Cancer will hold a meeting in St. Louis, May 1, in conjunction with the St. Louis Medical Society, at which Dr. William L. Rodman, Philadelphia, representing the American Medical Association, will deliver an address.—Dr. Frank J. Lutz, St. Louis, addressed a public meeting at Marshall, April 23, on the prevention of cancer.—At a public meeting of Casconade-Maries-Osage Counties Medical Society at Owensville, April 9, Dr. Carroll Smith spoke on the cancer question.

St. Louis Medical Society.—At the meeting of the St. Louis Medical Society April 25, medical legislation was the principal topic discussed. Attorney-General John T. Barker considered the subject from the viewpoint of the lawyer, and Dr. William S. Allee, Olean, from the viewpoint of the physician.—June 6 the society will entertain Dr. Elias P. Lyon, dean of the Medical Department of the University of Minnesota, who formerly occupied a similar position at St. Louis University, who will deliver an address on medical education. At the same meeting, Dr. Henry M. Whelpley will give an historical sketch of the mound builders.

NEW JERSEY

Vetoes Rockefeller Institute Bill.—The governor on April 13 vetoed the Colgate bill passed recently by the legislature to enable the Rockefeller Institute for Medical Research to establish a branch at New Brunswick. The chief argument against the bill was made by a member of the Newark Vivisection Investigation League.

Personal.—Dr. William J. Hickson, Vineland, has accepted the position of chief of the Psychopathic Laboratory, Chicago. The laboratory will act as an auxiliary to the municipal courts, giving treatment instead of punishment to persons whose offenses were due to mental defects.—Dr. Francis H. Todd has resigned as member of the board of trustees of Pater-

son.—Dr. Alma Lapham Williston has been reappointed city physician and health inspector of Phillipsburg.

Report of the New Jersey Sanitary Association.—The thirty-ninth annual report of the New Jersey Sanitary Association has recently been issued. It is an interesting pamphlet of eighty-seven pages containing a number of valuable papers on sanitary subjects, among them being papers on "Food," by C. E. A. Winslow; "Vaccines and Serums," by Dr. Herbert D. Pease, New York; "Public Water-Supplies," by Henry M. Ogden, "Health Administration," by Homer Folks; "Open-Air Schools and Playgrounds," by Myron T. Sandler; "Disinfection," by Dr. Charles V. Chapin, Providence, R. I., and one on the "Promotion of Health and Sanitation by means of the Public Schools," by Dr. Calvin N. Kendall.

NEW YORK

Drug Bill Becomes Law.—Governor Glynn has signed the Boylan bill restricting the sale of cocaine and other habit-forming drugs. The bill not only aims to penalize those who sell drugs to victims of the habit, but also endeavors to protect the dealer against those who present false prescriptions by providing that the authority of the prescription must be verified if the prescription calls for more than 4 grains of morphin, 6 grains of codein or 4 drams of chloral. The bill provides for labeling each package with the name and address of the physician under whose name the prescription is sold and the name of the person for whom it is filled. No drugs may be sold except on prescription, and accurate data concerning amounts on hand and amounts sold must be kept. The bill becomes operative on July 1.

Christian Scientists Besiege Albany.—At the hearing on the McClelland bill which would make legal the work of any person "who ministers to or treats the sick or suffering by mental or spiritual means without the use of any drug or material remedies," more than two thousand Christian Scientists from all parts of this state and many from adjoining states were present. The Christian Scientists stated that in the Medical Practice Act passed in 1907 they had supposed that they were protected by the clause "or the practice of the religious tenets of any church," but as one of their number had been prosecuted and convicted by the medical societies they want the law made so plain that the courts cannot misconstrue it. Those who opposed the bill were Dr. J. Richard Kevin, Brooklyn, representing the Kings County Medical Society, Dr. Lewis K. Neff, New York City, of the State Medical Society, Dr. Abraham Jacobi, New York City, Dr. Joseph J. O'Connell, and Assistant State Commissioner of Education Downing, who insisted that the provisions of the bill are so broad that not only Christian Scientists but spiritualists, clairvoyants, mesmerists, hypnotists and neuropaths could practice under it.

New York City

More Typhus Fever.—The White Star liner *Celtic* arrived in port with four cases of typhus fever on board and 554 steerage passengers were taken to Hoffman Island for observation.—The steamship *Madonna* brought in three patients with the disease, Greeks who had fought in the Balkan War. Two hundred immigrants from this vessel were held for observation, bringing the number detained at Hoffman Island during the past week up to 1,108.

Physical Examination of Push-Cart Peddlers.—In compliance with a request from the mayor's bureau of licenses all applicants for licenses to peddle from push carts will be examined at the tuberculosis clinics of the Department of Health. No applicant whose sputum contains tubercle bacilli will be recommended for a license. Tuberculous persons who are no menace to others and who need outdoor employment will be given the preference in issuing the licenses.

Advisory Health Council.—Health Commissioner Sigismund S. Goldwater has organized an advisory council, composed of representatives of state and city departments, social and philanthropic organizations, business men's associations, labor unions, medical societies, women's organizations, etc. The following are those appointed chairmen of the departmental committees: Bailey B. Burritt, food inspection; Louis I. Dublin, records; Dr. Simon Flexner, laboratories; Homer Folks, child hygiene; Dr. Lee K. Frankel, public health and education; Dr. John H. Huddleston, infectious diseases, and Prof. C. E. A. Winslow, sanitation.

Social Service and Health Department Hospitals.—Beginning April 1, 1914, nurses from the Bureau of Infectious Diseases are visiting all cases of scarlet fever, measles and diphtheria discharged from the hospitals of the department to determine the condition of the patient on discharge and the home con-

ditions of the family. Advice is given in regard to the care of the convalescent patient and if aid is necessary the family referred to the proper charitable organization. At least one additional visit is made after the expiration of the incubation period of the disease in question to ascertain if any secondary cases have developed.

College and Hospital Affiliated.—Announcement has been made that the trustees of Columbia University and the managers of the Presbyterian Hospital have reorganized the administration of the scientific and therapeutic work of the hospital so as to provide for a single responsibility for both medical and surgical services. Dr. Theodore C. Janeway, Bard professor of the practice of medicine at the College of Physicians and Surgeons, has been appointed medical director of the hospital. Dr. George E. Brewer, professor of surgery at the college, has been appointed surgical director, and Dr. William G. MacCallum, professor of pathology at the college, has been appointed pathologist to the hospital.

NORTH CAROLINA

Hospital Incorporated.—The State Orthopedic Hospital has been incorporated at Gastonia. This is to be an institution especially for the care of indigent children.

Anti-Mosquito Campaign.—Greensboro instituted on April 1, a vigorous anti-mosquito campaign, under the leadership of Health Commissioner Dr. John T. J. Battle.

Free Antityphoid Vaccine.—The new Hanover County Board of Health announces that it will furnish free antityphoid vaccine to every citizen applying during 1914.

District Society Meeting.—The third annual meeting of the Ninth District Medical Society was held at Statesville, April 10. Dr. John E. McLaughlin, Statesville, was elected president.

Personal.—The drug store and office of Dr. Samuel B. Medford, Clyde, was destroyed by fire April 13.—Dr. Arthur W. Callaway has succeeded Dr. Francis J. Cleminger as a member of the Asheville Board of Health.

Ambulance Corps Organized.—The Ambulance Corps of the National Guard of North Carolina has recently been organized, and the following officers have been commissioned and assigned to duty with the corps: Captain, Thomas F. Reynolds; lieutenants, John H. Mease, Francis M. Davis and Wiley C. Johnson, Canton, and J. Rufus McCracken, Waynesville.

Seeks Cooperation for Death Reports.—Dr. Platt W. Covington, Raleigh, is canvassing the state to secure active cooperation between physicians and undertakers in reporting deaths, under the new vital statistics law, passed by the last legislature, and which came into effect October 1 last. The attorney-general has indicated his willingness to prosecute offenders on information furnished by the State Board of Health.

OHIO

Combine Against Tuberculosis.—At a meeting of the District Tuberculosis Hospital, representatives from the counties of Allen, Auglaize, Van Wert, Shelby and Mercer were present. An appropriation of \$20,000 was made for erecting an additional cottage to the sanatorium near Lima, to accommodate twenty additional patients. The counties of Hancock, Hardin and Putnam made arrangements to participate in the maintenance of the institution. Drs. John W. Costolo, Sidney, and Oliver S. Steiner, Lima, were appointed members of the board of trustees to fill vacancies.

Health Officers Under Civil Service.—The recent act placing state and municipal employees under civil service received varying interpretations from city attorneys, some holding that city health officers were not in the classified list, others claiming that all employees of boards of health came under the provisions of this act. Attorney-General Hogan has recently ruled that all city health officers are in the classified list, and, if in office on Jan. 1, 1914, as a result of appointment, and after taking no examination, must submit to a non-competitive qualifying examination in 1914. This ruling does not apply to village and township health officers, who will be appointed as heretofore.

Cincinnati

Antituberculosis League.—At the instance of the Antituberculosis League, the Commissioners of Hamilton County appointed Mrs. K. N. Britton as county nurse. This is a new feature in the work of the league, its nursing heretofore having been confined to the city limits.

Rockhill Sanatorium.—The increase in the applications for treatment at the new Rockhill Sanatorium has been so great as to necessitate the addition of nineteen rooms to the main building and five new bungalows. When completed the institution will accommodate thirty-five beds.

Selection of Interns.—The city hospital authorities have adopted a plan to select interns, not only from Cincinnati but from other cities as well. A list will be sent to the deans of all Class A and A+ colleges in the country, and from the results of these examinations, fourteen interns will be selected to take the places of those whose terms expire May 10.

Ground Broken for Sanatorium.—Ground was broken for the first of the new buildings of the Cincinnati Tuberculosis Sanatorium at Lick Run, March 31. Addresses were made by Mayor Spiegel, Safety-Director Dr. John R. Holmes and Judge Benton S. Oppenheimer, representing the Anti-Tuberculosis League. The sanatorium will cost about \$345,000, and will accommodate three hundred patients.

American Chemical Society.—The American Chemical Society held its annual meeting in Cincinnati April 7-9. At the scientific sessions held in the auditorium of the university, much interest was evidenced in many of the papers. Dr. W. D. Bancroft's discovery of a "light without heat," or, in his own words, "the electrical firefly," excited much discussion and inquiry. Prof. Arthur L. Day related an account of his experience in the crater of an active volcano, and proved conclusively the futility of the old theories which declare the absence of water in volcanoes and the increase of temperature as the interior is approached. Professor Brooks, in a very excellent paper, discussed the "Economic Aspects of Gasoline Supply." The chemical studies of the pollution of the Ohio River, by Prof. Earl B. Phelps of Washington, was a paper of especial interest.

PENNSYLVANIA

Resign from Staff.—Drs. Michael G. Dewey, Bonaparte P. Davis, Fred Fisher, Jr., and T. Wallace O'Brien have resigned from the staff of the Altoona Hospital.

Tent City at Cresson.—The state authorities have agreed to permit the placing of tents on the grounds of the State Tuberculosis Sanatorium, Cresson, for the use of indigent consumptives of Pittsburgh. The state has agreed to furnish food and medicine for these patients, and the city of Pittsburgh is to supply the tents. The cost of a tent for four people, with equipment, is \$150. The necessary amount for four of these tents has already been subscribed.

Eugenic Law Ineffective.—Pennsylvania's Eugenic Law which became effective Aug. 1, 1913, is ineffective, since only once in the nine months that it has been in operation has it been tested before a court. April 15, friends intervened when an application was made for a marriage license by Charles F. Kramlish of Allentown, Pa., former president of the State Sportsman Association, and Judge Gromer issued an order returnable in ten days to show why a license should not be refused on the score of feeble-mindedness. Mr. Kramlish is suffering from sarcoma of the brain.

Philadelphia

Scarlet Fever in School.—The development of scarlet fever among five pupils at the Convent of Notre Dame, has led the Bureau of Health to make an investigation leading to the homes of all the pupils who attend the institution. The school was closed.

Howard Hospital.—Howard Hospital has outgrown its present quarters and contemplates the erection of a \$200,000 addition. The new building 40 by 100 feet, facing on Broad Street, will be six stories in height, fireproof and of steel and concrete construction.

Inter-Society Dinner.—At the annual Inter-Society dinner of the Jefferson Medical College, April 1, the toastmaster was Dr. Francis Stewart, and the societies were represented by Dr. Edward P. Davis, William W. Keen, Hobart Amory Hare, H. A. Lander, Edward A. Spitzger, William M. Late Coplin and Francis X. Dercum.

Health Department Warns against Rabies.—The Health Department strongly advises the muzzling of all dogs on the streets and urges prompt attention to all bites of animals. Within the last week a number of persons in different sections of the city have been bitten by dogs, whose brains on examination have shown positive evidence of rabies.

State Anti-Tuberculosis Society.—At the annual meeting of the Pennsylvania Society for the Prevention of Tuberculosis, Drs. Joseph S. Neff, William Duffield Robinson and William

Charles White were elected vice-presidents; Drs. James M. Anders and Elmer H. Funk were elected directors, and Dr. Thomas McCrae was elected a member of the advisory council.

Personal.—Dr. Arthur J. Davidson has been elected associate in orthopedic surgery in Jefferson Medical College.—Dr. William W. Keen was elected president of the International Surgical Association at the closing meeting of the fourth congress of that association, held in New York, April 15.—Dr. John R. Monihan, connected with the Philadelphia General Hospital, was the only applicant to qualify for promotion to assistant resident physician in the Bureau of Charities.

Psychopathic Ward for Philadelphia Hospital.—The proposed psychopathic ward for the examination and treatment of suspected cases of insanity, at the Philadelphia General Hospital, was approved by the State Board of Health and Charities April 8. The last legislature appropriated \$10,000 toward its establishment, and plans are now being made to take temporary care of at least 140 persons. Persons suspected of mental disease or mental defectives will be sent to this ward and if found to be insane after a period of thirty days observation, will be sent to the Norristown State Hospital.

SOUTH DAKOTA

State Society Meeting.—The annual meeting of the South Dakota State Medical Association will be held in Watertown, May 26-28, under the presidency of Dr. Fred A. Spafford, Flandreau.

New Hospital.—Dr. Martin M. Grove has incorporated the Dell Rapids Hospital Company with a capital stock of \$20,000, and has selected the site and expects to have the building completed by September 1. It will have a capacity of thirty patients.

WISCONSIN

Sanatorium Notes.—The portable cottages prepared for the patients at the Blue Mound Sanatorium, which was burned recently, have been completed and now accommodate thirty patients.—The state sanatorium board met in Detroit, March 24, and began active operations toward the construction of a state sanatorium for tuberculosis at Sanford.

Personal.—Dr. Adolph Roos, Oshkosh, sailed for Europe April 21. His practice in Oshkosh has been taken over by Dr. Edwin F. Bickel.—Dr. Forrest F. Slyfield, Algoma, has been appointed medical examiner in Algoma of the State Life Fund.—Fire in the home of Dr. William A. Fulton, Burlington, March 30, caused a loss of several hundred dollars.—Dr. Edmund H. Mensing, Milwaukee, has been appointed clinical assistant at St. Mary's Hospital, Rochester, Minn.—Dr. Gerhard A. Bading has been elected mayor of Milwaukee.

GENERAL

Railway Adopts Health Regulations.—The Cotton Belt Route has inaugurated physical examinations of its dining-car employees for the determination of communicable diseases. These examinations will be held every ninety days.

Officials Return to Canal Zone.—Dr. S. T. Darling, chief of laboratory, Ancon Hospital, and Major Robert E. Noble, Med. Corps, U. S. Army, have returned to the Isthmus from South Africa, where they accompanied General Gorgas, to investigate health conditions among the laborers on the Rand.

Canal Zone Personal.—Surg. James C. Perry, U. S. P. H. S., who resigned as chief quarantine officer, March 31, remained on request in an advisory capacity until April 14, when he sailed for the United States. He has been granted a leave of absence for one year, which he will spend in travel.—Lieut. Henry P. Carter, M.C., U. S. Army, new health officer of the Canal Zone, arrived from New Orleans, April 1.

Clean Milk.—At the annual meeting of the Commission of Milk Standards, in New York City, April 13 and 14, an organization was formed known as the Clean Milk Association, with the general objects of cooperating with producers, distributors and sanitary authorities in the production and distribution of clean milk; providing the public with clean milk by the sanitary control and handling, irrespective of treatment by pasteurization or otherwise; promoting of clean milk in accordance with the standards presented by the National Commission on Milk Standards, and approved by the American Health Association; promoting the financial welfare of the producer by organization and cooperation; regulating of the market value of clean milk by basing payments on the sanitary condition of milk as well as on the butter fat; educating the

consumer to give recognition to the value of cleanliness and sanitary value in purchasing milk; condemning unfair methods of competition; and unfair means for promoting legislation, and collecting, tabulating, studying and discussing facts pertinent to the clean milk industry and to the welfare of the milk-consuming public.

Bequests and Donations.—The following bequests and donations have recently been announced:

The Presbyterian Hospital, New York City, about \$125,000 by the will of Mrs. Nellie M. Noe.

Methodist Episcopal Hospital, Brooklyn, \$5,000 by the will of William P. Sanford.

University of Pennsylvania, a residuary fund of \$1,500,000 for the benefit of the University Library and University Hospital, department of dermatology, archeology, paleontology; College of Physicians of Philadelphia University Hospital \$10,000, for the endowment of ten beds for the treatment of skin diseases; \$25,000, for the maintenance of a dermatologic museum, by the will of Dr. Louis A. Duhring.

Chicago Charity Hospital, Chicago Home for the Friendless, and Chicago Home for Incurables, each \$75,000 after the death of the widow of the late Kenneth S. Walbank.

Aid Association of the Philadelphia County Medical Society, \$5,000, by the will of Dr. Louis A. Duhring.

Wesley Hospital, Chicago, a donation of \$1,000,000 in memory of William Deering and Abbey Deering Howe, by James Deering.

European Surgeons Tour United States.—About seventy-five European surgeons who were present at the meeting of the International Surgical Congress in New York City are making a tour of the United States, including eastern cities, Chicago and Rochester, Minn. They have been entertained with clinics, banquets and receptions in many cities. Among the more distinguished visitors are: Germany—Drs. Brüning, Giessen; Franke, Brunswick; Garré, Bonn; A. T. Jurasz, Leipzig; Kraske, Freiburg; Kümmel, Hamburg; Lexer, Jena; Neuber, Kiel; Prof. A. Rehn, Frankfurt; Dr. Eduard Rehn, Jena; Ritter, Posen; Sonnenberg, Berlin; Steinthal, Stuttgart; Tölken, Zwickau; Tschmarke, Magdeburg; Witzel, Düsseldorf. Austria—Drs. Böhler, Fetschen; Doberauer, Komotau; Koller, Neutitschein; Ranzi, Vienna; Salzer, Vienna; Schloffer, Prague; Sparman, Vienna; Ullmann, Vienna; Zahradnicky, Nemecky Brod. Belgium—Drs. Depage, Brussels; Lambotte, Antwerp; Lorthoir, Brussels; Mayer, Brussels; Charles Willems, Ghent. Denmark—Dr. Oscar Bloch, Copenhagen. Finland—Drs. Faltin, Helsingfors; Granberg, Wiborg; von Bonsdorff, Helsingfors; von Numers, Wiborg. France—Drs. Hartmann, Paris; Michon, Paris; Morestin, Paris; Proust, Paris; Verchère, Paris; Villard and Durand, Lyons. Hungary—Drs. Manninger and von Kusmik, Budapest. Italy—Drs. Gosio, Turin; Gangitano, Naples; Lerda, Turin; Ceci, Pisa. Norway—Dr. Henriksen, Skien. Holland—Drs. Bierens de Haan, Rotterdam; Frank, Zwolle; Goedhuis, Deventer; Koch, Groningen; Meine Rutgers, The Hague; Renssen, Arnheim; Rotgans, Amsterdam; Schoemaker, The Hague; Van der Hoeven, Zutphen; Van der Horn, Nimègue; Westerman, Haarlem. Portugal—Drs. Bastos, Lisbon; Gentil, Lisbon. Roumania—Drs. Gerota, Bucharest; Jonnesco, Bucharest; Leonte, Bucharest. Russia—Drs. Bornhaupt, Riga; de Sawadski, Warsaw; Guinsbourg, St. Petersburg; Sapiejko, Odessa; Silberberg, Odessa; Slawinski, Warsaw. Servia—Dr. Soubotitch, Belgrade. Switzerland—Drs. de Quervain, Basle; Zollinger, Zurich.

Alleged Cruelty to Dogs in Experiments.—April 15, Dr. Joshua E. Sweet, one of the six members of the faculty of the medical school of the University of Pennsylvania, under indictment charged with wanton cruelty to dogs after vivisection, was on trial before Judge Bregy in quarter session court. Dr. Sweet entered a plea of not guilty. During the first day two witnesses appeared against the defendant. They were Samuel S. Geyer, who from Dec. 1, 1906, to April 8, 1913, was employed, so he said, as an assistant to Dr. Sweet, and was in charge of the kennels; and Miss Henrietta Ogden, a member of the Society for Prevention of Cruelty to Animals. Geyer described in detail the cases of half a dozen dogs who had undergone vivisection and been returned from the operating tables to his care. When it came to his cross-examination, Geyer was forced to admit, when testifying, that 1,000 dogs, on an average yearly, and 1,000 other animals went through his hands; that he, himself, and for his own profit, kept 800 dogs in the kennels, fed them on the same garbage food, and sold them. He was also forced to admit that the university provided an ice chest to preserve food for dogs and that milk was kept in it. Miss Henrietta Ogden, according to her testimony accompanied by Geyer and her sister, visited the kennels on several occasions, and witnessed the sufferings of the dogs who had undergone operation. She exhibited a series of notes of these observations and testified on direct examination that they were the originals. Under cross-examination,

however, she was forced to admit that the notes shown were copies and she fainted when Murdock Kendrick, counsel for Dr. Sweet, attacked the whole fabric of her testimony. Just as the court adjourned, counsel for the defense invited the jury, subject to the permission of Judge Bregy, to view the university kennels, stating that conditions there were the same as when Miss Ogden made her investigations and Geyer was kennel keeper. April 16 the defense began its case, and it was patent from the start that the trial did not concern itself with vivisection as such, but simply with the charges of cruelty following experimental operations, referred by the Women's Pennsylvania Society for the prevention of cruelty to animals. Murdock Kendrick and Owen K. Roberts appeared for the defendant, while Assistant District-Attorney Maurer conducted the case for the commonwealth assisted by John R. Scott, attorney for the Cruelty Society. Despite the objections by Mr. Kendrick in an endeavor to have the court confine the case to specific instances of cruelty with specific dates and requiring technical knowledge of medicine on the part of the witnesses, Judge Bregy allowed the prosecution all latitude in the admission of testimony, overruling the attorney in nearly every instance.

In opening the case Mr. Maurer explained to the jury that the commonwealth would prove that the animals to be operated on were kept in small wire-screened cages, with hard cement floors, and that, after being taken out and operated on, they were returned to these and allowed to remain suffering from wounds and effects of the operations; that they did not receive any further medical attention, nor were they furnished with proper food, what they got to eat consisting chiefly of garbage, often in a state of fermentation, and that they were neglected sometimes for several days suffering a lingering and torturous death.

Dr. Sweet, the physician under trial, was the first witness for the defense. He said he had been connected with Rockefeller Institute, New York City, was assistant professor of surgical research at the university, and had charge of the animal house, built a few years ago at a cost of \$35,000 and suitably equipped for sanitary purposes. He inspected the house every day. He denied fermented food was given to dogs, which was in the form of table scraps from the university dining-room table scraps and said the nourishment they received was the best for their recovery after operations. Later witnesses corroborated this testimony. The various charges of cruelty specified in the indictments he denied. Bandages, he testified, on dogs which had abdominal incisions, were insanitary and non-conducive to proper recovery. He had taken every precaution to prevent infection. Sawdust was the best bed for the dogs, not cotton or woolen cloth, he testified. The subjects were rendered insensible to pain before all operations in which they might suffer. Geyer, the kennel keeper, he said, had never complained of the quality of the dogs' food. Under cross-examination, he denied that he or any one under his direction or with his knowledge had ever starved a dog or other animal for experimental purposes. Other witnesses for the prosecution were Miss Bertha Ogden, sister of the woman who fainted; Patrolmen Boyd and Casey of the Thirty-Second Street and Woodland Avenue police station, who testified to the quality of the food Geyer procured from the University Hospital for the dogs; Miss Mary Walker Pooley and Miss Mary Vail, both of whom had visited the animal house in search of lost pets; Joseph Conner, another pet seeker, brought into court so ill that he could hardly stand and carried out by two attendants, and Dr. James C. Corlies, president of the New Jersey State Humane Association and a veterinary surgeon of Newark.

April 17 the defense presented among others the following witnesses: Dr. W. W. Keen, emeritus professor of surgery at the Jefferson Medical College; Dr. Edward A. Martin, professor of surgery at the University of Pennsylvania; Dr. Allen J. Smith, pathologist at the university; Dr. Edgar Fahs Smith, provost of the university; Dr. Charles H. Frazier, professor of clinical surgery, and Dr. Alfred Allen, neurologist. Dr. Sweet's case went to the jury at 2:40. Judge Bregy's charge to the jury follows in part: To indicate a view on the part of these physicians that these operations on the dogs were made for scientific purposes, to obtain information for the alleviation of human suffering, I charge you that the law of Pennsylvania does not allow pain and suffering, torment or torture to be inflicted on dogs for any purpose except for the relief of the suffering of the dog itself. They have no right to torture the dogs or violate the law, as I have read it to you, for the purpose of obtaining scientific information. The law says that any person who does a thing, as I have read it to you, that is, that a person that is guilty of wanton and

cruel torture of an animal, shall be guilty of a crime. The law does not say they shall not be guilty if they do it for a scientific purpose. Scientific purpose does not excuse cruelty. The physicians and surgeons other than Dr. Sweet under indictment for cruelty are: Drs. Alfred N. Richards, Allen J. Smith, Richard Mills Pearce, Alonzo E. Taylor and Edward T. Reichert. Since Dr. Sweet is the only defendant placed on trial it is generally believed the verdict in his case will decide the course to be taken in the charge of the others. The jury retired, and after forty-six hours of deliberation, reported to the judge that an agreement could not be reached, and was thereon dismissed. It is understood that a majority of the jurors was in favor of complete vindication of the defendants.

FOREIGN

Plague in Havana.—Under date of April 16 it was reported from Havana that the plague epidemic was under control, no new cases having developed during the previous forty-eight hours, though one suspect was transferred to a hospital. At least twelve cases have been reported during the epidemic. Early in the epidemic after an examination of several thousand rats with no evidence of infection it was concluded that the disease was spread by fleas carried in sacks of sugar. All ports on the Gulf and South Atlantic coast have adopted extra precautions against the entrance of the disease, and rat surveys and rat extermination are the order of the day.

Good Sanitary Conditions in Latin America.—Dr. R. E. Swigart, medical director of the United Fruit Company, who has recently returned to New Orleans from a trip of inspection in Latin America, says that the Atlantic Coast districts of Colombia, Panama, Costa Rica, Spanish Honduras and Guatemala are in better sanitary condition than ever before in history. He attributes the excellence of the health conditions largely to the efforts of the United States Public Health Service and to those of the United Fruit Company in protecting the health of its employees. The company has built hospitals at Tela and Santa Marta, which will be opened next month. A third hospital is being built at Truxillo.

School of Tropical Medicine in India.—Consul-General, James A. Smith, at Calcutta, reports that the building of the new school of Tropical Medicine at Calcutta was begun February 24. The government of India provided \$195,000 for the site and laboratory, and is to contribute to the support of the school. It is said that tropical diseases cause over one-third of the deaths in Calcutta and a large proportion of the deaths in the whole country. An appeal has been issued by the promoters of the institution for financial support and students from all over the world are desired. The attention of research institutions in the United States is particularly called to the advantages of this institution for study and research by students of tropical diseases under scholarships endowed by individuals or by institutions. It is expected that the school will be completed and in running order within a year. Communications in regard to the entrance of students should be addressed to Lieut.-Col. Leonard Rogers, I. M. S., Medical College, Calcutta.

CANADA

New Officers.—McGill University Medical Society at Montreal, April 3: president, Dr. George E. Armstrong; secretary, Archie Desbusay.

License Examinations.—Examinations for license to practice medicine in the province of Alberta commenced April 24. They are being conducted by the Senate of the University of Alberta. The license to practice is issued by the College of Physicians and Surgeons of which Dr. George Macdonald, Calgary, is registrar.

Paratyphoid Epidemic.—An epidemic of paratyphoid fever is reported from sections in the province of Quebec in the neighborhood of the Richelieu River. Out of a population of seven thousand in the county of Savrevois, two thousand persons have contracted the disease and several deaths have occurred. The Richelieu River is blamed as the source of the infection.

Medical Inspection of Schools.—President Dr. Herbert J. Hamilton, Secretary Dr. W. Harley Smith and Drs. Richard A. Reeve and George D. Young, all of Toronto, recently waited on the Hon. Dr. Sebert R. Pyne, Minister of Education in the Ontario government, as a deputation from the Academy of Medicine, urging that a system of medical inspection of schools be adopted throughout the province of Ontario.

Postgraduate Instruction at McGill.—The medical faculty of McGill University announces that it will have instruction for graduate students from June 1 to June 13, inclusive. The work will be essentially clinical, and the visiting physician

will be offered the best facilities in the indoor and outdoor departments of the Montreal General, Victoria and New Maternity hospitals. Special courses may be arranged in the laboratories of the schools and in the hospitals.

Personal.—Dr. Charles Sheard, Toronto, has returned from a visit to New Orleans.—Dr. Forbes E. Godfrey, Mimico, Ont., has returned from a trip to Panama and the West Indies.—Drs. James A. and Lorne Robertson, Stratford, Ont., are taking a trip to the Mediterranean.—Dr. J. R. Dutton has been appointed superintendent of the Alexandra Contagious Diseases Hospital, Montreal.—Dr. Hibbert W. Hill, London, Ont., has been appointed executive secretary of the Minnesota Public Health Association.—Dr. Francis A. R. Gow, Halifax, N. S., has been appointed chief medical officer and inspector of that port.—The salary of Dr. Séraphin Boucher, health officer of Montreal, has been increased from \$4,000 to \$5,000.—Dr. Leo E. Pariseau has been appointed medical officer of health of Sherbrooke, Que.

Hospital News.—The cost of maintaining patients in the Vancouver General Hospital advanced in 1913 to \$2.11 per patient per day. In 1912 it was \$1.98. Just how this hospital has grown in the past twelve years is seen from the fact that at that time it contained 45 beds with a staff of 29. The hospital has now 415 beds and a staff of 205; and the building is to be further enlarged during the coming summer.—A new hospital is to be built at Nakusp, B. C.—A hospital is to be established at Summerland, B. C., at a cost of \$6,000. A development company has donated the site valued at \$2,300.—The Royal Inland Hospital at Kamloops, B. C., treated 1,287 patients in 1913, at a cost of \$1.95 per patient per day.—A hospital is to be built at Estevan, Sask.—The Northern Saskatchewan Hospital for the Insane has been completed at Battleford at a cost of \$1,250,000. It is beautifully situated, has extensive grounds and a farm of 2,000 acres. It has accommodation for 600 patients and has a staff of 55 persons. Patients were removed to this new institution from the old hospital in Brandon late in February.—The Regina (Alta.) General Hospital is being enlarged. The new wing will be ready for occupation in July. Last year 1,976 patients received treatment. One hundred and fourteen deaths occurred. Of 150 patients in the isolation department, five died.—New hospital regulations have been adopted in the province of Alberta. Every municipality where a patient has been in residence for three continuous months is made responsible for the maintenance of that patient if unable to pay. The new regulations also require fully equipped clinical laboratories in every hospital, proper means for disinfection and a mortuary. Each hospital shall also provide for the care of cases of acute delirium and pulmonary tuberculosis, unless there is a sanatorium established in the province.—Manitoba will hereafter give \$1.50 per patient per day to all hospitals of that province instead of \$1 as formerly, that is, for indigents. The Manitoba government has also guaranteed the bonds of the Winnipeg General Hospital to the extent of \$400,000.—Notre Dame Hospital, Montreal, is to be enlarged. Last year the number treated totaled 2,572 patients. In the St. Paul Annex for Contagious Diseases, 1,314 patients were treated.—Quebec is to have a new Isolation Hospital at a cost of \$90,000.—The Canadian Copper Company at Copper Cliff, Ont., has finished a new hospital to replace the building destroyed by fire in 1912. The cost of the new institution was about \$200,000. Dr. Albert G. McAuley is the superintendent.—The Guelph (Ont.) General Hospital is to be enlarged at a cost of \$44,000, of which amount \$28,000 was provided by a recent by-law.—Hamilton, Ont., has appropriated a site of 15 acres for a new hospital on the top of the mountain at that city.—The new wing in course of construction at the Kingston General Hospital is to have accommodation for forty patients.—Prince Edward Island Hospital now comes in for a bequest of one-half of the estate of the late Mr. Starr of Litchfield, Conn., the legatee who had been receiving the income having died.—Newcastle, N. B., is to have a new hospital at a cost of \$30,000.

LONDON LETTER

LONDON, April 10, 1914.

Fly Prevention

The part played by flies in the transmission of disease is receiving considerable attention from health authorities in this country. A letter signed by 123 health officers has been published in the daily press appealing to the public to cooperate with the health authorities in destroying the breeding-places of flies. It is pointed out that summer diarrhea is probably

conveyed by the common house-fly. It is useless to try to tackle the problem by attempting to kill individual flies, because of the enormous offspring of one female. Each householder must see that his back yard is scrupulously clean and his dustbin protected. Manure, when practicable, should be dug in at once. If the heap has to be kept, the top and sides should be covered with a layer of earth. The children in the schools should be taught the life history of the fly and its capacity for harm. The Boy Scouts could undertake the supremely useful work of tracking down the breeding-places of flies and notifying the health authorities. Moving pictures could help even more than they do at present by films showing the full life history of the insect and the damage it does.

Death After Swallowing Radium

An inquest has been held on a woman who died after an operation to recover a tube of radium which she inadvertently swallowed. She was under treatment for deafness. A metal cylinder containing radium and mesothorium was inserted alternately into each ear and nostril, and on an attempt being made to withdraw the cylinder from the left nostril was found to have disappeared. Roentgenoscopy revealed it in the patient's stomach, and emetics having failed, an operation was decided on. This was successful, but shortly afterward the patient collapsed and died. Death was attributed to the injection of atropin and scopolamin before operation.

The Royal Commission on Venereal Diseases

At the twenty-third meeting of the Royal Commission on Venereal Diseases, Miss Albania Broderick, representing the National Council of Trained Nurses, gave evidence. She thought that nurses had not been properly taught with regard to these diseases and that a special course was necessary. The education of the general public should include education of children in the laws of sex. This might be done in primary schools through the medium of botany, which would prepare the way for teaching later in regard to the human subject. Special teachers would be required until parents were sufficiently educated to instruct their own children. In this matter Miss Broderick considered that we were much behind other nations and referred to the work done by the Society of Sanitary and Moral Prophylaxis of the State of New York. A great factor in the spread of venereal disease was the ignorance in which women had been left. She condemned the practice of physicians treating women without letting them know the nature of the disease. Greater facilities were required for treatment, and evening clinics were specially important. Printed instructions should be given to outpatients dealing with the gravity of the disease and the danger of infecting others.

BERLIN LETTER

BERLIN, April 3, 1914.

Personal

Professor Ludloff has accepted the call to Frankfurt-on-the-Main and has rejected the one to Berlin.

Professor Göppert of Marburg has accepted the position as director of the Institute of Anatomy at Frankfurt.

Professor Bethe of Kiel has been appointed director of the Physiological Institute of that place.

Professor Emil Abderhalden, physiologist of the University of Halle, has declined the call to lecture in New York next fall. He will also not accept the summons to deliver courses at the Association of American Agricultural Colleges and Experiment Stations in Washington.

The Friedmann Tuberculosis Remedy

In the number of the *Deutsche medizinische Wochenschrift* just issued, the well-known tuberculosis expert and collaborator of Professor Orth (Prof. Lydia Rabinowitsch), publishes an interesting article on the Friedmann remedy, chiefly on the basis of bacteriologic investigation. Like Vulpus and Laubenheimer, she found the remedy contaminated. Of ten samples, six showed, from a microscopic examination or by culture, the presence of other bacteria from non-acid-fast bacilli or cocci, and, in some cases, streptococci. Contaminations were discovered in ampules not older than forty-eight hours, which was the time limit imposed by the manufacturer. The age of the preparation, however, did not seem to affect the contamination. The Friedmann remedy, therefore, cannot be regarded as entirely harmless. While there is some variance in the races cultivated from the Friedmann material in the first generation, the differences disappear gradually after their cultivation. The growth of the Friedmann bacilli at incubator temperature and their avirulence for turtles

were calculated to indicate that the characterization of the Friedmann culture as a turtle tubercle bacillus is not entirely correct. A number of experiments were made on guinea-pigs with the Friedmann culture derived from an American source (Barnes), as well as with the races isolated by the author from the Friedmann material, to determine the question of avirulence as asserted by Friedmann. Part of the guinea-pigs lived for months without showing any changes suspicious of tuberculosis at necropsy. Another part, which were inoculated at the same time, showed more or less pronounced foci, suspicious of tuberculosis, in the enlarged glands, liver or spleen from which acid-fast bacilli could be recovered again in pure culture. The suspicious foci, on reinjection, however, produced no tuberculous process. In connection with the second class, there was one series of four guinea-pigs which were injected in November with various amounts of a six-day culture obtained from Ampule 2. After three months one of these died with what proved to be, on examination, a typical picture of an injection tuberculosis produced by a mammalian tubercle bacillus of feeble virulence. The three other guinea-pigs injected at the same time showed, when killed a few days later, no pronounced tuberculous changes.

In Germany, as well as in America, inoculation abscesses have been reported not only on application of the commercial preparation, but also in cases treated by Friedmann himself. No sufficient investigation has been made to determine whether the contamination of the injection material on the market is responsible for these abscesses or whether they were due solely to the action of the acid-fast bacilli. Furthermore, it was shown by numerous experiments on guinea-pigs and rabbits that even the uncontaminated remedy may have a pathogenic action. Dr. Rabinowitsch emphasizes on this account the experiences of all experimenters which have shown that races of tubercle bacilli of slight virulence may, from hitherto unknown reasons, suddenly assume an increased virulence. For this reason, the proposition to inject healthy persons for the purpose of prophylaxis should, in her opinion, be most emphatically condemned. She agrees with Vulpus and Laubenheimer that remedies of this sort should be produced and distributed only under the control of the state. It would be still better, at any rate for the patients, if such remedies should be subjected to an exact experimental and clinical trial before they are given to the public.

Professor Rabinowitsch hesitated for some time before publishing these results in view of the fact that Kraus had proclaimed the complete harmlessness of the Friedmann remedy and of the fact that Schleich had accused her of being an opponent of Friedmann and his discovery, but after the report of unfavorable results both in America and Germany, she believed that the publication of her results ought not to be delayed longer. Her investigations of the unfavorable facts in reference to the pathogenesis of the Friedmann culture should be the more interesting, inasmuch as Friedmann in reply to the publication of Vulpus and Laubenheimer has stated that the complete harmlessness of the remedy has been established according to a report given by Ehrlich to the government. It is well known that Ehrlich received from Friedmann, not his remedy, but the culture of the turtle tubercle bacilli which he investigated for its harmlessness. The remedy, as the investigations of Vulpus and Laubenheimer show, may be contaminated to a great degree with other germs, while this need not be true of the acid-fast Friedmann race of bacilli. The remedy and the culture are not at all identical, and this should be emphasized again, although attention has already been drawn to this difference, and even if the race investigated by Ehrlich proved to be harmless, this is no indication that the varieties of the Friedmann bacillus obtained by various workers from the pus of abscesses as well as from the commercial injection material will show the same behavior in animal experiments.

Standardization should naturally be applied not only to the Friedmann remedy, but also to that recommended by Piorkowski, as well as to the preparation of turtle tubercle bacilli of Karfunkel, which was used for a short time in Berlin and later, like the Friedmann remedy in the State of New York, was forbidden by the health department.

The Number of Woman Physicians in Germany

The number of woman physicians in Germany is steadily increasing. In 1908 there were but 55, two years later 102, and in 1913 the number grew to 195. Of the larger cities, Berlin leads with the greatest number. In 1910, there were 32; in 1911, 34; 1912, 45, and in 1913, 56 woman physicians. Munich had in 1913, 13; Breslau, 10; Hamburg, 9; Frankfort and Dresden, 7; Mannheim, 6; Hanover, Cologne and Stuttgart, 4; Leipsic and Düsseldorf, 3 woman physicians.

Marriages

JOHN ALEXANDER POWERS, M.D., to Miss Stella Kelley, both of Warrensburg, Mo., at Kansas City, Mo., April 4.

LEE PERRY PAULL, M.D., to Mrs. Lillian Thorp Minahan, both of Los Angeles, at Riverside, Cal., March 31.

RICHARD A. KEARNEY, Asst. Surg., U. S. P. H. S., to Miss Edmonia Adams at Washington, D. C., April 21.

DONALD H. NOBLE, P. A. Surg., U. S. N., to Miss Ann Elizabeth Leary of Washington, D. C., March 14.

HENRY ALBERT SLUSSER, M.D., to Miss Edith Crummie, both of Dayton, O., at Detroit, Mich., April 6.

WINFIELD SCOTT PUGH, JR., P. A. Surg., U. S. N., to Miss Irma May Poka of San Francisco, April 6.

WARD HUGHES POWELL, M.D., Minden, N. D., to Miss Gerda Hasselbach of Omaha, Neb., April 7.

ARNGT A. SOLBERG, M.D., to Miss Olga Grotte, both of Ishpeming, Mich., April 4.

ALEXANDER C. FLACK, M.D., to Miss Lena Koch, both of Fredonia, Kan., April 11.

JACOB BRESSLER, M.D., to Miss Marian Schlesinger, both of New York City, April 7.

Deaths

Joseph L. Geyer, M.D. Starling Medical College, Columbus, O., 1869; a Fellow of the American Medical Association, and one of the founders of the Muskingum County, Ohio Medical Society; a member of the Baltimore and Ohio Railway Surgeons Association, and International Association of Railway Surgeons; for more than forty years local surgeon at Norwich, O., for the Baltimore and Ohio System; a veteran of the Civil War; died at his home in Norwich, April 3, from pneumonia, aged 74.

John Devette T. Hand, M.D. New York University, New York City, 1881; a member of the Medical Society of the State of New York; president of the village of New Berlin, N. Y.; formerly a member of the Chenango County Board of Supervisors; from 1908 to 1914 coroner of Chenango County; died in a hospital in Utica, N. Y., April 8, a week after a surgical operation, aged 55.

John Alexander Fitz Hugh, M.D. Western Reserve University, Cleveland, 1880; Hahnemann Medical College, Philadelphia, 1881; a member of the Massachusetts Medical Society; vice-president of the Essex North District Medical Society; consulting physician to the Anne Jacques Hospital, Newport, Mass.; died at his home in Amesbury, Mass., March 21, from diabetes, aged 59.

Benjamin F. Duke, M.D. University of Nashville, Tenn., 1871; a member of the Mississippi State Medical Association, and a Confederate veteran; formerly a member of the Mississippi State Board of Health, and for eighteen years quarantine physician of Jackson County, Miss.; died at his home in South Pascagoula, Miss., April 7, from hemorrhage of the lungs, aged 71.

Francis S. Wilson, M.D. Jefferson Medical College, 1870; a Fellow of the American Medical Association; for many years president of the Montgomery County (Pa.) Medical Society; laceret physician in Philadelphia during the Cleveland administration; died in his apartments in Jenkintown, Pa., April 7, from heart disease, aged 70.

James E. Banks, M.D. Tulane University, New Orleans, 1886; a member of the Mississippi State Medical Association; formerly president of the Lawrence-Jefferson Davis Counties Medical Association; and health officer of Jefferson Davis County; died at his home in Prentiss, Miss., January 28, from chronic nephritis, aged 52.

William Stockton Wilson M.D. Jefferson Medical College, 1861; a member of the Medical Society of New Jersey; surgeon of the One Hundred and Fifty-Fifth and Two Hundred and Tenth Pennsylvania Volunteer Infantry during the Civil War; died at his home in Newark, N. J., April 10, aged 75.

Morris Parker Boyle, M.D. University of Pennsylvania, Philadelphia, 1898; a Fellow of the American Medical Association; for several years resident physician of the Children's Hospital, Philadelphia; a practitioner of Glenside, Pa.; died at his home in that place, April 10, aged 37.

Harry F. Seaman, M.D. Geneva (N.Y.) Medical College, 1871; died at his home in Alton, N.Y., February 16, aged 71.

C. E. Zimmerman seems to have been president of the Della Carson concern that exploited a fraudulent mail-order "beauty treatment." Zimmerman is said to have been made president of the Della Carson Company when the Leven Advertising Company took over the Della Carson business at the suggestion of some of the latter's creditors. Zimmerman also seems to have operated a fraudulent mail-order bust-developing business under the style Eloise Rae. One of the advertising assets in the Eloise Rae concern was a testimonial letter from the Leven Advertising Co. In this connection it is worth noting that a letter from the Hall-Stockton Printing

Co., signed James A. Hall, is used by the Pearl La Sage concern to prove its "responsibility, honesty and business standing."

There is of course, nothing to show that the Pearl La Sage concern is not the business of Pearl La Sage herself. The usual stock-in-trade of the mail-order faker is used to sell this "ten-day" complexion treatment: lying advertisements in such newspapers as are willing to become *particeps criminis*; booklets, freely illustrated with pictures of Pearl La Sage—pictures, by the way, which leave the casual observer in doubt as to whether it is a complexion treatment or a bust developer that is being sold; pictures, also, depicting hypothetical scenes, showing the dire effects of a bad complexion; and last, but not least, the inevitable follow-up letters.

The booklets of these mail-order fakers are an interesting study. In cases like those of Pearl La Sage, where the pocketbook rather than the health is involved, such brochures will be found to furnish a good deal of amusement. One of the Pearl La Sage booklets contains a double-page picture of a ball-room, showing all the ladies with good complexions dancing, while an unfortunate female in the foreground with a much bespotted face, is sitting out the dance alone. On another page is a pen drawing of a court scene, bearing the legend "The Divorce Courts Tell Their Tale of Complexion Value." A man and woman, presumably husband and wife, stand before the judge's bench, the woman with a bowed head—and, of course, pimply face—the man looking back toward the rear of the court room at an engaging young female with a clear skin.

Again: a tear-stained, speckle-faced wife, gazes sadly at a grandfather's clock which points to a late hour. She sees, as in a vision, her belated husband dancing with a lady whose skin—and much is exhibited—seems to be all that could be desired. The legend reads: "The Neglected Wife has Learned Bitterly the Value of a Perfect Complexion." It is this picture, evidently, that is referred to in another pamphlet sent out by Pearl, when she says:

"Think of the mad tragedies of wives sitting alone at home, watching the clock through tear-dimmed eyes, when they fear that some woman of a softer skin has coaxed their husbands from the paths of righteousness."

For fear that the reader may think this picture somewhat overdrawn, Miss La Sage gives the assurance:

"This is not dream-stuff, good sister; it is true and you know it and I know it, and every woman who has felt the bite of jealousy and desertion knows it."

Nor are the men neglected: "Complexion means as much to a man as to a woman." Thus runs the legend to a pen picture showing a jaunty young fellow, with effeminate features and the skin of a baby, being gazed at longingly by several boy-struck girls.

THE TREATMENT

"The price I have asked for my ten-day treatment is \$10," but as Pearl wants your good will, she offers it to you at the ridiculously low price of \$3. Wait a few weeks, however, and a "follow-up" letter will give you a chance to get the treatment for \$2. Further hesitation brings the offer down to \$1 with a free copy of Miss La Sage's "Ten Stage Secrets of Beauty" thrown in for good measure.

Those who send the money for the "New, Different, Scientific Treatment" of Pearl La Sage, receive 30 pale pink tablets and the same number of capsules, containing a coarse white powder. The recipient is told not to swallow the tablets nor the capsules. To change a sallow, pimply skin into a perfect complexion in the short space of ten days: Dissolve one tablet in a quart of warm water and splash the water on your face at night; empty the contents of a capsule into a quart of cold water and splash your face again in the morning! That is all!

One point that will tend to give an air of mystery to the scheme is the fact that when these pale pink tablets or white powders are dissolved in water, they produce a handsome carmine liquid. The chemist's report which follows, explains this phenomenon:

A. M. A. LABORATORY REPORT

The Pearl La Sage Complexion Treatment consists of capsules and tablets of each of which there are about thirty. The contents of the capsules consisted of a coarse, white, odorless powder which had a strongly alkaline taste and which incompletely dissolved in water to form a red, alkaline solution. The contents of 10 capsules weighed 12.7386 gm. or about 20 grains for each capsule. The tablets were a pale pink color and ten of them weighed 7.5160 gm. or nearly 12 grains each. The tablets were partially soluble in water to form a red solution having a strongly alkaline taste. Qualitative tests demonstrated the presence of a borate, a carbonate, sodium and phenolphthalein in the contents of the capsules. A borate, a carbonate, sodium, phenolphthalein and powdered talc were found in the tablets. Other substances were not present in appreciable amounts. Quantitative analysis of the two preparations gave the following results:

| | CAPSULES | TABLETS |
|---|----------|---------|
| Sodium carbonate (Na_2CO_3) | 68.10 | 53.98 |
| Sodium borate ($\text{Na}_2\text{B}_4\text{O}_7$) | 10.42 | 23.60 |
| Phenolphthalein | 4.05 | 5.02 |
| Talcum | | 3.28 |
| Water (loss at 100 C) | 17.06 | 16.19 |

From the results of the examination it is concluded that the contents of the capsules are composed essentially as follows:

| | |
|---|----------|
| Monohydrated sodium carbonate ($\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$) | 80 parts |
| Dried sodium borate (dried borax) | 16 parts |
| Phenolphthalein | 4 parts |

The results of the examination indicate that the composition of the tablets is about as follows:

| | |
|---|----------|
| Monohydrated sodium carbonate ($\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$) | 63 parts |
| Dried Sodium borate (dried borax) | 29 parts |
| Phenolphthalein | 5 parts |
| Talcum (talc) | 3 parts |

In addition to the "complexion treatment" Pearl La Sage sends with it some of what she calls laxative "pills." These were small, brown, tablets. Preliminary tests indicated that they contained some anthraquinone bearing drug, probably extract of cascara and a trace of an alkaloid, probably strychnin.

SUMMARY

Evidently, therefore, the Pearl La Sage treatment consists essentially of a weak solution of ordinary soda and borax, with a little phenolphthalein as a coloring agent. And this is the mixture which is sold at an exorbitant price, under the claim that: "It heals, soothes, cleanses, softens and beautifies the skin, removing all impurities, pimples, blotches, blackheads, eruptions, sallowness or lack of color, muddy complexion, liver spots and other skin imperfections."

When the public can be defrauded as easily as this, is it any wonder that actresses and others forsake the ill-paid drudgery of hard work for the "easy money" in fraudulent mail-order schemes?

THE HYPOPHOSPHITE FALLACY

An Example of the Perpetuation of a False Theory by Advertising

A false therapeutic notion born of speculation soon dies a natural death if exposed unsupported to the cold world of facts, but when nursed by commercial interests it may be kept alive for generations. Interesting examples of this, to name but two or three, are the misconceptions perpetuated during the past half century concerning "lithia," the "natural" salicylates and the hypophosphites.

Take, for instance, the lithia delusion. The supposed solvent powers of lithium compounds for uric acid were soon disproved to the satisfaction of scientists, but proprietors of lithia waters and nostrums for gout and rheumatism still harp on the old string and utilize long-exploded theories. Take, again, the alleged superiority of "natural" to "synthetic" salicylates. In spite of experimental proof to the contrary, proprietary interests have been able for twenty years to persuade a large part of the medical profession that the effects of pure salicylic acid made artificially differ from the effects of the same substance obtained from natural sources.

The altogether undeserved continued popularity of hypophosphites affords a striking example of the influence of advertising in perpetuating therapeutic error, for hypophosphites are given on a theory long since disproved. It may be interesting to trace the origin and history of the theory on which the practice of prescribing the hypophosphites is founded. The early part of the last century was prolific in chemical discoveries, and, as a corollary, in chemical theories of disease. Many of the theories arose from the hasty application of the chemical properties of new elements and compounds to the explanation of the processes in the living body, without due consideration of the conditions prevailing in the animal organism.

THE ELEMENT PHOSPHORUS

The element phosphorus is eager for oxygen and readily oxidizable. When taken into the system it acts as a violent poison, and, in view of this, it was at first supposed—although the supposition was based on no scientific data—that it would prove to be a powerful therapeutic agent when given in minute doses. In its elementary form, phosphorus is difficult to handle, and therefore not convenient for use. Hence it was natural that a compound should be sought which could be used as a substitute for the element.

Broadly speaking, phosphorus forms three classes of salts varying in the degree of oxidation: the phosphates, containing the most oxygen, the phosphites, containing less, and the hypophosphites, least of the three. The phosphates, being saturated with oxygen, undergo little change in the body, and because of this were thought to be of little value in therapeutics. The phosphites contain less oxygen, are unstable and are not used in medicine. The hypophosphites, containing still less oxygen, stand nearest to elementary phosphorus and are easily decomposed and readily oxidized to phosphates. Hence the theory that the hypophosphites would furnish an admirable source from which to obtain the action of the element phosphorus.

CHURCHILL'S THEORY

The hypophosphites were introduced into medicine about 1855, as a substitute for elementary phosphorus by a Dr. Churchill of Paris, and later of London, who advocated their use as a specific remedy for consumption. Churchill conceived the theory that phthisis is caused by a lack of oxygen in the tissues; he therefore sought an agent capable of increasing oxidation. He was led to the use of hypophosphites for this purpose on the supposition that phosphorus exists in the organism as a biologic element in a lower degree of oxidation than the phosphate. He supposed that this form of phosphorus acts by its chemical affinity as an initiatory agent in attracting and utilizing the inspired oxygen. He believed that when this form of phosphorus, which he called the "phosphide element," is deficient in quantity (because it had been oxidized into phosphate, or because the supply from natural sources was deficient), the degree of oxidation of the tissues is less than normal. Therefore he advocated the use of hypophosphites to supply the lacking oxidizing constituent. He believed this "phosphide element" not only to be essential for the oxidation of the tissues, but also to be the source of energy of the nervous system.

THE FACTS

The theory was a pretty one; the facts, however, did not support it. Subsequent investigations indicate that instead of consumption being due to a lack of oxygen, there is in that disease really an increased oxidation; in other words, the respiratory exchanges in this disease are exaggerated. The existence in the system of a form of phosphorus less highly oxidized than the phosphates is unproved. No evidence has been produced to show that phosphorus acts as an energizer of oxidation. There is no proof that the hypophosphites enter into general metabolism or affect disease processes in any way. Not only is there no scientific evidence for the utility of the hypophosphites, but science has long since demonstrated their worthlessness.

In 1895 Boddaert¹ published researches showing that hypophosphites are rapidly eliminated through the kidneys

unchanged. Similar results have been reached by Paquelin and Joly, who attributed to the hypophosphites only the action of diuretics. In 1901 Massol and Gamel² found by animal experimentation that the hypophosphites did not act as diuretics, but that the hypophosphorous acid was completely eliminated in the form of sodium hypophosphite. The urea was not increased and the relation of urea to total nitrogen remained the same. Their results indicated no increase of oxidizing actions within the system. Finally, Massol and Gamel examined the urine of patients taking hypophosphites and found the same conditions: the results were the same as in the experiments on animals.

PROPRIETARY THERAPEUTICS

In spite of these facts the hypophosphites continue to be employed by many practitioners. Why? Because the theory, being plausible at the time when such chemical theories were popular, gained a certain recognition and was accepted without scientific investigation. Thus the hypophosphites came into use. It was not long before they were taken up by certain manufacturers, and the theory on which their use was based became a commercial asset. As a result the theory, which uncommercialized would have died of inanition, was kept alive by continued advertisement.

The manufacturer of proprietaries having settled on a plausible theory on which to sell his products has no further need for science. Thus, while these theories are no longer to be found in accredited text-books, they are still preached by the proprietary interests. An elaborate pamphlet on "Iodine and Phosphorus," containing statements which are known to be false, is one firm's text-book supplied to physicians to-day, and contains long quotations from Dr. Churchill's writings of sixty years ago. This book contains no intimation that these theories have been overthrown. It is poor economy to waste money in changing literature when the old theories and the old plausible reasoning will sell goods just as well. Consequently the old errors are drummed into those physicians who are willing to read their physiology from the neat monographs of proprietary literature and to sit at the feet of glib salesmen who expound to them the proprietary theory of therapeutics.

THE DUKET CURE "BLOWS UP"

Mr. Lorimer's Money Allows a Scientific Demonstration of the Obvious

About a year ago, THE JOURNAL gave its readers the results of an investigation of a widely heralded "cure" for consumption put out by one Peter P. Duket, M.D. Duket originally exploited his cure in Findlay, Ohio, but failing to make a commercial success of it there, he attempted to obtain a license to practice in and to transfer his wretched business to Colorado. A wide-awake board of medical examiners frustrated this attempt. Duket finally came to Chicago, where he was able to interest those who controlled Bennett Medical College in his "cure"; these, in turn, enlisted financial assistance from ex-Senator Lorimer to "investigate" the "cure." Incidentally, Duket obtained a license to practice in Illinois. Then followed the second exploitation of this fraud on the consumptive.

As a result of its investigations, THE JOURNAL showed, as will be remembered,¹ that Duket was a man of no scientific standing and of unsavory professional reputation; it showed that in eighteen cases investigated, the past record of Duket's "cure" gave a mortality of about 80 per cent.; it showed that the publicity and the professional recognition then being given Duket's "cure" was utterly unwarranted.

The only answer forthcoming to these criticisms was that THE JOURNAL'S articles were an "attack" on Duket personally. Meanwhile, Mr. Lorimer's money was being freely spent to give added publicity to this worthless "cure." A mailing-list was compiled—said to contain some 140,000 names—and bulle-

2. Massol and Gamel: Jour. de pharm. et de chim., 1901, xiv, 337.

1. See THE JOURNAL A. M. A., May 10, May 24 and July 5, 1913; also the pamphlet "Consumption Cure Fakes," price, 10 cents.

1. Boddaert: Arch. de pharmacodynamie, 1895, ii.

tins were sent out at stated intervals advertising the "cure" far and wide. This went on for some months, and then a news item appeared in the Chicago papers announcing, unofficially, that the "investigation" of the Duket cure had demonstrated its worthlessness. These items appeared Nov. 4, 1913. So far as THE JOURNAL has been able to learn, however, the 140,000 persons who received the bulletins advertising the "cure" have never been sent the final report, showing its worthlessness.

After waiting some weeks, THE JOURNAL wrote asking when the public would be notified of the results of the investigation. No definite reply was given on this point, but some time later a copy of the "report" on the "cure" was received for publication. This "report" was returned with the suggestion that it be given to the country through the same avenues of publicity that had been used in cruelly raising the hopes of the consumptives. It was again asked whether the facts were going to be given the public. No reply was forthcoming.

In view of this, it becomes the unpleasant duty of THE JOURNAL to give what publicity it can to the essential parts of the report by Duket's backers on the Duket "cure." The findings are really summed up in the following paragraph, taken from the report as submitted to THE JOURNAL. The capitalization is ours:

"It may at once be stated that the investigators and authors of this report have finally come to the conclusion that there are ABSOLUTELY NO MERITS IN THE DUKET TREATMENT of tuberculosis; that the method is VASTLY INFERIOR TO ANY OF THE APPROVED SYSTEMS of treating pulmonary tuberculosis; and that their observations would indicate that the DUKET TREATMENT MAY SOMETIMES LEAD TO ALBUMINURIA."

Summed up, then, every contention made by THE JOURNAL regarding the worthlessness of Duket's "cure" has been proved! At an expenditure of thousands of dollars a self-evident fact has been verified—a fact that THE JOURNAL gave to the medical profession and the public a year earlier!

In discussing the possible composition of Duket's secret "cure," THE JOURNAL admitted its ignorance on this point, but stated that there was evidence which indicated that Duket was using a widely advertised consumption "cure" known as the Hyer-Baldwin preparation, consisting of carbonate of guaiacol, salicylic acid and glycerin. Here is what the report has to say regarding the composition of the nostrum:

"The chemicals used in the so-called Duket cure for tuberculosis are *carbonate of guaiacol*, *salicylic acid*, bicarbonate of soda, carbonate of potash and a small amount of nitric acid, all of which are dissolved in *glycerin*. This solution is diluted with distilled water and sometimes a trace of tincture of chlorid of iron is added." [Italics ours.—ED.]

What does it all mean? That a self-evident fraud has been seriously studied and gravely reported to be a fraud; that, after exhaustive research costing thousands of dollars, scientific men solemnly affirm that the moon is not, and probably never was, made of green cheese!

But the expenditure of money and brains on a quest of this sort, while a woful economic waste, could be overlooked if that were the only thing involved. In reality, this is the smallest part of it. The most expensive element in this widely advertised piece of miscalled research was paid for, not in money, but in the blasted hopes and shattered desires of a myriad of unhappy consumptives.

UNITED DOCTORS LEAVE SOUTH BEND; DR. S. M. BARTLETT, SUCCESSOR—ANOTHER NEWS ITEM

The latest town to be abandoned by the United Doctors is South Bend, Ind., where Lee B. Kinsey, brother of Ben W. Kinsey, the original promoter, lived and had his headquarters. From there he directed the offices at South Bend, Elkhart, Kokomo, Muncie and Evansville, Ind., and several in northern and western Ohio and a number of offices in Michigan. Most of these offices, like the one at Muskegon, Mich., where the owners were sued for rent, died a natural death. The office at South Bend, which had been making a desperate struggle for some time, in a last spurt advertised in the South Bend and nearby Indiana and Michigan papers about the middle of February that the "President of the Medical Staff of the

United Doctors" would be in South Bend for a week. Everybody was advised to come in and take advantage of the opportunity to see this "past master in the art of healing." His name was not mentioned. Evidently the invitation to come in was not accepted to any great extent, for shortly the announcement was made that Dr. S. M. Bartlett, who had supplied the office for a year or more, had succeeded the United Doctors and was occupying the same offices. Bartlett now advertises under the name "Dr. S. M. Bartlett, Specialist," and in his advertisements calls himself "Master Specialist in chronic diseases." He is an example of the way in which the United Doctors make "specialists" in a short time out of indifferent or poor material, and foist them on the public as men with special skill and training. Bartlett graduated in 1904 at the Physio-Medical College in Indiana, which went out of existence in 1909. Until a little over two years ago he practiced at Oakford, Howard County, Ind., a town of 150 inhabitants, which has not supported a physician since he left. After leaving Oakford he became one of the hired men of the United Doctors at Kokomo, Ind., where he was immediately made one of the United Doctors' "great specialists," and was then transferred to the South Bend office.

Correspondence

A Christian Scientist as Adjuster of Accident Insurance Disability*

To the Editor:—I wish through your columns to inform the profession, especially those in Illinois, that the Preferred Accident Insurance Company of New York employs as an agency superintendent and adjuster in Chicago a man who is understood to be a devotee of Christian Science. What this means to the patrons of this company in this district can be readily appreciated. As I have written to the officers of the company, it would seem as reasonable for a fire-insurance company to employ a blind man to adjust a fire loss as for an accident company to adjust accident insurance disability of its patrons by the aid of one who religiously believes there is no actual pain, disease or disability.

I have asked of the home office for the name of the medical director of this company in order that I might call his attention to this fact, but have not been able to secure the name of that official. If you can give me his name please do so.

GEORGE N. KREIDER, M.D., Springfield, Ill.

Correction of Error

To the Editor:—In the article on the "Progress of Orthopedic Surgery," by Dr. J. D. Griffith (THE JOURNAL, March 7, 1914, p. 748), the following error should be corrected:

Dr. Griffith, under the head of scoliosis, states that "after having pursued this treatment [with the Abbott plaster-of-Paris jacket] in a great many cases of lateral curvature, Abbott's conclusions are as follows:

"1. Rotary lateral curvature of the fixed type, developed in childhood and persisting in adolescence, cannot be cured perfectly.

"2. The condition of the patient can be much improved.

"3. The anteroposterior postural deformities can be corrected.

"4. The lumbar lordosis can be corrected.

"5. The lateral deviation of the body can be corrected.

"6. The lateral deviation of the spine is corrected in early cases.

"7. The rotation of the vertebrae may be improved but not corrected.

"8. The use of the plaster jacket, applied by the Abbott method in flexion with corrective felt pads, is very satisfactory, in that we are enabled to obtain the result in a shorter time than by any other method of treatment heretofore practiced."

These are my own conclusions and have been copied from my article printed in the *New York Medical Journal* of

* See Current Comment, this issue.

Nov. 22, 1913, from a paper entitled "Recent Progress in Orthopedic Surgery," which I send you herewith and which reads as follows:

"In the *New York Medical Journal* of April 27, 1912, the same journal in which Abbott's last article appeared, there was also another by the writer, entitled "Rotary Lateral Curvature Based on the Report of Results Obtained." My conclusions at that time have since been substantiated. They are in brief: 1." etc., as above.

Dr. Griffith has also copied from this article elsewhere in his paper, to which one would have no objection provided that quotation marks were used and the references given in each instance.

CHARLES OGILVY, M.D., New York.

[The preceding letter was referred to Dr. Griffith, who replied:]

To the Editor:—I am very sorry indeed that I understood from the paper in the *New York Medical Journal* that the conclusions were Dr. Abbott's and hence did not give Dr. Ogilvy credit. I did not and do not claim a particle of originality in the review on "The Progress of Orthopedic Surgery," and used the article of Dr. Ogilvy as I did those of Goldthwaite and others. I am sorry I did not mention Dr. Ogilvy as I should have.

J. D. GRIFFITH, M.D.

Holmes, Not Semmelweis

To the Editor:—In preparing, a few years ago, material for a publication on "Epoch-Making Contributions to Medicine and Surgery," I had occasion to look up the subject discussed in the Current Comment on "Holmes, not Semmelweis" (THE JOURNAL, April 11, 1914, p. 1177). A comparison of the dates of the writings of Holmes and Semmelweis arranged in parallel columns brings out graphically the truth of your statement. These lists of publications will be found on pages 434 and 435 of the volume on "Epoch-Making Contributions" referred to.

I should like also to mention an article by Dr. Richard Cole Newton on "A Brief Study of the Contribution of Ignaz Philipp Semmelweis to Modern Medicine" (*Med. Rec.*, New York, Sept. 10, 1910). Dr. Newton shows the gradual development in the mind of Semmelweis regarding the theory of the origin of puerperal fever. On page 10 Newton states that Semmelweis' intensive study of puerperal fever began with his appointment as assistant to the chair of obstetrics and as chief of the First Obstetrical Clinic in the Vienna General Hospital in 1846. This was three years after the publication of Holmes' paper on "The Contagiousness of Puerperal Fever" in the *New England Quarterly Journal of Medicine and Surgery*, Boston. Semmelweis did not publish his observations until several years later.

C. N. B. CAMAC, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VITAMINS

To the Editor:—Please answer the following questions:

1. What are vitamins?
2. When and by whom were they discovered?
3. What is their scientific status and their relation to beriberi?
4. What literature is there on the subject?

G. H. J. PEARSON, London, Ont.

ANSWER.—1. "Vitamin" is the name given to a substance which is believed to be necessary to prevent the nervous lesions characteristic of beriberi. It is regarded as an antineuritic agent naturally present in rice, the removal of which by polishing causes the symptoms of the disease to appear. The name appears to be derived from vita, life and amin, indicating its chemical character. The substance was at first thought to be a pyrimidin base with the following formula: $C_{17}H_{26}O_7N_2$. It was at first believed to have the constitution of a ureid, but in his latest work Funk states that the nitrogen is not present in the amino form. Vitamin was first found in rice and was

connected with beriberi. Other substances of similar character were subsequently discovered and the name has become descriptive of a class.

2. Vitamin was discovered in 1912 by Casimir Funk.

3. Up to the present the only vitamin that has been investigated chemically appears to be that of beriberi. Other vitamins are held by Funk to belong chemically to the same group. Vitamin exists in rice along with allantoin and cholin, but it is to vitamin that the physiologic action of the rice-polishings seems to be due. It has been shown that an exclusive diet of rice deprived of vitamin will cause in fowls a neuritis closely resembling beriberi, and that this artificial disease can be cured by the administration of vitamin.

4. Following are the contributions of Funk to the literature on vitamins:

Funk, Casimir: *Pharm. Jour.*, 1912, lxxxix, 351; *Brit. Med. Jour.*, 1912, ii, 787; *ibid.*, 1913, i, 814; *Biochem. Jour.*, vii, 211; *Jour. Physiol.*, 1913, xvi, 173; *Lancet*, London, 1914, i, 98.

Funk, Casimir: Die Vitamine, ihre Bedeutung für Physiologie und Pathologie mit besonderer Berücksichtigung der Avitaminosen (Beriberi, Skorbut, Pellagra, Rachitis) Anhang: Die Wachstums substanz und das Krebsproblem, Wiesbaden, J. F. Bergmann, 1914.

RADIUM EMANATIONS

To the Editor:—I believe that it is time for the Council on Pharmacy and Chemistry to take up the status of radium emanations and to inform the medical profession, and through it the general public, whether or not radium emanations have a curative value, as claimed by some concerns who offer them for sale. I have looked up the subject and I found that according to Prof. Heinrich Willy Schmidt of Giessen, as quoted by Prof. J. Groebel of Nauheim, every spring water contains radium emanations in varying amounts, but that these emanations, being in gaseous form, disappear very soon after the water leaves the ground and are entirely absent after a short time, even if the water is kept in hermetically sealed containers. If this is the case, then the sale of radium emanations is a humbug and a swindle and it is the duty of the Council on Pharmacy and Chemistry to enlighten the profession to this effect. At any rate it would be worth while to look into this matter and to make public the result of your investigations.

X. Y., Philadelphia.

ANSWER.—The Council has already taken up radium emanations. A discussion of radium and radium preparations appears in New and Nonofficial Remedies, 1914, pp. 221-225. In this discussion it is pointed out that radium emanations lose their strength rapidly and that in 3.85 days any quantity of the emanations will fall to half its initial activity owing to disintegration of the atoms. From this it is evident that waters whose radio-activity is due, not to radium itself but to radium emanations, will quickly lose their activity. As most radio-active waters do owe their activity to radium emanations, they must be used at the springs. Radium-containing waters were discussed in THE JOURNAL, Nov. 1, 1913, p. 1649, Sept. 20, 1913, p. 969, and March 21, 1914, p. 951.

YAWS IN THE UNITED STATES

To the Editor:—Please give me information as to the occurrence of yaws in the United States. Has it occurred in this country? If so, will you kindly give recent literature? I am familiar with the literature of the disease generally, but have been unable to find it in any text-books or systems of medicine published in this country.

EDWARD J. WOOD, Wilmington, N. C.

ANSWER.—Cases of this disease have been reported from the Southern states, but never from the Northern states or from Canada. This is the opinion of Castellani and Chambers, as reported in *Tropical Medicine* for 1910. A similar statement is made in Shoemaker's "Diseases of the Skin," fourth edition, page 647.

ACTION OF WATER ON LEAD PIPES

To the Editor:—In this town there is a municipal water plant. Recently the authorities have made the requirement that all connections to water mains and to the property shall be of lead. Many pipes are from one to three hundred or more feet long. Is there danger of lead poisoning from this? Our water is very hard and heavily charged with mineral and earthy matter. Is this a usual requirement for persons using city water?

F. S. SMITH, M.D., Nevada, Ia.

ANSWER.—The ability of a natural water to take up lead depends largely on the oxygen and carbon dioxide content of the water. In general it may be said that soft waters and especially the acid waters from peaty swamps and marshes possess the most active lead-dissolving properties. Some hard waters, however, particularly those in which the hardness is of the kind known as "permanent," that is, due chiefly to sulphates and chlorids, may be quite plumbosolvent. Thresh (The Examination of Waters and Water-Supplies, Ed. 2, Philadelphia, P. Blakiston's Son & Co., 1913) recommends

testing the action of water on lead "by placing in it a piece of freshly scraped lead, 2 inches by $\frac{1}{2}$ inch. The piece of lead is put at the bottom of a deep 100-c.c. cylinder containing 100 c.c. of the water and allowed to stand in the dark for twenty-four hours. The water and lead are then examined. Any turbidity or deposit indicates an erosive action, in which case the water must be filtered before testing to ascertain if any lead has entered into solution. Or half may be filtered and tested to ascertain the solvent action and the other half be acidified with acetic acid and the erosive effect determined."

One thing is certain, that wherever it is proposed to use lead water-service pipes the action of the water on lead should be carefully determined.

THERMOPRECIPITIN REACTION IN DIAGNOSIS OF PULMONARY TUBERCULOSIS

To the Editor:—In THE JOURNAL, April 11, 1914, p. 1202, appears an abstract mentioning the thermoprecipitin reaction in the diagnosis of pulmonary tuberculosis. Please describe this reaction. SUBSCRIBER.

ANSWER.—This reaction was first described by Fagioli (*München. med. Wchnschr.*, 1913, p. 1480). It is based on Ascoli's reaction in the diagnosis of anthrax in animals. Fagioli's instructions for carrying out the test were: To a certain quantity of sputum (from 5 to 10 c.c.) double the quantity of chloroform is added. The mixture is well stirred up, and put in the incubator at 37 C. (98.6 F.) for from three to four hours. The chloroform is then decanted, and replaced by the same amount of normal saline solution. After two or three minutes of vigorous shaking, a homogeneous emulsion of a white, milky appearance is obtained. This is filtered through a Schleicher und Schull paper No. 490. If the filtrate is cloudy or even slightly opalescent, the filtration is repeated through asbestos. The experiment is carried out in small test-tubes (2.5 by 0.1 cm.). The tube is filled to about half with precipitating serum and then carefully, with a capillary pipet, a few drops of the sputum extract are run on the surface. The contact must not be quick or vigorous. The tubes are put for from twenty to thirty minutes into the incubator at 37 C., and the result is then read off. The result is regarded as positive if during the thirty minutes after the test is put up a white precipitation ring appears at the junction zone.

LITERATURE ON RELATION OF DISEASE AND CRIME

To the Editor:—Please give me late references to books or current literature on the relation of disease to crime, and on crime as a disease. ARTHUR F. FISCHER, M.D., Hancock, Mich.

ANSWER.—The following is a list of recent articles on these subjects:

- Anderson, C. H.: Are Criminals Insane Individuals? Bowers, P. E.: Constitutional Immorality; Sleyster, R.: Some Data Gathered in a Study of 269 Murderers, and Hill, G. M.: Ways and Means of Preventing Physical, Mental and Moral Degeneracy, *Illinois Med. Jour.*, April, 1914.
Kohler, F.: Psychopathologie der Tuberkulose und ihre kriminelle Bedeutung, *Ztschr. f. Tuberk.*, 1909-1910, xv, 31.
Bowers, P. E.: Causes of Crime, *New York Med. Jour.*, July 19, 1913.
Sneve, H.: Influence of Parental Diseases, Habits and Heredity on Juvenile Crime, *Bull. Am. Acad. Med.*, October, 1913.
The Criminal Class and the So-Called Criminal Type, editorial, THE JOURNAL, Jan. 21, 1911, p. 201.
Noble, C. P.: The Law of Degeneracy in Its Relation to Medicine, *New York Med. Jour.*, Dec. 24, 1910.
Fry, D. R.: Pathologic Condition of Nose, Throat and Ears as Etiologic Factors in Degeneracy, *Ohio State Med. Jour.*, September, 1910.
Hughes, M. R.: Recurrent Insanity and the Stigmata of Degeneracy, *Med. Fortnightly*, November, 1910.
Lombroso, Cesare: Crime: Its Causes and Remedies, Boston, Little, Brown & Co., \$4.50.

STATES RECIPROCATING WITH KENTUCKY

To the Editor:—Please give full particulars regarding reciprocity in Kentucky. J. L. S.

ANSWER.—Reciprocal relations on the basis of a written examination only have been arranged by Kentucky with Colorado, Delaware, District of Columbia, Illinois, Louisiana, Minnesota, New Hampshire, New Jersey, North Dakota, Texas and Virginia, and such relations on the basis either of an examination or of a diploma from a reputable medical college (without examination), if the diploma and license were granted prior to Sept. 1, 1907, have been arranged by Kentucky with Arkansas, Georgia, Indiana, Iowa, Kansas, Maine, Maryland, Michigan, Missouri, Nebraska, Nevada, Ohio, Oklahoma, South Carolina, Tennessee, Utah, Vermont, West Virginia and Wisconsin. For at least one year the applicant

must have been a member of his county and state societies and the national association of the system of medicine with which he affiliates, and must be recommended as worthy of reciprocity at a stated meeting of the medical society in which his membership originated.

JOURNALS ON ROENTGENOLOGY

To the Editor:—Please supply me with a list of the best English, French and German magazines on Roentgen-ray therapy and roentgenography. JAMES A. JACKSON, JR., M.D., Madison, Wis.

To the Editor:—Will you kindly give me the name of some of the journals devoted exclusively to Roentgen-ray work?

JAMES N. MCCOY, M.D., Vincennes, Ind.

ANSWER.—The following is a list of journals on roentgenology in various languages, together with their publishers and price of publications.

- American Journal of Roentgenology*, 32 West Adams Street, Detroit, \$5.
Archives of Roentgen Ray, Rebman Company, New York City, \$4.50.
Fortschritte auf dem Gebiete der Roentgenstrahlen, Hamburg, L. Gräfe & Gillem, 30 marks.
Strahlentherapie, Berlin, Urban & Schwarzenberg. Price varies.
Archives d'électricité médicale, expérimentales et cliniques, Bordeaux, \$5.
Zentralblatt für Röntgenstrahlen, Radium und verwandte Gebiete, Wiesbaden, Bergmann, 20 marks.
Zeitschrift für Röntgenkunde und Radiumforschung, Leipzig, Krause, 20 marks.

ARTICLES ON URTICARIA

To the Editor:—Please refer me to recent contributions on chronic urticaria. It is common here in the tropics, but I have a case in which it recurs only on the parts exposed to the sun, following a moderate sunburn. It might be called dermatitis solaris, but distinct urticarial lesions in other parts of the body preceded this manifestation. One physician suggested a careful use of the Roentgen ray, but I am doubtful about trying it.

H. P. NOTTAGE, M.D., Honolulu, H. I.

ANSWER.—The following is a list of articles on this subject:

- Ochs, B. F.: Urticaria Caused by the Sun's Rays, *Med. Rec.*, July 30, 1910.
Vorner: Urtica Solitaria, *Dermatol. Ztschr.*, January, 1913.
Ravitch, M. L.: Thyroid as Factor in Chronic Urticaria, *Jour. Cutan. Dis.*, November, 1907.
Jacob, F. H.: Care of Urticaria Pigmentosa Treated with Roentgen Ray, *Brit. Med. Jour.*, June 1, 1907.

STATISTICS ON MEDICAL EDUCATION

To the Editor:—Please answer the following questions:

1. How many medical colleges are there in the United States?
2. How many physicians are there in the United States?
3. How many students graduated in medicine in the United States each year from 1901 till the present year?

LEO RICE, M.D., Portland, Ore.

ANSWER.—1. 106.

2. 142,000.

3. 1901, 5,444; 1902, 5,009; 1903, 5,698; 1904, 5,747; 1905, 5,600; 1906, 5,364; 1907, 4,930; 1908, 4,741; 1909, 4,515; 1910, 4,440; 1911, 4,273; 1912, 4,483; 1913, 3,981.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

PRIVILEGED COMMUNICATIONS

Inquiries are frequently received regarding the law on privileged communications and the right of physicians and patients to regard professional communications as privileged in the legal sense. This subject is interesting and important, from both the legal and medical points of view. In order to place the facts before our readers, our Medicolegal Bureau has prepared the following as a summary of the existing condition of legislation on this subject, as well as an argument on the abstract question from a legal point of view.

The term "privileged communication," as used in the law of evidence, has reference to the confidential relationship of physician and patient, lawyer and client, priest and penitent. The idea has prevailed among physicians that each of those three

relations has a peculiar privilege. In the eyes of the law this is not the case. An examination of the authorities shows that this right of privilege did not exist at common law for the physician, but only for the lawyer, and possibly for the priest.¹ Furthermore, in this country the physician was not vested with the right of privilege until 1828, when New York enacted the first statute. Subsequently, many states adopted measures, so that to-day more than half of them have legislated this doctrine into law.²

At present, twenty-eight states have statutes providing in some form for privileged communication to physicians. These states are: Arizona, Arkansas, California, Idaho, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Utah, Washington, West Virginia, Wyoming, Wisconsin and the District of Columbia. Alaska and Hawaii have similar legislation.

The remaining states, twenty-one in number, have no such law. Massachusetts has recently rejected such a law.³

Professional privileges are of statutory origin. The purpose is to protect communications made to physicians in their professional capacity. The limit of this protection, however, varies not a little in the different states. In several states the law applies only in civil actions. It is generally required that the privileged matter shall be "information" and often of a "confidential nature," acquired "while attending in a professional capacity," or such as is necessary to "treat the patient" or the like. In Pennsylvania the law is limited to that which tends to blacken the character of the patient. In West Virginia the law permits a physician to testify if he is sued for causing a death by a wrongful act, neglect or default, but only as to the medicine or treatment given the deceased. The proposed criminal code of Louisiana for 1910 provided that no physician could disclose a communication of a patient, either preceding or after the termination of his employment, unless the patient waived his right of privilege. The law also excepted physicians appointed by the court to make physical examinations.

These laws have been given varied constructions by the several jurisdictions. In New York there have been many objections raised. That the criticisms were not altogether without foundation is evidenced by the fact that the statute of that state was amended in 1891, 1892, 1899 and 1904. These amendments and those of other states have all tended to liberalize the laws and at the same time to pay due regard to the right of privacy which the public is supposed to desire in relations with physicians.

Because of the varying provisions of the law in different states, it is important that physicians do not take too much for granted, but that they secure legal advice, especially as to the law in their respective states. The bill recently defeated in Massachusetts is based on the New York law. It is of interest as the latest effort to formulate a law on this question.

Following is a draft of the Massachusetts bill, which is entitled "Physicians or Professional Registered Nurses not to Disclose Professional Information": A person duly authorized to practice physic or surgery, or a professional or registered nurse, shall not be allowed to disclose any information which he acquired in attending a patient in a professional capacity, and which was necessary to enable him to act in that capacity; unless, where the patient is a child under the age of 16, the information so acquired indicated that the patient has been the victim or subject of a crime, in which case the physician or nurses may be required to testify fully in relation thereto on any examination, trial or other proceeding in which the commission of such crime is a subject of inquiry."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bk. Bldg., Pine Bluff. Homeopathic: Little Rock, May 12. Sec., Dr. I. J. Brooks, 219 East 10th St., Little Rock. Eclectic: Little Rock, May 12. Sec., Dr. C. E. Laws, Ft. Smith.

GEORGIA: Atlanta and Augusta, June 3. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Coliseum Annex, Chicago, May 12-14. Sec., Mr. Amos Sawyer, Springfield.

KENTUCKY: Louisville, June 3-5. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, June 4-6. Sec., Dr. E. L. Leckert, Macheca Bldg., New Orleans. Homeopathic Board: New Orleans, May 4. Sec., Dr. Edward Harper, 702 Macheca Bldg., New Orleans.

MASSACHUSETTS: Boston, May 12-14. Sec., Dr. Walter P. Bowers, Room 159, State House, Boston.

NEBRASKA: Lincoln, May 27. Sec., Dr. H. B. Cummins, Seward.

NEVADA: Carson City, May 4. Sec., Dr. Simeon L. Lee, Carson.

NEW YORK: May 19-22. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

OHIO: Columbus, June 2-5. Sec., Dr. George H. Matson, State House, Columbus.

PENNSYLVANIA: Philadelphia, June 1-3. Sec., Dr. Nathan C. Schaeffer, Harrisburg.

TENNESSEE: Memphis, Nashville and Knoxville, first week in May. Sec., Dr. A. B. DeLoach, Memphis.

Pennsylvania Board Announcements

At a recent meeting of the Bureau of Medical Education and Licensure of Pennsylvania the secretary of the bureau was instructed to call the attention of medical schools to the requirement in the practice act that applicants for licensure must have had a general education of not less than a standard four-year high-school course or its equivalent and, "in addition, not less than one year of college credits in chemistry, biology and physics, all of which have been received before admission to medical study," and that every applicant for admission to the first year of the medical course in the colleges of Pennsylvania must have from the Bureau of Professional Education a certificate specifying that he or she has met these requirements of preliminary education. The bureau also adopted plans for licensing drugless healers and chiropodists, and withdrew recognition from the Bennett Medical College of Chicago.

Non-Recognition of Low-Grade Colleges

A report from Dr. C. T. Nolan, secretary of the State Board of Medical Examiners of Georgia, states that at a recent meeting of that board a resolution was adopted that hereafter graduates of medical colleges rated in Class C by the Council on Medical Education of the American Medical Association would not be admitted to examinations conducted by that board.

There are now thirty state licensing boards which as a rule do not give full recognition to colleges rated in Class C. These states are:

| | | |
|--------------------|-----------------|----------------|
| Alabama | Maryland (Reg.) | Oklahoma |
| Arkansas (Reg.) | Michigan | Pennsylvania |
| Colorado | Minnesota | Porto Rico |
| Connecticut (Reg.) | Mississippi | Rhode Island |
| Delaware | New Hampshire | South Carolina |
| Georgia | New Jersey | Texas |
| Indiana | New Mexico | Vermont |
| Iowa | New York | Virginia |
| Kentucky | North Dakota | West Virginia |
| Louisiana (Reg.) | Ohio | Wisconsin |

Alabama January Report

Dr. W. H. Sanders, secretary of the Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, Jan. 13-16, 1914. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 67, of whom 40 passed and 24 failed, two withdrew and one was expelled. The following colleges were represented:

| College | PASSED | Year Grad | Per Cent |
|-----------------------------------|--------|------------|--|
| Birmingham Medical College (1912) | 5, 82; | (1913) 78 | 80 31, 81, 82. |
| University of Alabama (1909) | 75; | (1912) 75; | (1913) 76, 77 77 78, 78, 80, 81, 81, 83, 83, 84, 87. |

1. Wigmore: Evidence, iv, Par. 2380 et seq. See also Lord Chief Justice Mansfield in *Duchess of Kingston's Trial*, Howard State Trials, 1776, xx, 573.

2. Wigmore: Evidence, iv, Par. 2380 et seq. See particularly footnote thereunder citing statutes; also session law to date elsewhere. Also Commissioners' Revision of the Statutes of New York, 1836, iii, 737.

3. Medical Legislation: Disclosure of Professional Information, editorial, Boston Med. and Surg. Jour., Feb. 26, 1914, p. 326. Boston, Charles A.: In Witthaus and Becker, Medical Jurisprudence, p. 90.

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|--|-------------------|----|
| Howard University | (1905) 78; (1913) | 76 |
| Atlanta College of Physicians and Surgeons | (1913) | 76 |
| Atlanta School of Medicine | (1908) | 82 |
| Chicago College of Med. and Surg. | (1912) 76; (1913) | 81 |
| College of Physicians and Surgeons, Chicago.... | (1895) | 83 |
| State University of Iowa, Coll. of Homeo. Med. | (1881) | 78 |
| Tulane University (1911) 76; (1912) 86; (1913) 75, 80, 86. | | |
| Johns Hopkins University | (1913) | 86 |
| University of Michigan, Dept. of M. & S. | (1913) | 78 |
| Jefferson Medical College | (1911) | 83 |
| Meharry Medical College | (1913) | 80 |
| Memphis Hospital Medical College | (1912) | 75 |
| University of Nashville | (1908) | 87 |

FAILED

| | | |
|---|-------------------|----|
| Birmingham Medical College (1912) 73; (1913) 59, 60, 63, 69, 69, 69, 72*. | | |
| University of Alabama | (1909) 73; (1912) | 53 |
| Atlanta College of Physicians and Surgeons (1912) 59; (1913) 57, 72. | | |
| Atlanta School of Medicine | (1910) 55; (1912) | † |
| University of Georgia | (1912) | † |
| Bennett Medical College | (1913) | 70 |
| Meharry Medical College | (1913) | 72 |
| Memphis Hospital Medical College (1913) 43, 45, 48, 57, 57, 59. | | |
| University of Tennessee | (1913) 66, 71 | |

* No grade given.

† Withdrew.

The following questions were asked:

ANATOMY

(For Recent Graduates)

1. Describe the upper third of the femur.
2. Describe the thyroid gland, including its blood-supply.
3. Give origin and termination of the internal jugular vein.
4. Describe Poupart's and Gimbernat's ligaments.
5. Locate and describe the gall-bladder.
6. Name the structures divided in an amputation 4 inches below the knee.
7. Name and describe the membranes which surround the spinal cord.
8. Give the origin, course and distribution of the sciatic nerve.
9. Trace the fetal circulation.
10. Describe the inguinal canal.

ANATOMY

(For Graduates of Five Years or More)

1. Name the bones forming the skull.
2. Indicate on the anterior chest wall the locations beneath which the valves of the heart are found.
3. Name the regions of the abdomen. What is found in the right hypochondriac region?
4. Name the muscles forming the gluteal group, giving their relations to each other.
5. Name the contents of Scarpa's triangle, giving their relations to each other.
6. Name the tissues that are divided in an operation for inguinal hernia.
7. Trace the arterial blood from the heart to the fingers.
8. Where is the tendo Achillis and what forms it?
9. Name the coverings of the brain.
10. Where does the abdominal aorta divide? Name its subdivisions.

CHEMISTRY

(For Recent Graduates)

1. Write out the formula of a compound containing three elements and explain in detail.
2. What are the differences between an element and a compound? Give three examples of each, with formulas or symbols.
3. Describe how pure oxygen, to be used for inhalation, may be prepared. What impurities may oxygen contain?
4. Name the halogens. Give symbols and name a solvent for each.
5. Describe a test for free hydrochloric acid in gastric contents.
6. Describe the chemical changes occurring during the digestion of proteins.
7. How may the presence of lead in water be detected?
8. Define the term "catalysis" and the term "hemotaxis."
9. Name four important compounds obtained directly, or indirectly by synthesis, from the products of the destructive distillation of coal.
10. Describe acetic acid; give formula, physical and chemical properties. What class of salt does it yield and how may they be detected?

CHEMISTRY

(For Graduates of Five Years or More)

1. Give physical and chemical properties of oxygen.
2. Give physical and chemical properties and physiologic action of carbon dioxide.
3. What is meant by "reaction to litmus"? Name some practical applications of the reaction to the uses of the clinician.
4. Name the alkali metals.
5. Name at least one solvent for each of the following: (a) citrate of potassium; (b) calcium phosphate; (c) phosphorus; (d) camphor.
6. Name a chemical antidote for each of the following: (a) corrosive sublimate; (b) arsenic; (c) oxalic acid.
7. What poisonous gases are contained in illuminating-gas?
8. Describe the fermentation test for sugar.
9. Describe a test for bile in urine.
10. How may morphin and quinin be distinguished?

PHYSIOLOGY

(For Recent Graduates)

1. Discuss muscular fatigue—causes, effects and resulting phenomena.
2. Discuss the peritonium, with special reference to its function.
3. Discuss the formation of lymph and the factors controlling its flow.
4. Discuss the regeneration of the blood after a severe hemorrhage.
5. Discuss the physical and chemical changes in the blood and air through respiration.
6. Discuss vomiting and its causes.
7. Discuss the mechanism by which the blood-pressure is controlled. What is the approximate adult blood-pressure?
8. How is the automatic action of the heart-muscle supposed to be maintained?
9. Of what does an animal cell consist? Discuss its functions.
10. What is the function of the kidney?

PHYSIOLOGY

(For Graduates of Five Years or More)

1. Discuss the physiologic action of the bile.
2. Discuss the physiologic processes by which liquids are eliminated from the body.
3. What is the normal relation of pulse-rate to respiration?

4. What is the proportion of blood to body-weight? How much blood can be suddenly lost without fatal results?
5. What effect has high temperature on the force and frequency of the heart-beats?
6. What effect has loss of elasticity in the walls of the blood-vessels on the circulation of the blood?
7. Discuss the conveyance of oxygen to body tissues.
8. What is the function of the eustachian tubes, and what disturbances follow their occlusion?
9. Discuss knee-jerk.
10. State principal difference between voluntary and involuntary muscles.

ETIOLOGY, PATHOLOGY, SYMPTOMATOLOGY AND DIAGNOSIS OF DISEASES

1. Give the etiology of endocarditis.
2. Give the etiology of ileocolitis.
3. Give the pathology of lobar pneumonia.
4. Give the pathology of acute gastritis.
5. Give the pathology of chronic interstitial nephritis.
6. Give the symptomatology of appendicitis.
7. Give the symptomatology of cirrhosis of the liver.
8. Give the symptomatology and diagnosis of diphtheria.
9. Give the diagnosis of small-pox.
10. Give the differential diagnosis between tuberculosis and typhoid fever.

PHYSICAL DIAGNOSIS

1. What significant signs may be observed in an inspection of the neck?
2. Give the physical signs of pneumothorax on one side and the reasons therefor.
3. Give the physical signs of lobar pneumonia in the second stage and the reasons therefor.
4. Give the physical signs of recent occlusion of a primary bronchus and the reasons for the same.
5. Give the physical signs of mitral insufficiency of regurgitation and the reasons for the same.
6. Give the physical signs of acute dilatation of the right side of the heart and the reasons for the same.
7. Give the physical signs and the laboratory findings in cancer of the stomach near the pylorus, with considerable obstruction.
8. Give the method of examination and the physical signs of movable kidney.
9. Give the physical signs of a considerably distended gall-bladder.
10. Give the physical signs of exophthalmic goiter.

SURGERY

1. Describe, in a general way, the preparation of a patient for surgical operation.
2. Name the different kinds of suture material and discuss their relative merits.
3. Describe an indolent ulcer of the leg and give the treatment.
4. Differentiate between tetanus and strychnin poisoning and discuss the treatment of tetanus.
5. Give the classification of tumors.
6. Give diagnosis and treatment of fracture of clavicle.
7. Give diagnosis and treatment of subcoracoid dislocation of head of humerus.
8. Give diagnosis and treatment of floating kidney.
9. Give usual causes of peritonitis.
10. Give diagnosis and treatment of ulcer of the duodenum.

OBSTETRICS AND OBSTETRIC OPERATIONS

1. What should be learned on the first visit to, and in the first examination of, a case of labor?
2. What can be determined by external palpation of the pregnant woman at the eighth month, and how should it be performed?
3. What is placenta praevia, and how should it be treated?
4. What is version, and how many kinds are there?
5. When a child is apparently still-born what are the methods of resuscitation?
6. Should the head in a case of labor fail to engage in the pelvic brim, how would you manage?
7. How soon after the completion of the second stage of labor should the umbilical cord be ligated, how would you dress it, and what are the dangers of improper dressing?
8. Discuss in general the principal drugs used to hasten labor.
9. What conditions demand version? What, forceps delivery? What, cesarean section?
10. Describe the operation of cesarean section.

GYNECOLOGY

1. Give the findings on examination in chronic salpingitis, and state from what condition it must be differentiated.
2. What pathologic lesions occur in the cervix uteri?
3. Make diagnosis of beginning cancer of the cervix uteri.
4. Give causes and treatment of subinvolution of the uterus.
5. Give treatment of backward displacement of the uterus.
6. Name the neoplasms of the ovary.
7. What reflex symptoms may follow pelvic lesions? Give explanation.
8. Give definition and etiology of metrorrhagia.
9. Give etiology and symptoms of pelvic hematocoele.
10. Give treatment of urethral caruncle.

HYGIENE AND MEDICAL JURISPRUDENCE

1. Give the hygienic management of acute lobar pneumonia.
2. Give the hygienic management of whooping-cough.
3. What are disinfectants? Deodorants? Germicides?
4. How would you proceed to prevent or overcome malaria in a given district?
5. Describe briefly the proper mode of disinfecting and cleaning a room which has been occupied by a patient suffering from a dangerous communicable disease.
6. What symptoms and conditions would indicate that a sufferer from diphtheria was still infective? How may it be shown that the infective period of such patient has passed?
7. Into what general classes are foods divided? Give examples of each.
8. Define malpractice.
9. Name conditions that would legally justify induction of premature labor.
10. What is coma? Give three causes of coma.

DISEASES OF THE EYE, EAR, NOSE AND THROAT

1. Name the two principal muscles of the eyelids, and explain their action.
2. What kind of tissue lines the posterior surface of the eyelids, and what is it called? Name three of its important diseases and write prescriptions therefor.
3. Give the stages, dangers and general principles of management of ulcer of the cornea.
4. Give the symptoms, dangers and management of acute iritis.
5. Give the symptoms of obstruction of the nasal duct of considerable standing, and the method of management.
6. Mention the symptoms that would indicate the operation of inflating the middle ear, and give two methods of doing it.
7. How would you examine the hearing of a person, and how would you differentiate between a case of deafness that could very probably be relieved and one that could not be?
8. Give the diagnosis, dangers and treatment of acute tonsillitis.
9. Mention the symptoms that would create a suspicion of a foreign body in the larynx, and give the method of definitely determining the matter. Give also the methods of removal of foreign bodies from the larynx.
10. Differentiate between an acute laryngitis of severe type and a laryngeal diphtheria. Give briefly the management of each.

Book Notices

THE INTERVERTEBRAL FORAMEN: AN ATLAS AND HISTOLOGIC DESCRIPTION OF AN INTERVERTEBRAL FORAMEN AND ITS ADJACENT PARTS. By Harold Swanberg, with an Introductory Note by Prof. Harris E. Santee. Cloth. Price \$3. Pp. 101, with 18 illustrations. Chicago: Chicago Scientific Publishing Co., 1914.

During the last decade several so-called "schools of medicine" have arisen, based on the assumption that disease, instead of being a specific result of definite causes, is simply a manifestation in different parts of the body of interference with the nerve-supply due to pressure on the spinal nerves at their point of exit from the spinal canal. This is one of the dogmas of the osteopath, although his conception of the human body as a machine admits of various other "lesions" in the form of dislocations of muscles, tendons and even blood-vessels. Several of the latter-day cults, however, are based entirely on the theory that pressure on the spinal nerves is responsible for all imaginable ills. Such a cause being admitted, the treatment is easy—simply remove the pressure. Unfortunately for these faddists, however, the demonstration of their major premise involves a large amount of careful scientific research which they have never undertaken, since they are of the type of mind which is unable to distinguish between a hypothesis and a demonstrated fact. What the advocates of these various cults have shirked doing, however, has been taken up by Mr. Swanberg, who has made a careful study of the minute anatomy of the intervertebral foramina and the exact relations of the spinal nerves to them. Mr. Swanberg's book is illustrated with sixteen plates made from actual dissections. The findings, while interesting to the anatomist, are principally important, as stated by Dr. Santee in the introduction, because this field, though limited, "is sufficiently broad to form the anatomic basis for several schools of practice." The author's findings are that the spinal nerves are entirely surrounded at their exit from the canal by fatty-fibrous tissue and that this tissue serves to protect the nerve from pressure. Summing up his observations, he says, "I have seen many ankylosed specimens where the intervertebral foramina have been greatly reduced in size, but in every instance there seemed enough room for the nerve to pass free from any bony pressure. Possibly in some such cases [changes in the intervertebral disks or cartilages] the nerve may be subject to actual bony pressure, but from my observances this occurrence is extremely rare. . . . Nature seems to use every possible precaution to protect them [the spinal nerves] from bony pressure. This is the reason, no doubt, that the intervertebral foramina, in both animal and man, are so much larger than the nerves themselves."

The various cults based on the theory of spinal manipulation as a cure for disease have never had any positive evidence on which to base their belief. Mr. Swanberg's book deprives them of even negative evidence.

ANNUAL REPORT OF THE BUREAU OF HEALTH FOR THE PHILIPPINE ISLANDS. Paper. 1913.

In his annual report for 1913, Dr. Victor G. Heiser, director of health in the Philippines, interestingly sets forth the results of the year's work. Heiser calls attention to the numerous and varied activities of the department, which concern many more subjects than health department activities in the states. The field includes not only those responsibilities usually imposed on health organizations such as the collection and compilation of vital statistics and the protection of the public from dangerous communicable diseases, but also the distribution of public charities, the care of the insane, orphans and the aged, the administration of general and special hospitals, the hygienic and medical care of civilian employees, the administration of the Food and Drugs Act, investigation of the water-supply, plumbing and building ordinances, making physical examinations for entrance into public service, and many other duties. The report takes up briefly practically all of these subjects, giving their present status both in textual and in tabular form. As a whole, the report shows that

health conditions in the Philippines are most satisfactory. No great epidemics occurred during the year. There were a few small outbreaks of bubonic plague which were quickly controlled, and owing to the very thorough supervision of the health department, cholera was entirely absent. Small-pox occurred only in a few persons arriving in the islands from the outside.

Among the topics of great interest discussed in the report are beriberi, leprosy and the care of the insane. By animal experimentation and by practical application in the bodies of considerable numbers of human beings, both in the Philippine Islands and in the Straits Settlements, Heiser says that it has been absolutely demonstrated that beriberi depends on the use of polished rice as the chief or sole diet, and that the use of unpolished rice will always clear up these cases unless in a too advanced stage. Of interest in this connection is the hypothesis, not yet proved, that taon, a disease in infants which is responsible for a large portion of the 50 per cent. of deaths under 1 year, is due to beriberi in the mothers. Further studies are being carried on to determine this point.

As to leprosy, the report says that all forms of treatment that have been suggested have been tried. The mixture of chaulmoogra oil with resorcin offers at least some slight promise, and two patients are reported as having recovered under this treatment and remained well for more than two years. Others have been benefited, but in many cases there has been no improvement.

Heiser believes that the conditions in the Philippines with reference to the care of the insane are not at all what they should be, and improvements will have to be made in this respect. The proportion of the insane, however, among the Filipinos is not so great as among the population of the United States.

While excellent work is being done by the health and sanitary authorities in the Philippines in all departments, the director says, there is general need for larger appropriations in order to maintain the standard which has been attained. The report is an excellent one and significant of the results which can be achieved anywhere as well as in Panama or the Philippine Islands, by strict and sane sanitary supervision.

THE ADMINISTRATIVE CONTROL OF SMALL-POX. How to Prevent or Stop an Outbreak. By W. McC. Wanklyn, B.A., M.R.C.S., L.R.C.P. Cloth. Price, \$1.10 net. Pp. 86. New York: Longmans, Green & Co., 1913.

This volume is a companion to the book "How to Diagnose Small-Pox," by the same author, and is intended as a contribution toward the prevention of that disease. It is prepared primarily for postgraduate students working for the diploma on public health given by the English universities. After discussing the natural history of small-pox and the mode of its development, the details of administration with which the modern health officer should be familiar are then taken up. The author puts the case in graphic form. "A certificate of a case of small-pox lies in front of you on your table. The question is in point of fact and detail, what are you going to do? If you are a responsible medical officer of health, that is a question that you must answer. If you are going to succeed, you have to be ready with the answer, to act instantly and to overlook nothing." Dr. Wanklyn outlines three main indications: to ascertain the exact extent of the existing condition and how it originated, to eradicate what already exists and to prevent further cases developing. These indications are discussed at length, but always definitely and clearly. Dr. Wanklyn's book is an excellent illustration of the methods of modern public health work. The competent health officer of to-day no longer wastes his time in generalities. So far as our present knowledge of preventive diseases will permit him when the emergency arises, he acts promptly, vigorously and definitely. Dr. Wanklyn's book is a material contribution to this particular problem.

An Overdose.—A drug does not effect its purpose if the dose is too large, and it is the same with censure and adverse criticism when it exceeds the measure of justice.—Schopenhauer.

Miscellany

Report of New York Milk Committee for 1913

In its report the New York Milk Committee presents figures showing what has been accomplished in New York City in the way of baby saving. Both its work and that of the various public and private agencies working in connection with it during the seven years of its existence are included. It is asserted that 950,000 babies were born during that period, 109,000 of whom died. If the rate of mortality for the five-year period previous to the formation of the committee had prevailed, the deaths would have been 150,000. There was thus an actual saving of 41,000 infants. If the death-rate among infants for 1913 had prevailed throughout the seven-year period, the actual deaths would have amounted to 96,000. It is therefore asserted that the improved infant death-rate of New York can no longer be attributed to favorable weather conditions or to chance, but must be credited to the activities of all the agencies working along the line of infant welfare based on a program of clean and safe milk, systematic education of mothers in matters of feeding, hygiene and sanitation, etc. It is along these two main lines—the improvement of the milk-supply and the education of parents—that the committee has been working. The work of the National Commission on Milk Standards, created by the New York Milk Committee, has been endorsed by national scientific and business associations having to do with milk and the milk industry, and its reports have been published by the United States Public Health Service and its regulations endorsed by health authorities in many communities. The report sets forth many details of the work of the committee by chart and text. One of the directions in which the work of an educational character has expanded is in the support and cooperation given to baby contests, a number of which were held in New York during the year. This, it is believed, is a valuable means of educating communities in the better care and rearing of children and will do much to aid in the reduction of infant mortality. Instruction in prenatal care and the development of milk stations and health centers are also directions in which much of the valuable work of the committee has been done. Statistics of infant mortality in over 120 cities of the United States have been collected and are set forth in a table covering the years from 1906 through 1913. The New York committee sets the standard for infant-welfare work, for it is shown that the infant-mortality rate is lower in that city than in any other of the ten largest cities of the country, and for 1913 has been improved over the low figures for 1912.

Butter Quality

Work carried out recently in Boston by Rosenau, Frost and Bryant (*Jour. Med. Research*, 1914, xxx, 69), possesses great practical importance as it deals with a commodity of daily use. While much attention has been paid recently to milk as a carrier of bacteria which might produce infection, comparatively few examinations have been made of butter. Twenty-five samples were studied, each being scored and then examined chemically and bacteriologically. The samples were carefully selected to represent the average kind of butter found in the Boston market, and care was taken to select those representing distinct supplies. They originated either from New England or Wisconsin and Minnesota creameries. Scoring is done on a system of points: flavor 45, grain or body 25, color 15, salt 10 and packing style 5. Almost without exception the butters received a high score, the principal deductions being made under the heads of flavor and salt. In most cases the authorities were unable to determine the age of the butter, but whenever it was known it was indicated. The price varied from 33 to 70 cents per pound. No definite relation between score and price was evident. In general, none of the samples was found to contain less fat or more moisture than allowed by law, and no harmful adulteration was discovered. A few samples contained coloring-matter of vegetable origin, but none contained azo dyes. Three of the samples examined were

unsalted and none of the remainder contained an excessive amount of salt. Four of the twenty-five samples were made from pasteurized cream.

The general sanitary condition of the butter was difficult to determine because of the lack of a practical dirt test. No such test has as yet been devised, and its need was most apparent in this series of examinations.

Of greatest importance were the findings of the bacteriologic tests. The average number of bacteria for the twenty-five samples was 5,700,000, the lowest 8,600 and the highest 41,000,000. No particular relation apparently exists between the number of bacteria and any other constituent determined, such as salt, reaction, moisture, etc., but the number of bacteria diminishes markedly with age. It is suggested that the bacteria, therefore, may be used as an indication to the age of the butter. *Bacillus coli* was found in only six of the twenty-five samples, and from a few special experiments it would seem that this bacillus dies out very soon in butter. Streptococci were found in fourteen of twenty-five samples. The anaerobic *Bacillus welchii*, although found frequently in milk, was not found in any of the butter.

Tubercle bacilli were present in two of twenty-one samples tested for this micro-organism; the four samples made from pasteurized cream were not tested for it. The authorities state that there can be no objection to pasteurizing cream intended for butter; such butter, however, should not be labeled "pasteurized butter," but "butter made from pasteurized cream." It so happened that the samples which contained tubercle bacilli were purchased from a single purveyor in Boston, and were a high-priced butter with a high score, but contained, nevertheless, in addition to tubercle bacilli, a large per cent. of bacteria per gram and streptococci. It would seem, then, that price is not a guarantee of safety. The authorities conclude that all cream intended for butter should be pasteurized.

Such work as this, it may again be stated, is of the greatest practical importance. It is a check on the manufacturers of such common products and is a stimulus to continued endeavor in the production of high-class and safe food materials.

Patent Medicine

This is the time of the year that the patent medicine quack gets in his best work. I know that you do not use it, but there are people whom you can influence who do. Tell them that the doctor, who knows what is in these concoctions, would not give them to his family, that the chemist wonders how any one can trifle with his own health, and even the manufacturers of it whom I have known take the attitude, when reproached for selling it, of, "Well, there are folks who will take some kind of stuff from a bottle. I might as well be the one to profit by their ignorance as any one else."

Less than a week ago a friend of mine admired the home of a man whose money was made through one of the "female" (how I dislike that word!) remedies advertised at every country store. He laughed and replied, "Yes, it was built of woman's health." "Woman's health, your grandmother!" she ejaculated, "it was woman's credulity." "Oh, well, if you like to put it that way," he said, "they think they got the health, I know I got the house."—*Progressive Farmer*, Raleigh, N. C.

Old Doc Gallinger

Senator Gallinger is rounding out his last term in the Senate. His distinguished career is drawing to a close. His latest triumph is his nation-wide campaign against vivisection. He proposes an investigation by the Public Health Service into the rumors that the doctors in New York hospitals use children instead of animals for experiments with serums. If Gallinger were a typical American, we should not be swift in condemning Russia for her excitement about "ritual murder." Senator Gallinger has already decided in his own mind "that a prima-facie case has been made out against some practitioners." Senator Gallinger proclaims the glad tidings that he is himself a physician. In truth, after an academic education that would not now admit him to any medical college of the first rank, he attended an "Eclectic

Medical Institute" in Cincinnati in 1858, and achieved the degree of M.D. ten years later from the New York Homeopathic Medical College. After he had practiced medicine in Concord, N.H., for ten years, politics claimed him as its own. He opposes anything endorsed by the American Medical Association, like the Owen bill for a Department of Health, and the Children's Bureau with its inquiry into infant mortality. Nobody takes Senator Gallinger seriously as a senator. Why not let him strut about as an authority on medical subjects?—*Harper's Weekly*.

Tropical Areas Free from Malaria

Notwithstanding the almost universal presence of mosquitoes in tropical countries, certain areas have been found to be free from malaria, even when the anophelines are found. Major Brooke of the United States Army, in an article in the *Military Surgeon* of March, 1914, reports that Cebu in the Philippines is free from malaria although the anopheline mosquito has been found in Cebu and it is surrounded by the zones in which malaria is epidemic. Major Brooke says that it has been reported by Ludlow that there are no malarial mosquitoes in Cebu; but Brooke personally has found specimens of the genus *Myzomyia*. This variety of mosquito has been found to harbor the malarial parasite in certain stages of its development, but it has been found not to transmit malaria because it is believed that the development of the parasite is never complete. Brooke refers to the suggestion of Manson that there are some places free from malaria and yet surrounded by epidemic zones, as in the case of Cebu, because in that particular area food conditions for the mosquito may exist which are inimical to the growth of parasites in their bodies.

Medicolegal

Aim and Duty of Surgeons—Bad Results Alone Do Not Prove Malpractice

(*Hills vs. Shaw (Ore.)*, 137 Pac. R. 229)

The Supreme Court of Oregon reverses a judgment for \$6,000 damages for alleged malpractice in the treatment of the plaintiff's broken leg, and remands the case with instructions to enter a judgment of nonsuit. The court says that the testimony showed that the defendant was called to treat the patient June 4, properly diagnosed a fracture of the right femur, and, to all appearances, treated it by the usual methods known and approved by reputable surgeons, until July 23, when, on account of his intended removal to another locality, he left the case in the charge of another surgeon. It was not until after that, and after the plaintiff had begun to sit up and move around on crutches and had gone into town in an automobile that a misplacement or nonunion was suspected.

It being alleged and admitted that the defendant was a practicing physician and surgeon, practicing that profession at a certain place, which, in connection with the laws regulating the practice of medicine and surgery, necessarily implied that *prima facie*, at least, he had the requisite skill and ability. The substance of the doctrine taught by various instructive cases is that if a regularly licensed physician employs the skill of which he is possessed with reasonable diligence in treating a surgical case, he is not liable for an error of judgment, and that the mere fact that an untoward result ensues is not in any sense evidence of negligence. There are so many elements combating the surgeon in his efforts to restore a patient to bodily soundness that he can do no more than exercise his best skill and judgment to accomplish the desired result. The ideal which the surgeon strives to achieve in cases of this kind is so to establish coaptation of the broken parts of a bone, with the surfaces of the fresh fracture touching each other, that the bone is restored to its original situation, then by bandages or other appliances to keep it in position until healing ensues. This is the utmost that the highest degree of surgical skill can accomplish. Nature must do the rest.

Reduced to its lowest terms, this case was one in which the result of treatment was a failure. There was nothing to show that the surgeon did not do his best with what skill he possessed. The error of the plaintiff's contention consisted in relying on the abortive result of the treatment as an evidence of negligence on the part of the defendant, without showing further that some careless act or omission by the defendant produced that undesirable consequence. To hold the defendant liable under such circumstances would be to require him to insure absolute success in every operation which he undertook. Such a rule would be too drastic to be applied to the medical and surgical profession, and is not borne out by the authorities. However deplorable the condition of the plaintiff, there was a hiatus in the testimony on his behalf, between the time the defendant ceased to treat him and the subsequent discovery of the non-union of the bone, which broke the connection of the defendant with the untoward result so far as negligence was concerned.

Coloring of Articles of Food with Intent to Deceive

(*People vs. William Henning Co. (Ill.)*, 103 N. E. R. 530)

The Supreme Court of Illinois says that the public health requires that food should be absolutely and unquestionably pure. In order to accomplish this the legislature may legislate against fraud or deception by means of false coloring. It may forbid the use of coloring-matter or dye, or of such a mixture of two or more ingredients of the same general nature as will deceive or mislead the public. A false color is sometimes more liable to deceive than a false brand. Every consumer has the right to distinguish for himself what an article of food is and to have the means of judging its quality and value for himself, uninfluenced by deception. In this case the defendant sold five barrels of vinegar, each of which had stenciled on its head in large, plain, black letters: "A compound of White Distilled and Sugar Vinegar." This was a violation of Section 11 of the Illinois pure food statute, which provides that, "All vinegar made wholly or in part from distilled liquor shall be branded 'Distilled Vinegar,' and shall not be colored in imitation of cider vinegar," as the compound had the color of cider vinegar, and the evident reason for making it was that it should have. The object of the pure food act is to protect not only the dealer and jobber, but also the retail purchaser or consumer, otherwise the law would be of little practical value. It may be that the regulation provided for in Section 11 will embarrass the dealers in this class of goods. The prudence of such a regulation may be debatable, but it is not indefensible. It is well known that the adulteration of food-products is carried on to such an enormous extent as to menace the health of the people. To redress such evils is a plain duty but a difficult task.

Asylum Records Protected by Statute Governing Privileged Communications

(*Massachusetts Mutual Life Insurance Co. et al. vs. Board of Trustees (Mich.)*, 144 N. W. R. 538)

The Supreme Court of Michigan says that a writ of mandamus was sought to compel the board of trustees of the Michigan Asylum for the Insane, at Kalamazoo, to permit the relators to inspect the records of the asylum containing information concerning the mental and physical condition of one Willey, who was a patient in the asylum for nearly two years and a half prior to his death. It was contended (1) that the records of the asylum were open to the inspection of the relators under the terms of Act No. 76 of 1903, entitled "An act to facilitate the inspection of the records and files in the offices of the county, city," etc., and (2) that the relators, as parties to a pending suit begun for the cancellation of certain policies of life insurance which had been issued to Willey, had the right at common law to inspect the records of the asylum for the purpose of obtaining information necessary to enable them to prepare for the trial of such suit. Many authorities were cited in favor of the proposition that the general and well-settled rule is that all public records are open to the inspection of all persons who show an interest therein, and irrespective of whether the records

are such as could be introduced in evidence, and also of whether the matter recorded concerns a single person, a number, or the public at large. But none of the authorities was directly in point, though, if no question of privilege had been involved in this case, it might be said they were persuasive. The Michigan statute, as amended in 1909, provides: "No person duly authorized to practice physic or surgery shall be allowed to disclose any information which he may have acquired in attending any patient, in his professional character, and which information was necessary to enable him to prescribe for such patient as a physician, or to do any act for him as a surgeon." This language has frequently been construed by this court. The construction has been invariably to preserve the privilege granted by the language of the statute. It will be noticed that the statute goes farther than to forbid giving testimony. Its language is: "No person duly authorized to practice physic or surgery shall be allowed to disclose any information," etc. The court is constrained to hold that the action of the trustees in refusing inspection of the asylum records was justified.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

Am. Assn. of Genito-Urinary Surgs., Stockbridge, Mass., May 15-16.
American Dermatological Association, Chicago, May 14-16.
American Gynecological Society, Boston, May 19-21.
American Laryngological Association, Atlantic City, May 25-27.
American Medico-Psychological Association, Baltimore, May 26-29.
American Neurological Association, Albany, May 7-9.
American Ophthalmological Society, Hot Springs, Va., May 12-13.
American Otological Association, Atlantic City, May 27-28.
American Pediatric Society, New London, Conn., May 26.
American Society of Tropical Medicine, Boston, May 29-30.
American Therapeutic Society, Albany, May 29-30.
Arkansas Medical Society, Eldorado, May 19-22.
Association of American Physicians, Atlantic City, May 12-13.
Connecticut State Medical Society, New Haven, May 20.
Florida Medical Association, Orlando, May 13-15.
Illinois State Medical Society, Decatur, May 19-21.
Iowa State Medical Society, Sioux City, May 13-15.
Kansas Medical Society, Wichita, May 6-7.
Maine Medical Association, Portland, June 10-11.
Maryland Medical and Chir. Faculty, Baltimore, April 28-30.
Massachusetts Medical Society, Boston, June 9-10.
Missouri State Medical Association, Joplin, May 12-14.
Nat. Assn. for Study and Prev. of Tuberculosis, Washington, May 7-9.
National Association for the Study of Epilepsy, Baltimore, May 25.
Nebraska State Medical Association, Lincoln, May 12-14.
New Hampshire Medical Society, Concord, May 13.
New York State Medical Society, New York, April 28-30.
North Dakota State Medical Association, Grand Forks, May 13-14.
Ohio State Medical Association, Columbus, May 5-7.
Oklahoma State Medical Association, Guthrie, May 12-14.
Rhode Island Medical Society, Providence, June 4.
South Dakota State Medical Association, Watertown, May 26-28.
Texas State Medical Association, Houston, May 12-14.
West Virginia State Medical Association, Bluefield, May 13-15.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held March 11, 1914

The President, DR. WILLIAM DUFFIELD ROBINSON, in the Chair

Inflammation of the Gall-Bladder: Its Causes, Symptoms and Results

This paper, by DR. JAMES TYSON, appears in this issue of THE JOURNAL, page 1295.

Treatment of Gall-Bladder Infections

DR. JOHN H. GIBBON: I have substituted the word "infections" for "gall-stones," as we now know that the primary cause of these stones is a microbial infection reaching the gall-bladder either through the blood or directly through the bile-passages from the intestine. If one feels warranted in making a diagnosis of gall-stones or gall-bladder infection, one should also feel warranted in advising operation unless there be some definite contra-indication. To await serious symptoms is

comparable to awaiting glandular metastasis and malignant cachexia before making a diagnosis of cancer. The earliest and most persistent symptom of gall-bladder infection is what the patient calls "indigestion" or "distention" in the upper abdomen, coming on especially at night and without any definite relation to the taking of food. Jaundice is not essential to a diagnosis; in about 80 per cent. of gall-stone cases with operation, this symptom has been absent. Gall-bladder symptoms may result also from other causes than the presence of stones which demand operation.

In my series of twenty-six cases there were two of acute cholecystitis without stone and three of chronic cholecystitis without stone. In my opinion both patients would have later developed stones had they not been operated on. My series of cases includes three cases of acute gangrenous cholecystitis, in all of which there was recovery; two cases of acute cholecystitis without stone, one developing two weeks after typhoid; eight cases of stones in the common duct; one of stone in the ampulla of Vater requiring duodenotomy; one of calcification of the gall-bladder; one of abscess formation in the liver and spleen; one of subdiaphragmatic abscess two weeks after operation in a case of acute cholangitis due to stones in the common duct; one of cirrhosis of the liver; one of stones ulcerating into the colon; twenty cases of stones in the gall-bladder alone or associated with some of the enumerated complications, and two cases of cancer of the gall-bladder. The greatest number of stones, 771, was found in one of the malignant cases. In the cases in which the duration of symptoms is given, the average is over six years. The youngest patient was 19 and the oldest 69 years of age. There were five deaths, all of which occurred in very ill patients. Regarding the probability of gall-stones reforming after operation, I believe that if all are removed and the gall-passages properly drained for about two weeks, recurrence is extremely rare.

The Roentgen Rays in the Diagnosis of Gall-Stones and Cholecystitis

This paper, by DR. GEORGE E. PFAHLER, appears in this issue of THE JOURNAL, page 1304.

DISCUSSION ON GALL-BLADDER INFECTIONS

DR. H. A. HARE: I believe that the statements of Anderson are warranted by our present knowledge. While surgical procedure is frequently the best, and often the only means offering a chance of relief, its advocacy, based on certainty of cure and assurance of non-recurrence, is not borne out by results. The main object of treatment is the relief of the infection and inflammatory changes, and not merely the removal of gall-stones. So long as there is no recurrence of the inflammatory attacks, there will be no attack of gall-stones. Recovery not infrequently occurs under non-operative treatment, especially in early and mild cases, and particularly after first attacks, before serious local damage has been produced by the infection.

Medical treatment should be given a fair trial in all cases in which the patient's physical condition does not warrant operation, and with the numerous patients who refuse operation. In many such cases Anderson has seen complete and permanent recovery from all symptoms of the disease. Medical treatment is indicated in many cases as a preliminary to operation, and in order to allow the acute infection to subside as far as possible. Medical treatment is indicated in all cases after operation to allow of complete subsidence of the infection, and if possible, to prevent reinfection and recurrence. Anderson believes that it would make for clearness of thinking and give definiteness to therapeutic aims if we adopted the suggestion of Naunyn and gave up the term "cholelithiasis" and classified these various infections of the biliary passages as cholangitis with such qualifying terms as simple, catarrhal, suppurative, gangrenous, calculous, etc., according to the condition present in the particular case.

Anderson never advises strongly against operation in any case, unless it is definitely contra-indicated; but, after explaining the possibility of failure, and that operation may eventually be required, he does not hesitate in early and mild cases,

especially after first attacks, to give medical treatment a thorough trial, and has found that in many instances, excellent and permanent results have been obtained. To this I would add that occasionally we see patients die after operation who would have lived many weeks if they had been let alone surgically. When there are evidences of septic trouble or gangrene, operation is, of course, imperative.

DR. WILLIAM E. HUGHES: It is important to recognize the existence of gall-stones because, while they may lie quiescent through the normal life of the patient, they are there and are a possible source of trouble. Nine times out of ten in cases in which my attention has been called to "gall-stones" collected from the feces they have proved to be not gall-stones, but foreign matter. The paroxysmal nature of the symptoms, and the relief of pain temporarily on eating, are characteristics very suggestive in diagnosis. Probably the one symptom which is never lacking is that of indigestion.

DR. THOMAS R. NEILSON: We cannot emphasize too strongly the danger of delaying operation with the diagnosis of cholecystitis fairly made. Although the attacks may subside, there is always the danger of recurrence and of the development of malignant disease. The symptom of indigestion as indicative of a chronic lesion of the gall-bladder is important, and sometimes the only one on which a diagnosis can be made. At operation pericholecystitis is one of the commonest associated conditions, and for this nothing but operation would be of avail.

DR. W. WAYNE BABCOCK: I would emphasize the value of local anesthesia in certain types of gall-bladder disease. We should realize that gall-stones represent a terminal condition. The patient may have had few symptoms for five or twenty years, but finally develops an acute condition. In such a case it would have been much better to try to prevent such an outcome by early operation. It is interesting to note what other symptoms may follow gall-bladder disease. Most surgeons have seen cases in which the most surprising results have followed operation on the gall-bladder. Arthritis deformans sometimes disappears after a gall-bladder operation. In a patient with tic douloureux who developed gall-bladder disease the pain of the former condition disappeared after removal of the pus and gall-stones. We know that neuritis may result from gall-bladder infection. There are also conditions in the intestinal tract and other remote conditions due to intoxication or passage of the bacteria to these parts of the body. It seems to me that within the next two or three years we are going to revise our conceptions of intestinal indigestion.

DR. ROBERT N. WILLSON: I have seen more than once cases of cholangitis and also gall-stone cases of necessity treated medically when the surgeon could not be reached. In such cases the symptoms have disappeared with the emptying of the intestinal tract. In gall-stone cases I have seen more than one case carried over year after year simply because the patient absolutely refused operation.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Surgery, Philadelphia

April, LIX, No. 4, pp. 465-642

- 1 *Methods Suggested for Bone Transplantations. C. A. McWilliams, New York.
- 2 *Autogenous Bone Grafting for Fracture of Patella. J. Rogers, New York.
- 3 *Treatment of Ununited Fractures of Tibia by Transplantation of Bone. Report of Nine Cases. M. S. Henderson, Rochester, Minn.
- 4 Treatment of Ununited Fractures of Tibia by Intramedullary Bone Transplants. Report of Five Cases. E. F. Robinson, Kansas City, Mo.
- 5 Transvesical Prostatectomy in Two Stages. P. M. Pilcher, New York.
- 6 Normal Bladder and Its Sphincters and Changes Following Suprapubic Prostatectomy. A. Hyman, New York.

- 7 Eversion of Bladder. H. Packard, Boston.
- 8 Arteriovenous Aneurysm of External Iliac Vessels with Wound of External Iliac Vein. B. M. Bernheim, Baltimore, and P. Wroth, Jr., Hagerstown, Md.
- 9 Perforating Gastric and Duodenal Ulcers. F. Martin, Baltimore.
- 10 *Peritoneal and Pleural Absorption, with Reference to Postural Treatment. W. E. Dandy and L. G. Rowntree, Baltimore.
- 11 Subcutaneous Traumatic Rupture of Normal Spleen. A. F. Barnes, Cambridge, Mass.
- 12 Hernia of Large Intestine. A. V. Moschcowitz, New York.
- 13 *Looping Cardinal Lateral Ligaments in Uterine Prolapse. A. J. Nyulasy, Perth, Western Australia.
- 14 Simple and Complete Forms of Apparatus for Intratracheal Anesthesia. H. H. Janeway, New York.

1. Abstracted in THE JOURNAL, Feb. 28, p. 731.

2. **Autogenous Bone Grafting.**—Rogers suggests that the autogenous bone graft be taken from the crest of the patient's tibia and implanted on the front of the patella to bridge the lines of fracture. He describes the procedure as follows: Make a U-shaped flap, with the apex of the convexity over the ligamentum patella and the extremities over the condyles of the femur, suture the lateral rents in the fibrous capsule. Denude the anterior surface of the patella fragments of periosteum over an area about 1 inch square on each side of the line of fractures. Expose the crest of the tibia and chisel off from its inner surface a quadrilateral plate $1\frac{1}{2}$ inches long, $\frac{3}{4}$ inch wide by $\frac{1}{8}$ inch thick. Leave its periosteum undetached. Place this with its raw surface in apposition with the denuded area in front of the patella. Unite the fragments by a figure-eight suture of chromicized catgut or kangaroo tendon, which grasps the ligamentum patella and quadriceps tendon immediately below and above the broken bone and crosses in front of the transplant. The periosteum, which was previously turned back from the patella, is next drawn up to or over the transplant with a couple of catgut sutures. The skin incisions are closed by a subcuticular catgut stitch, and the limb enclosed in a plaster-of-Paris case splint for four or five weeks.

3. **Transplantation for Ununited Fracture.**—Henderson advises taking the bone to be transplanted from the tibia, either above or below the fracture, preferably from the flat internal surface of the tibia rather than from the crest which is dense, strong and being the apex of a triangle, serves a most important weight-bearing function. A piece of bone removed from here down to the medullary cavity weakens the bone out of all proportion to the size of the piece removed. The bone on the internal surface is not so dense and is also more vascular and a large piece may be removed here without greatly weakening the bone. All the layers, i.e., periosteum, cortex and medullary lining should be included in the transplant. In the tibia by forming a gutter down to the medullary cavity, the transplant can be placed so that periosteum meets periosteum, cortex meets cortex and medullary lining meets medullary lining, thus obtaining an anatomic approximation favorable to rapid healing.

The bone should be of sufficient length to make a substantial bridge, usually 2 or 3 inches long and about $\frac{1}{2}$ inch in breadth and should include all the layers. The transplant is sewed in by stitching the periosteum of the transplant to the periosteum of the shaft. The skin is then closed with silkworm and horsehair and the dressing applied. A plaster-of-Paris cast is applied to include the knee and ankle. This is removed at the end of two weeks. Sutures are removed and a new cast put on which is left for from four to six weeks. Further treatment is guided by the individual case. Union is usually firm enough to permit walking in from three to six months.

10. **Peritoneal and Pleural Absorption.**—By injecting collargol into the peritoneal and pleural cavities of dogs and later making a roentgenograph Dandy and Rowntree have been able to observe the effect of gravity on fluids in these cavities. These examinations demonstrate that gravity exerts a very important influence in determining the localization of fluids. In the pleural cavity gravitation is practically instantaneous, in the peritoneal it is slower, its course being retarded and the direction influenced by the intestines. There is no evidence of an intraperitoneal current to the diaphragm. There is very active absorption of fluids from all parts of the normal peritoneal and pleural cavities. This absorption is essentially

hemic and not lymphatic. Peritoneal absorption is practically equal in all postures except pelvis-down, in which it is 15 per cent. less than in the others. Pleural absorption is practically equal in all postures except pelvis-down, in which it is 13 per cent. less.

The explanation of these findings the authors are unable to give. They suggest that the visceral peritoneum undoubtedly plays an important part in absorption—probably a more active part than the visceral pleura. The authors have no evidence to support the view that there is an intraperitoneal current to the diaphragm, nor any evidence in favor of the claims that the central tendon or the diaphragm as a whole performs more than its proportional amount of peritoneal absorption. The authors conclude that though Fowler's position as originally instituted was based on entirely fallacious and disproven grounds, there is adduced evidence of a different character, perhaps sufficient to justify the resort at times to this postural method in the treatment of acute diffuse peritonitis. The above results tend also to support the employment of Coffey's lateral modification of Fowler's position.

13. Uterine Prolapse.—The only operative procedure for uterine prolapse which seems to Nyulasy to bear the light of rigid investigation is that which directly deals with certain tissues (in the broad ligaments) passing out from the sides of the uterus. These structures—the cardinal ligaments—are the main element holding the uterus at a more or less definite level in the pelvis. Their supporting power is illustrated in vaginal hysterectomy (in a normally-fixed uterus), when all supporting elements except the broad ligaments have been completely severed. At this stage in the hysterectomy the uterus can only be drawn down by a vulsellum in the cervix exercising some force, the resistance to this force being the pull of the cardinal ligaments on the uterus. When the vulsellum is released the cardinal ligaments, pulling on the uterus, draw it back to its original position.

The cardinal ligaments can readily be demonstrated by turning the bladder down from the uterus. They commonly arise by three more or less definite heads from each side of the uterus, the middle head corresponding to the position of the uterine artery, the interior head being attached to the upper surface of the lateral vaginal fornix and the superior head being attached a little above the median head. The three heads of the cardinal ligament unite together to form a band about half an inch or more in width which passes outward for over an inch between the layers of the broad ligament. The cardinal ligament which, up to this is largely muscular, now tends to change its character, sending off fibrous bands, fan-wise to the wall of the pelvis and other parts, some of these bands being inverted into the posterolateral wall of the bladder and others passing up over the iliacs.

After locating the ureter the cardinal ligament may be dissected from the posterior peritoneal layer of the broad ligament and thus completely isolated. The primary supports of the uterus in Nyulasy's opinion are its ligaments, while the secondary support is the pelvic diaphragm. The cardinal ligaments being exposed as stated are dissected off the posterior layer of the broad ligaments and looped up on the anterior wall of the uterus to which they are sutured with silk. After taking a loop in each round ligament the wound in the peritoneum is closed with a continuous catgut suture. The more striking advantages of the operation are said to be: 1. The practical absence of hemorrhage. 2. The excellent immediate anatomical result and almost certain good permanent effect. 3. The comparative absence of postoperative shock. 4. The absence of raw surfaces.

Boston Medical and Surgical Journal

April 2, CLXX, No. 14, pp. 481-560

- 15 Architecture of Children's Hospital. C. A. Coolidge, Boston.
- 16 Development of Hospital with Especial Reference to Medical Service. T. M. Rotch, Boston.
- 17 History of Children's Hospital with Especial Reference to Orthopedic Department. R. W. Lovett, Boston.
- 18 Work of Children's Hospital in 1913. J. L. Morse, Boston.
- 19 Orthopedic Surgery at Boston Children's Hospital. Review of Thirty Years of Continuous Service. E. H. Bradford, Boston.
- 20 Infantile Scorbutus. J. L. Morse, Boston.
- 21 Inguinal Hernia in Children. J. S. Stone, Boston.

- 22 Case of Chondro-Osteosarcoma. Amputation of Hip. R. W. Lovett, Boston.
- 23 Obstetric Paralysis with Especial Reference to Treatment. J. J. Thomas, Boston.
- 24 Round Shoulders with Short Clavicles. A. Thorndike, Boston.
- 25 Removal of Foreign Bodies from Esophagus and Lower Air Passages in Children. D. C. Greene and F. E. Garland, Boston.
- 26 Influence of Alkalies on Gastric Motility. M. Ladd, Boston.
- 27 *Study of Etiology in One Hundred and Seventy-Five Epileptic Children. A. W. Fairbanks, Boston.
- 28 Hemorrhage Following Tonsillectomy. F. E. Garland and D. C. Greene, Boston.
- 29 Poliomyelitis. Operative Treatment. R. Soutter, Boston.
- 30 Importance of Early Recognition of Acute Arthritis of Hip-Joint in Infants. R. T. Legg, Boston.
- 31 Diagnosis of Enlarged Thymus and Symptomatology of Hyper-Thymatism. P. H. Sylvester, Boston.
- 32 Treatment of Cervical Adenitis in Children. W. E. Ladd, Boston.
- 33 Case of Lymph Cyst of Mesentery. C. G. Mixter, Boston.
- 34 Flat Foot in Children. A. Ehrenfried, Boston.
- 35 Pyelitis in Infancy and Childhood. E. T. Wyman, Boston.
- 36 Two Cases of Cirrhosis of Liver in Childhood. E. Ely, Boston.
- 37 Case of Multiple Bone Tuberculosis Atypical in Its Distribution and Roentgen-Ray Appearances. H. J. Fitz Simmons, Boston.
- 38 *Significance of Von Pirquet Reaction in Surgical Tuberculosis in Children. L. B. Robertson, Boston.
April 9, CLXX, No. 15, pp. 561-600
- 39 *Gonorrheal Metastatic Arthritis. H. W. E. Walther, New Orleans.
- 40 Seasonal and Meteorologic Influence on Tubercular Patients. N. B. Burns, Reading.
- 41 Apparatus for Use in Operations on Open Thorax. C. A. Ewald, Seattle, Wash.
- 42 Insanity in China. A. C. Reed, Changsha, China.
- 43 Educational Standards for Nurses. State Registration and Training School Inspection. S. E. Parsons, Boston.

27. Etiology in 175 Epileptic Children.—The study of 175 cases confirms an opinion Fairbanks has held for many years, as the result of the observation of many hundred epileptic children, that heredity is a minor factor in the etiology of epilepsy, whenever the disease is studied at such an age that the true details of the past and family history of the victim can be obtained. These data are obtainable in the case of children to an infinitely greater extent than when the disease is investigated only in adults. Both the data and physical examination of epileptic children indicate that the affection in the majority of instances is the result of acquired cerebral injury from trauma or disease.

38. Von Pirquet Reaction in Surgical Tuberculosis in Children.—In all cases having clinical evidence of surgical tuberculosis, either in bone or soft tissues examined by Robertson, 2.9 per cent. showed negative Von Pirquet reactions. In those cases not showing definite clinical evidence of tuberculosis, although some showed enlarged anterior cervical glands and others gave a family history of tuberculosis, 14 per cent. showed positive cutaneous reactions. In the apparently non-tuberculous cases, the reaction was more frequently negative in the younger children, as seen from the following: 0-4 years, 48 cases; positive reactions in 10 per cent.; 4-8 years, 61 cases; positive reactions in 14.5 per cent.; 8-12 years, 40 cases; positive reactions in 17.5 per cent.

From these above figures it is concluded that the Von Pirquet reaction is fairly reliable in children under 12 years of age, but that it has less significance where the patient shows enlargement of the anterior cervical lymph-nodes or gives a family history of tuberculosis.

39. Gonorrheal Metastatic Arthritis.—Walther says he passes over the internal treatment for something more promising. The newer surgical procedures which have been employed in combating this disease have undoubtedly done much toward curing the severer forms. Of the numerous operations advocated Walther mentions four, namely, (1) aspiration of the joint alone; (2) aspiration of joint plus the injection into same of some antiseptic or disinfectant; (3) making incision into joint, irrigating and draining same according to the method of Schuller, and (4) Fuller's operation of seminal vesiculotomy. Taking them up separately we might say that it is reasonable to believe, he says, that some cases have apparently been cured by simply aspirating the accumulated fluid from the affected joint; sometimes a single aspiration will suffice, while in other cases the procedure must be repeated at intervals as needed. The aspiration of gonorrheal joints with the injection

of an antiseptic or disinfectant solution has been popularized by Murphy in this country and by Hildebrand and Roux in Europe. Murphy uses a 2 per cent. dilution of liquor formaldehyd in glycerin, and of this solution he injects 5 to 20 c.c. depending on the quantity of fluid aspirated and the size of the joint. Hildebrand and Roux inject tinctura iodid (3i to 3iii) into the joint instead of liquor formaldehyd.

When either or both of the above treatments fail, the joint should either be freely opened, cleansed, packed and drained, or double drainage should be instituted with daily through and through irrigations of 1-5,000 bichlorid of mercury solution. Fuller has recently proposed a new method for curing cases of gonorrheal arthritis by his operation of seminal vesiculotomy. Up to the present time he has performed this operation 251 times, 122 of which were for gonorrheal metastatic arthritis, without a single fatality.

California State Journal of Medicine, San Francisco

April, XII, No. 4, pp. 129-166

- 44 Tuberculous Glands of Neck; Their Relation to Diseases of Nose and Throat. Radical Operation for Their Removal. B. S. Stevens, San Francisco.
- 45 Psychologic Study of Mentally Defective and Otherwise Exceptional Children. E. B. Hoag, Los Angeles.
- 46 Therapy of Typhoid. E. O. Jellinek, San Francisco.
- 47 Roentgen-Ray Dosage. H. E. Ruggles, San Francisco.
- 48 Vital Statistics. E. Goodman, San Francisco.
- 49 Medical Situation of New Workmen's Compensation Act. J. R. French, Los Angeles.
- 50 Principles Governing Indications for Cesarean Section. A. B. Spalding, San Francisco.
- 51 Hygienic Shoeing—Anatomic Facts Vs. Convention and Style. C. C. Crane, San Francisco.

Georgia Medical Association Journal, Augusta

April, III, No. 12, pp. 395-430

- 52 Clinical Interpretation and Application of Wassermann Reaction. E. G. Ballenger and O. F. Elder, Atlanta.
- 53 Local Anesthetics, with Special Reference to Novocaine. W. S. Goldsmith, Atlanta.
- 54 Practical Anesthesia. C. Usher, Savannah.
- 55 Paramyoclonus Multiplex. Report of a Case. T. S. Clay, Savannah.
- 56 Abuse of Purgatives Following Abdominal Operations. H. S. Munroe, Columbus.
- 57 Hemorrhage and Surgical Shock. W. W. Battey, Jr., Augusta.
- 58 Appendicitis without Appendiceal Symptoms. R. M. Harbin, Rome.

Journal of Experimental Medicine, New York

April, XIX, No. 4, pp. 319-416

- 59 *Effects of Early Extirpation of Thymus in Albino Rats. A. M. Pappenheimer, New York.
- 60 Relation of Gastro-Intestinal Tract and Contents to Body-Weight in Rabbits. A. E. Livingston, Ithaca.
- 61 *Nature of Opsonic Substances of Normal Sera. H. Zinsser and E. G. Cary, New York.
- 62 *Strain of Spirochaeta Pallida Isolated from Nervous System. H. J. Nichols, U. S. Army.
- 63 Nitrous Oxide as an Anesthetic in Animal Experimentation. D. H. Dolley, Columbia, Mo.
- 64 Rapidity of Involution of Active Thyroid Hyperplasias of Brook Trout Following Use of Fresh Sea Fish as Food. D. Marine, Cleveland.
- 65 *Ferments and Ferment-Inhibiting Substances in Tuberculous Caseous Material. J. W. Jobling and W. Petersen, New York.
- 66 *Effect of Dilution of Plasma Medium on Growth and Fat Accumulation of Cells in Tissue Cultures. R. A. Lambert, New York.
- 67 Pathogenicity of Trypanosoma Lewisi. W. H. Brown, New York.
- 68 *Penetration of Virus of Poliomyelitis from Blood into Cerebro-Spinal Fluid. S. Flexner and H. L. Amoss, New York.

59. Early Extirpation of Thymus in Albino Rats.—One hundred and eight rats were used by Pappenheimer for this study. Of these eighty-two were thymectomized, the remainder serving as controls. He found that removal of the thymus does not produce an arrest or retardation of body growth and development. Qualitative changes in the skeletal system or teeth have not been found. In emaciated weak animals osteogenesis is less active than in healthy rats and the long bones are smaller and more delicate in structure. Such quantitative differences appear to depend in the general nutrition, are equally pronounced in rats whose development is retarded from other causes, and cannot be referred specifically to loss of thymus function. No constant or characteristic alterations were detected in the spleen, testes, adrenals or thyroid. Whatever functional correlations may exist between thymus and any or all of these organs are not evident from the occurrence

of histologic changes after the removal of the thymus. The relative proportion of lymphocytes in the blood is diminished for the first few weeks after the operation. Pappenheimer has not determined how long this alteration in the leukocytic formula persists.

Two rats were killed 185 days after operation. Minute examination of a complete series of the neck organs, including the thyroid, failed to show any tissue which could be interpreted as thymus. The bones showed no rachitic changes.

61. Nature of Opsonic Substances of Normal Sera.—Zinsser's and Cary's experiments show that the albumin fraction or endpiece obtained by the dialysis of normal guinea-pig serum possesses definite opsonic action. This action is often almost equal to that residing in the unfractionated alexin. It is evident, however, only if the reaction maintained during the experiments approximates that of the original serum. By the addition of small quantities of weak sodium hydrate solution to the dialyzed serum they have been able to bring back opsonic action which was not evident in the same end-piece if simply rendered isotonic. They have been unable to reactivate the hemolytic function of end-piece by alteration of reaction.

Their experiments suggest that the opsonic action of the albumin fraction is enhanced by preliminary sensitization of the bacteria with heated normal serum and by persensitization of such bacteria with the globulin fraction. However, they are not positive of this since the slight differences of phagocytic counts on which such an opinion can be based fall within the limits of what they consider experimental error. The fact that the albumin fraction can exert opsonic activity on bacteria but cannot hemolyze blood-cells seems particularly interesting in the light of the fact that alexin can be absorbed by unsensitized bacteria but not by similarly untreated blood-cells. Zinsser and Cary think that their experiments do not point to a differentiation of normal opsonin from alexin, but they believe they indicate that the so-called end-piece can enter to a slight extent into non-specific relationship with unsensitized bacteria and it is therefore active, whereas it cannot enter into a similar relation to unsensitized cells. This conception, however, is tentatively made, since they are studying further the non-specific absorption of alexin or complement by unsensitized bacteria.

62. Observations on Spirochaeta.—A strain of *Spirochaeta pallida* isolated by Nichols from the nervous system has shown the following constant characters: (1) thick form; (2) the production of hard, well demarcated lesions with necrotic centers; (3) a characteristic location of the lesion; (4) a short incubation period; (5) a tendency to generalize with lesions of the skin and eye, following local inoculation of the testicle and scrotum. It is suggested that these characters constitute a definite strain of highly invasive power and that a classification of members of the pallida group may be made in accordance with this power.

65. Ferments in Tuberculous Caseous Material.—Jobling and Peterson point out that caseous matter obtained from lymph-nodes which have not become secondarily infected contains substances which inhibit enzyme activity. These substances consist chiefly of soaps of the unsaturated fatty acids. The inhibiting substances are present in relatively smaller amounts when the caseous matter has become secondarily infected. This is probably due to the dilution and washing out of the soaps. Ferments are either entirely absent or present in very small amounts, unless the caseous matter has become secondarily infected.

Caseous material from the lungs contains smaller amounts of the inhibiting substances. This may be due to the acuteness of the process which does not permit an accumulation of the soaps or to the binding of the soaps with the ferments. Ferments are present in caseous pneumonia. In the whole emulsion the ferments are less active in an alkaline than in an acid reaction; but removal of the soaps shows that those active in an alkaline reaction are also present in considerable amounts. The previous treatment with iodine of caseous matter from both lymph-nodes and lungs increases the action of the trypsin.

66. **Growth of Cells in Tissue Cultures.**—Dilution of plasma with isotonic solution Lambert says causes a more extensive migration in cultures of cells of the actively migratory type, such as those of spleen and bone-marrow. Dilution with a limited quantity of distilled water produces the same effect. Less actively motile cells are influenced little or not at all by dilution. The effect on cells of the first type is probably due to the reduction in the quantity of fibrin in the clot producing lessened resistance to cell locomotion. Dilution of plasma with either isotonic solutions or distilled water is without effect on cell multiplication as is shown by records of the number of mitoses in living culture preparations. Dilution of plasma with suitable quantities of Ringer's solution causes a marked diminution in the quantity of fat accumulated by the cells. This reduction is to be attributed to the decrease in the quantity of fat in the medium. The accumulation of fat by cells in cultures is therefore not to be regarded as the result of a cell degeneration, but as an accumulation, the source of the fat being the medium in which the cells are growing.

68. **Penetration of Virus of Poliomyelitis.**—It is stated by Flexner and Amoss that the virus of poliomyelitis introduced into the blood may pass indirectly by way of the cerebrospinal fluid to the interstices of the central nervous organs. To reach the cerebrospinal fluid the virus must first penetrate the barrier of the choroid plexus which operation requires time. By the inoculation test no virus was detected in the fluid at expiration of forty-eight hours, only small amounts at the expiration of seventy-two hours, while at the expiration of ninety-six hours the virus had passed more freely. The virus was still detectable in the fluid at the onset of paralysis nineteen days after the intravenous injection. Pathologic conditions of the leptomeninges and the cerebrospinal fluid play an important part in the pathogenesis of epidemic poliomyelitis.

Journal-Lancet, Minneapolis

April 1, XXXIV, No. 7, pp. 175-200

- 69 *Cholecystitis and Factors that Control Results of Operations C. H. Mayo, Rochester.
- 70 Dangers of Carbohydrate Over-Feeding Especially with Starches. F. W. Schlutz, Minneapolis.
- 71 Induced Climacteric. F. E. Walker, Hot Springs, S. D.
- 72 Luetic Mediastinitis: Report of Five Cases. H. Z. Giffin, Rochester.
- 73 Rectal Elimination: Case-Reports. A. Kuhlmann, Melrose.
- 74 *Non-Papillary Benign Tumors of Bladder E. S. Judd, Rochester.

69. Abstracted in THE JOURNAL, January 24, p. 325.

74. Abstracted in THE JOURNAL, January 31, p. 405.

Lancet-Clinic, Cincinnati

March 28, CXI, No. 13, pp. 357-392

- 75 Congenital Tumors of Neck C. E. Caldwell, Cincinnati.
 - 76 Etiology of Pelvic Prolapse, Anatomically Considered. S. Stark, Cincinnati.
 - 77 Case of Roentgen Atrophic Dermatitis and Arsenic Keratosis M. Scholtz, Cincinnati.
- April 4, CXI, No. 14, pp. 393-418
- 78 Unrecognized Meningitis as Complication of Bezold's Mastoiditis. G. A. Hinnen, Cincinnati.
 - 79 Poisons. C. T. P. Fennel, Cincinnati.
 - 80 Eye Complications Following Small-Pox. L. D. Brose, Evansville, Ind.
 - 81 Mysticism of Past and Realisms of To-Day in Practice of Medicine. P. L. Gunkel, Dayton.
 - 82 Care of Tuberculous Patients. C. R. Holmes, Cincinnati.
 - 83 Emil Fischer's Theory of Substitution—John J. Abel's "Vivification." A. Rohde, Pittsburgh

Laryngoscope, St. Louis

March, XXIV, No. 3, pp. 161-240

- 84 Fixed Sources of Hemorrhage from Tonsillectomy and Its Absolute Control. J. L. Davis, Philadelphia.
- 85 Gateways of Cryptogenic Infection. Alveolar Processes. W. H. Haskin, New York.
- 86 Complete Bilateral Bony Occlusion of Both Nasal Choanae. A. O. Pfingst, Louisville, Ky.
- 87 Case of Purpura Hemorrhagica. E. B. Gleason, Philadelphia.
- 88 Supplemental Vicarious Menstruation Cured by Submucous Resection of Nasal Septum. W. T. Patton, New Orleans.
- 89 Removal from Esophagus by Means of an Esophagoscope of Plate of False Teeth Embedded for Eighteen Years. D. B. Kyle, Philadelphia.
- 90 Death of an Infant Caused by Fragment of Peanut in Left Lung. E. W. Carpenter, Greenville, S. C.
- 91 Barany's Theory of Cerebellar Localization: Diagnostic Value of Pointing Test in Cerebellar Abscess. P. D. Kerrison, New York.

- 92 Diagnosis and Treatment of Brain Abscess. W. Sharpe, New York.
- 93 Effect of Temperature on Endolymph. E. P. Fowler, New York.
- 94 Eleven Cases of Diphtheria and Pseudo-Diphtheria—Infection in Mastoid Wound. J. J. Thomson, New York.

Medical Record, New York

April 11, LXXXV, No. 645-690

- 95 *Phenomenon of Pathologic Antagonism: Its Relation to Diabetes Mellitus. H. S. Stark, New York.
- 96 *The Thymus. O. Lerch, New Orleans, La.
- 97 Cure of Habitual Constipation by Intraabdominal Use of Oil. W. F. Burrows, New York.
- 98 Practical Points in Surgery. F. E. Walker, Hot Springs, S. D.
- 99 *Liver Abscess. A. Jacoby, New York.
- 100 Internist and Seminal Vesiculitis. T. A. Kenefick, New York.

95. **Phenomenon of Pathologic Antagonism.**—The idea Stark intends to convey by the term "pathologic antagonism" is the tendency of a morbid process to come to a standstill or to disappear on the supervention of another. His interest in this subject arose from an observation of a number of unique and anomalous cases of diabetes mellitus in association with other disorders in which the glycosuria disappeared by reason of the complicating affection.

The cases considered are arranged in three groups, as follows: (a) those in which the glycosuria alternated with some other clinical symptom; (b) those in which the diabetes disappeared on the establishment of some other disease; (c) cases in which a chronic glycosuria disappears permanently after a surgical operation.

Group (a).—An example of this group is the following: A chronic glycosuria alternating twice in the same patient with urticaria, without any change of diet or medication. Another was a case in which a glycosuria alternated with the Wassermann reaction. Group (b).—As examples are cited the cessation of diabetes after an acute pneumonia, typhoid, dysentery, scarlatina and erysipelas. Group (c) concerns chronic glycosurias which disappear after a surgical operation. Examples are the following: The apparent cure of diabetes after an appendectomy, or after drainage of the bile ducts. Also after extirpation of uterine and ovarian tumors even of a malignant type.

96. **The Thymus.**—Lerch says he never examined a hysteric or neurasthenic patient in whom he did not find an enteroptosis. It is a condition especially suited to favor circulatory disturbances, frequently aggravated by a movable heart. The thymus shares in all of them, giving rise to pressure symptoms and to intoxication. Necessarily the cerebral circulation has to suffer and irritation of the centers, coupled with the congestion that exists in the abdominal organs and the anemia of the chest may well explain the various symptoms. The treatment bears out this view; that is, measures that influence the general circulation and restore its equilibrium benefit these patients most. The abdomen, usually pendulous, and the abdominal muscles relaxed, have to be restored to normal tone by suitable exercises, to insure an increase of intra-abdominal pressure. Contracted abdominal muscles secure, with the up and down movements of the diaphragm, especially during deep respiration, a thorough massage of the abdominal contents, and restore tone to vessels and aid the heart. Deep breathing is therefore indicated with exercises to strengthen these muscles. Muscular tissue cannot be made at short order, and these patients need, therefore, a substitute to give relief. A well-fitting bandage is the best for this purpose.

Rest in the recumbent posture is another important measure in the treatment of these cases. Only in the most severe cases is continued rest of use. Intermittent rest, one to two hours after the noonday meal, and an early bedtime, are usually sufficient to help restore these patients to health. The blood has to be kept in the upper portion of the body by heart force and muscular tone. The diet has to be regulated according to the climate and season, to the work the patient can still perform, whether he is fat or lean, young or old, affected with gastro-intestinal troubles or free from them. Fresh air is needed in these as in all other cases of sickness.

Organic diseases caused by the chronicity of the trouble or due to other causes has to be treated as in other cases. Thymus extract increases nervous symptoms. Surgery is indicated if medical treatment fails.

99. **Liver Abscess.**—Jacoby cites six cases. One case was due to mechanic injury, indirectly causing a contusion of the liver, and thus furnishing a point of lessened resistance to the action of bacteria. One case was due to the direct extension of the infection from a suppurating and gangrenous gall-bladder, the abscess being formed on the under surface of the liver. Two cases were due to dysentery. In one case autopsy confirmed the presence of the etiologic factor. In two cases no definite etiologic factor could be assigned.

Mississippi Medical Monthly, Vicksburg
April, XVIII, No. 12, pp. 227-240

- 101 Harmony in Profession. J. A. Davis, Dockery.
- 102 Mississippi Bureau of Vital Statistics. H. S. Capps, Gulfport.
- 103 Importance of Early Diagnosis in Uterine Cancer. S. W. Glass, Lyon.
- 104 Tuberculosis, the Physicians and Laity. H. Boswell, Jackson.
- 105 Influenza. J. O. Gurney, Tupelo.

New Jersey Medical Society Journal, Orange
April, XI, No. 4, pp. 163-216

- 106 Cancer Problem. T. S. Cullen, Baltimore.
- 107 Newer Standpoints in Diagnosis and Treatment of Anemia. K. M. Vogel, New York.
- 108 Gastric Ulcer. J. M. Cassidy, Jersey City.
- 109 Sero-Salvarsan Treatment of Paresis and Locomotor Ataxia. O. Lowry, Newark.
- 110 Nitrous Oxid and Oxygen in Prolonged Anesthesia. C. B. Kelley, Jersey City.

New Orleans Medical and Surgical Journal
April, LXVI, No. 10, pp. 707-784

- 111 Abdominal Gunshot Wounds: Report of Two Unusual Cases. L. H. Landry, New Orleans.
- 112 Drug Eruptions. I. Dyer, New Orleans.
- 113 Pellagra. P. Rayer, Paris.
- 114 *Urticaria—Experimental Lesion Produced by Local Application of Betaimidazolethylamin. Its Relation to Intestinal Toxemia. A. Eustis, New Orleans.

114. **Urticaria.**—In the treatment of urticaria Eustis says that the aim should be to prevent the putrefaction of histidin in the intestinal canal, and this can be prevented by not introducing any histidin, or when introduced by overcoming the tendency to intestinal stasis. This latter can best be overcome by an initial purgative. The following has given Eustis uniformly good results:

| | | | | |
|---|-------------------------------------|-------|-------------|---------|
| R | Hydrarg. chlor. mitis | ..... | gm. or c.c. | |
| | Phenolphthalein | ..... | 2 | gr. iij |
| | Pulv. rhei | ..... | 4 | |
| | M. et caps. No. iij | ..... | āā | gr. vj |
| | Sig.: One every half hour at night. | | | |

In the Charity Hospital accurate records have been kept of several hundred cases in which this combination has been given and the average time of the first stool has been eight hours after the last dose, with little or no nausea, and colic. As a rule, it is not necessary to give a saline afterward. Daily evacuations of the bowels should be seen to and this can be best accomplished by liquid alboline in 2 or 3-ounce doses, fig paste containing chopped-up senna leaves or agar-agar taken in oatmeal in the morning. However, by adding beets, celery, spinach and other articles of diet containing much cellulose to a diet such as outlined by Salomon consisting of tea, coffee, bouillon, lemon and grape juice, potatoes, rice, cereals and plenty of butter and sugar with 200 gms. of bread made of coarse flour and instructing the patients to observe regularity in emptying the bowels and also the taking of a glass of water on rising in the morning, the condition can easily be remedied by overcoming the intestinal toxemia. The intestinal toxemia can easily be judged by frequent examinations of the urine for indican and whenever present in more than a trace, protein food should be eliminated from the diet. A virulent culture of the *Bacillus bulgaricus* has also given good results.

New York Medical Journal

April 4, XCIX, No. 14, pp. 661-708

- 115 Modern Technic in Urethral Stricture. C. H. Chetwood, New York.
- 116 Advantages and Disadvantages of Quarantining Hospital Wards for Measles. E. E. Graham, Philadelphia.
- 117 Dreams. A. L. Benedict, Buffalo.
- 118 Mischief of Free Medical Service. W. S. Gottheil, New York.
- 119 Differential Diagnostic Value of Cyclic Indicanuria in Gastro-Intestinal Diseases. G. Baar, Carlsbad, Austria.

- 120 Contrast in Psychanalysis: Three Cases. T. A. Williams, Washington, D. C.
- 121 Retrourethral Cystoscopic Guide for External Urethrotomy. D. A. Sinclair, New York.
- 122 Roentgenography of Intestinal Tract. G. Rosenbaum, Philadelphia.
- 123 Affective Activity, Emotion, as Cause of Various Neurasthenic Bodily Diseases. G. E. Barnes, Herkimer.
April 11, XCIX, No. 15, pp. 709-760
- 124 Psychopathic Children. L. P. Clark, New York.
- 125 Internal Pachymeningitis in Young Children. A. Gordon, Philadelphia.
- 126 Hypertrophic Pyloric Stenosis in an Infant: Rammstedt's Operation. Case Report. H. Lilienthal, New York.
- 127 Toxemias in Genesis of Hyperthyroidism and Their Treatment. C. E. de M. Sajous, Philadelphia.
- 128 Sixteenth Century Paranoiae. G. E. Price, Philadelphia.
- 129 Plastic Operation for Restoration of Severed Vocal Cords; Permanent Thyroid Fistula Following Attempted Suicide with Razor. H. Smith, New York.
- 130 The "Why" of Obesity. F. M. Bell, Ottawa, Canada.
- 131 Dream Interpretation. H. Crenshaw, Atlanta, Ga.
- 132 Gum Camphor as Preservative for Urine. J. Rosenbloom, Pittsburgh.

Surgery, Gynecology and Obstetrics, Chicago

April, XVIII, No. 4, pp. 401-448

- 133 *Resection of Rectum for Cancer with Preservation of Sphincter. C. H. Mayo, Rochester, Minn.
- 134 *Carcinoma of Lower Lip; Its Diagnosis and Operative Treatment. J. C. Bloodgood, Baltimore.
- 135 *Operation of Gastrojejunostomy and Principles which Should Determine Its Use. H. J. Paterson, London.
- 136 Cholecystectomy vs. Cholecystostomy and Method of Overcoming Special Risks Attending Common Duct Operations. G. W. Crile, Cleveland.
- 137 *Bacteriologic Study of Fifty Cases of Non-Tuberculous Diseases of Bladder and Kidney. V. C. David, Chicago.
- 138 Treatment of Transplantable Rat Sarcoma by Fulguration. S. P. Beebe and E. V. N. Van Alstyne, New York.
- 139 Urinary Incontinence in Women, without Manifest Injury to Bladder. H. A. Kelly and W. M. Dumm, Baltimore.
- 140 Fibroid Tumors of Ovaries: Report of Case. W. D. Fullerton, Cleveland.
- 141 Mixed-Cell Tumors of Soft Palate: Report of Case. M. G. Sturgis, Seattle, Washington.
- 142 *Ascending Infection of Kidneys. J. E. Sweet and L. F. Stewart, Philadelphia.
- 143 Dental Disorders and Peridental Infections: Their Relation to Neighboring Organs. V. P. Blair, St. Louis.
- 144 *Primary Carcinoma of Liver in Childhood: Report of Case. O. L. Castle, Kansas City, Mo.
- 145 *Mobilization of Duodenum. A. H. Kanavel, Chicago.
- 146 *Pituitary Gland in Its Relation to Epilepsy. G. C. Johnston, Pittsburgh.
- 147 Product of Hospital. E. A. Codman, Boston.
- 148 Incrustations of Renal Pelvis and Ureter. Report of Four Cases. J. R. Caulk, St. Louis.
- 149 Gastric Sarcoma. Report of Case. H. J. Hartz, Philadelphia.
- 150 *Pathogenesis and Treatment of Hernia of Linea Alba. A. V. Moschcowitz, New York.
- 151 Arthrotomy of Hip. E. M. Corner, London.
- 152 *Treatment of Scoliosis. A. M. Forbes, Montreal.
- 153 *Uterine Endoscopy; Aid to Precision in Diagnosis of Intra-Uterine Disease. A. Heineberg, Philadelphia.
- 154 Laryngectomy Combined with Gastrostomy. F. Torek, New York.
- 155 Massive Roentgen Irradiation in Gynecology. H. Schmitz, Chicago.
- 156 Double Lever Instrument for Open Reduction of Fractures. F. H. Coerr, New York.
- 157 *Head Injuries. Some Conclusions. W. J. Anderson, Chicago.

133. Abstracted in THE JOURNAL, January 24, p. 328.

134. **Carcinoma of Lower Lip.**—Bloodgood's article is an analysis of about 200 cases. For the details the original should be consulted. Briefly, he says our experience shows that one should make the attempt at the radical removal of the lesion on the lip and glands of the neck at any stage of the disease whether the lesion is primary or recurrent. No necessary mutilation should be shunned. Every now and then one will accomplish cures in apparently desperate cases. This, however, is surgery as a last resort, and such surgery would not be necessary if patients were educated to seek advice early and if the profession were trained to perform the proper operation in this early stage. In fact, we have the evidence here to show that lesions of the lower lip properly excised within one month from their onset should result in almost 100 per cent. of cures. The failures to cure in this group of 200 cases are due not only to delay on part of the patient, but to bad treatment on part of the profession. These two evils can and should be corrected. It is really a very simple matter.

135. Abstracted in THE JOURNAL, Nov. 22, 1913, p. 1928.

137. **Non-Tuberculous Diseases of Bladder and Kidney.**—Attention is called by David to the varying morphologic and cultural characteristics of *B. coli* and allied organisms, and staphylococci found in infections of the bladder and kidney. Anaerobic organisms were present in 20 per cent. of the cases examined in which a growth was obtained and occurred four times in pure culture. Anaerobic organisms are described as follows: a very fine Gram-negative bacillus growing only on blood media; a Gram-negative pigment-producing bacillus, and associated with it a Gram-negative coccus, corresponding to no known described type, *Funduliformis*; *Staphylococcus parvulus*, and Gram-positive staphylococci.

142. **Ascending Infection of Kidneys.**—An extensive network of lymph-vessels and channels exists in the mucosa and submucosa in the external coats of the bladder and the ureters and in the entire structure of the kidney. This network in the ureter anastomoses freely with the lymphatics of the bladder at the one end and with the lymph apparatus of the kidney at the other end. An ascending infection travels through this lymphatic system, not through the lumen of the ureter. The blood-vessels can be excluded because the veins of the bladder and the veins of the ureter, for the greater part, open into the general venous system, not into the venous system of the kidney. The lumen of the ureter can be excluded, because if the lumen be open to infection, the infectious process is traceable in the lymphatic system, not along the mucosa of the ureter. If the lumen be closed to infection the process extends to the kidney in the usual way; if the lumen be open to infection, but the lymphatics not in contact with virulent infection, as when the ureter is passed through the pancreatic duct, there is no ascending infection; if the lumen be open but the continuity of the lymphatics be interrupted, infection does not ascend; and finally, if the kidney pelvis be directly connected with the gut, the general infection, characteristic of an ascending infection of the kidney, does not occur.

From the point of view of the practical surgeon it would seem that these results would be of service in the consideration of the possibilities of any infectious process involving the lower genito-urinary tract or the pelvic organs in general; certainly the cystoscopist must transfer his attention from the general question of cystitis to the particular one of the local lesions caused by the cystitis, their extent and location. The possibility of the effective local treatment of ulcerated processes of the bladder is also suggestive.

144. **Primary Carcinoma of Liver in Childhood.**—Castle's case was one of pedunculated primary parenchymatous adenocarcinoma of the liver in an infant 10½ months old. It is the first case reported in which complete surgical excision was done. There was a good surgical convalescence, with death sixteen days after operation from symptoms of acute enteritis. No post-mortem examination was made.

145. **Mobilization of Duodenum.**—Instead of the laborious and inexact method of palpation from above, Kanavel turns up the colon, nicks the peritoneum, separates the edges with the index-finger and raises the duodenum with the attached head of the pancreas from its bed. The entire head of the pancreas can be held in the hand and in case of doubt a section removed for microscopic examination. The duodenum can now be rolled up and the site of the entrance of the common gall-duct examined from behind. The mobilization and exposure is so free that in thin individuals, at least, a stone could be removed if it were thought advisable, although Kanavel has not had an opportunity to test it. In the obese, owing to the excessive retroperitoneal fat, the procedure is somewhat more difficult, although Kanavel has used it for examination with satisfaction.

A word of warning is given against violent traction or handling since it is well known that any extensive manipulation of the duodenum and pancreas is conducive to shock, possibly because of their close association with the sympathetic plexus. It has seemed to Kanavel that in the case in which he has exposed the duodenum in the manner the patients described have suffered more shock than is usual after a

laparotomy. After the examination is complete a single fine catgut suture closes the rent in the peritoneum.

146. Abstracted in THE JOURNAL, November 1, p. 1659.

150. **Hernia of Linea Alba.**—A small vertical incision is made by Moschcowitz over the center of the so-called hernia. The skin and subcutaneous fat are divided and retracted, thereby exposing a lump of fat. Search is now made for the blood-vessels coming through the hiatus, accompanied by a larger or smaller piece of fat, directly continuous with the fat of the falciform ligament. Usually it is found on the left side of the protrusion, and this vessel is caught and ligated. The fat is now teased apart in order to be absolutely convinced that there is no true sac. The shreds of fat are ligated to obviate a secondary hemorrhage. The ligatures are placed close to the bottom of the hole in the transversalis fascia. The stumps are pushed back into the hole and the latter closed with one or two stitches. Finally the skin is closed in the usual manner.

152. **Treatment of Scoliosis.**—Forbes advocates the rotation treatment for the physiologic reduction of the deformity of scoliosis. The practical application of this form of treatment is best carried out by rotating the patient by means of the arms toward the side of the convexity of the organic (if dorsal) deformity. This may be done while the lower extremities are flexed on an already flexed spine. This attitude is best procured in the recumbent position. Correction having been produced in this manner it must be maintained by the use of a plaster-of-Paris or celluloid jacket. If maintained for a sufficient length of time and under suitable conditions the law of Wolff can be depended on to assure correction of a deformity for the correction of which we are without knowledge of forcible means.

153. **Uterine Endoscopy.**—Heineberg has devised an instrument—the uteroscope or uterine endoscope—which enables one to explore the cavity of the uterus and carefully inspect the entire endometrium. It is not recommended as a panacea for all diagnostic ailments, but as an aid in determining the cause of some uterine diseases of obscure origin. Through its employment Heineberg believes it should be possible to distinguish, with a greater degree of certainty, such pathologic conditions as glandular hyperplasia, uterine polyps, retained products of conception, submucous fibroids and malignant tumors of the endometrium. The microscopic changes occurring in the mucosa during menstruation might also be observed in favorable cases. The uteroscope consists of an endoscopic tube, irrigating attachment and obturator lighting attachment as in Young's urethroscope.

157. **Head Injuries.**—It is Anderson's belief that the expectant plan of treatment for basal skull fracture is the best and that the only indication for decompression with a positive diagnosis of a straight basal fracture is that after the patient has been under observation with the coma and temperature the same the pulse is found to advance from 40, 60 or 80 to 120 or more. Spinal puncture, when used intelligently, accomplishes about as much as a decompression operation in basilar fractures.

Tennessee State Medical Association Journal, Nashville April, VI, No. 12, pp. 451-500

- 158 Gall-Calculus or Cholelithiasis. J. B. Haskins, Chattanooga.
- 159 Chronic Stenosis of Esophagus Due to Simple Inflammation. R. McKinney, Memphis.
- 160 Treatment of Tabes Dorsalis. A. W. Harris, Nashville.
- 161 Glaucoma. E. C. Ellett, Memphis.
- 162 Treatment of Renal, Ureteral and Vesical Calculi. W. T. Black, Memphis.
- 163 Roentgenograms Showing Bismuth Meal in Normal Individuals Two, Six and Eighteen Hours After Its Ingestion. J. H. Maury, Memphis.

Wisconsin Medical Journal, Milwaukee March, XII, No. 10, pp. 307-344

- 164 Acute Ileus—Consideration of Enterotomy and Enterostomy in Its Treatment. E. Quick, Milwaukee.
- 165 Two Cases of Otitic Brain Abscess Showing the Necessity of Early Mastoid Operation. F. Pfister, Milwaukee.
- 166 Multiple Tumors of Spinal Cord. Case Report. L. M. Warfield, Milwaukee.
- 167 Preoperative Treatment of Cardiovascular Disease by Home-Made Nauheim Method to Conserve the After-Lifetime. J. R. McDill, Milwaukee.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

March 28, I, No. 2778, pp. 693-744

- 1 *Systolic and Diastolic Blood-Pressure Estimation; Special Reference to Auditory Method. J. A. MacWilliam and G. S. Melvin.
- 2 Systolic and Diastolic Blood-Pressures in Aortic Regurgitation. J. R. Murray.
- 3 Three Cases of Pancreatic Cyst. H. B. Robinson.
- 4 *Renal Cyst Causing Chronic Intestinal Obstruction. E. C. Bevers.
- 5 *Subcutaneous Injections of Emetine in Pulmonary Tuberculosis. J. S. Raeburn.
- 6 Economical Treatment of Inebriates. A. M. Rosebrugh.
- 7 Hygienic Aspect of Coal-Mining Industry in United Kingdom. F. Shufflebotham.

1. **Systolic and Diastolic Blood-Pressure Estimation.**—The auditory method, first suggested by Korotkoff of St. Petersburg in 1905, is endorsed by the authors, as far as systolic pressure is concerned. The chief advantages of the auditory method is that the sense of hearing is substituted for the somewhat more fallible tactile sense. The simplicity, ease, and rapidity of this method are strong points in its favor. It gives all the information that is to be obtained by more cumbersome and time-consuming methods, and that with greater precision, the index being a much sharper one than is present in other methods; it also causes less disturbances to the patient than slower methods, which involve a longer compression with the armlet. It is greatly superior to the palpatory and sphygmographic methods that have been proposed. The authors are convinced that all the evidence as to diastolic pressure gained by the other methods, and much more also, can be better obtained by the quick and simple auditory method. The diastolic estimation in this way is as easy as that of systolic pressure, and is relatively little, if at all, complicated by certain sources of fallacy (for example, state of arterial wall) which may come into question in systolic estimation.

4. **Chronic Obstruction Caused by Renal Cyst.**—The interest of Bevers' case lies first in the difficulty of diagnosis. The swelling appeared to be cystic and to have a point of attachment in the left lumbar region. The diagnosis made before operation was that of a mesenteric cyst, and even when the abdomen was opened this was the impression given: it was only when the left kidney came into view that the true nature of the case became clear. A renal condition had not been considered, as there was no swelling or resistance in the left loin and the latter area was resonant; also the extreme mobility of the tumor and its obvious intraperitoneal nature seemed opposed to a condition connected with the kidney.

The second point of interest in this case is the chronic intestinal obstruction produced. This, was brought in two ways; in the first place, the splenic flexure of the colon was constricted where it passed round the neck of the cyst, and in the second place, the heavy cyst itself was pressing on the descending colon.

5. **Subcutaneous Injections of Emetine in Phthisis.**—While Raeburn does not consider that the emetine has any effect on the tubercle bacillus he believes it is a valuable addition to our weapons for reducing congestive conditions in the lungs, and that, therefore, it is both a preventive and curative agent in tuberculosis. He uses ampoules, which contain $\frac{1}{2}$ gram of emetine in 15 minims of distilled water. By diluting this in four parts of water, 1 minim equals 0.04 eg., and Raeburn has come to consider 4 minims of this dilution a suitable dose to give when the object is to control expectoration or lessen congestion.

Raeburn confined himself to cases of hemorrhage. Some of the cases in which he used it had only slight and occasional hemorrhage but copious expectoration, and it was observed that not only did all traces of blood disappear from the sputum, but that the sputum itself decreased or ceased. This observation induced Raeburn to employ the drug in some cases of copious expectoration alone and the results have been sufficiently striking to justify his mentioning them to the profession, in the hope that others will be induced to further

investigate the properties of emetine in relation to its effects on congestive and inflammatory conditions of the lungs. He has now used it in over forty cases, and has endeavored to note its effect both on hemorrhage and on expectoration.

Dublin Journal of Medical Science

March, III, No. 507, pp. 161-240

- 8 Lacerations of Perineum and Their Treatment. E. H. Tweedy.
- 9 Fatality after Salvarsan. G. E. Nesbitt.
- 10 Case of Fatal Anemia. G. Peacocke.

Indian Medical Gazette, Calcutta

March, XLIX, No. 3, pp. 85-128

- 11 Emetine and Treatment of Amebic Dysentery and Hepatitis Including Liver Abscess. L. Rogers.
- 12 *Series of 101 Cases of Abscess of Liver. E. O. Thurston.
- 13 Operative Treatment of Hepatic Abscess. E. A. R. Newman.
- 14 *Emetine and Liver Abscess. A. H. Nott.
- 15 Emetine in Amebic Dysentery. D. Munro.
- 16 Amebic Dysentery in Darjeeling District and Its Treatment. C. Baldwin.
- 17 *Treatment of Liver Abscess. J. D. Sandes.
- 18 *Emetine and Ipecacuanha: Their Amebicidal Value in Pathogenic Amebiasis. R. M. Carter.
- 19 Emetine in Hepatitis and Amebic Abscesses of Liver and Spleen. K. K. Chatterji.
- 20 *Experience in Use of Emetine in Treatment of Amebic Dysentery. A. Whitmore.
- 21 Emetine Treatment of Dysentery and Allied Liver Conditions in Kathiawar. A. Hooton.
- 22 Employment of Emetine in Dharwar District. C. T. Hudson.
- 23 Three Cases of Dysentery Treated with Emetine. E. C. G. Maddock.

12. **Abscess of Liver.**—Of 35 patients with liver abscess treated by Thurston with ipecacuanha, 21 were only aspirated: of these 17 were cured, four died. Five patients were treated by aspiration followed by drainage; of these 3 were cured and 2 died. Nine were treated by drainage alone; among them 5 were cured and 4 died. The results are therefore largely in favor of aspiration alone. Of 32 patients treated with emetine, 27 were subjected to aspiration alone; of these 20 recovered and 7 died; 2 were dealt with by aspiration followed by drainage; 1 patient was cured, the other died. Patients treated by drainage alone were 3; of these all recovered; these were all abnormal cases. Adding together these two series of cases, we get for aspiration alone a total of 48 cases, of which 37 patients were cured and 11 died, i. e., a percentage mortality of 23 per cent. For aspiration, plus drainage 7 cases with a mortality of 3, i. e., 43 per cent. Of 12 cases treated by drainage alone, 4 died, a mortality of 33 per cent., a verdict very much in favor of aspiration alone.

As to the value of the injection of quinin solution into the abscess cavity, 14 patients were treated by this method; of these 11 were cured and 3 died, or a percentage of 78.57 per cent. and 21.42 per cent., respectively. Cases without quinin numbered 33 with 25 cures and 8 deaths, a relative percentage of 75.7 per cent. and 24.3 per cent. Thurston's impression is that cases treated with quinin were more likely to require a second aspiration. His present practice is to inject a grain of emetine hypodermically immediately after the aspiration. At this time there is presumably a flow of serum, etc., toward the abscess cavity owing to the loss of pressure produced by the removal of the pus and the emetine is more likely to attack the young and active amebae in the advancing wall of the abscess which are a more important factor than those on the inner side.

Thurston urges to aspirate repeatedly in preference to drainage, and if an abscess is almost pointing do not aspirate there, for leakage will probably take place through the puncture, with the almost certainty of another infection being added. In cases in which one has eventually to drain, make a small incision through which a portion of a long rubber tube is inserted and then closely stitched to the skin incision. The other end of the tube is placed in a bottle filled with lotion by the side of the bed and the pus will then syphon over and there is very much less risk of septic infection. No special apparatus is at all necessary. In cases of doubtful diagnosis when a liver abscess has been opened by mistake Thurston has recently been scrubbing out the cavity with gauze and then suturing completely; all the cases so treated broke down after healing by first intention, but the cure was certainly hastened.

14. Emetine and Liver Abscess.—In Nott's opinion aspiration is called for in that very serious class of large acute liver abscesses with acute dysenteric symptoms and grave general depression and the earlier this is performed the better. He is convinced that drainage with excision of a portion of a rib in this class of case is a very fatal procedure. He advocates repeated aspirations with the exhibition of emetine both subcutaneously and into the cavity of the abscess after aspiration, though probably the former alone is equally efficacious and more certain. This procedure in some cases will be sufficient to bring about recovery, in others it will enable the general strength to be recuperated, the fever to largely subside and it may be possible after several aspirations to drain by the open method with some chance of success.

For large single abscesses of a less acute character seen in a later stage and in patients in reasonable condition, Nott would aspirate at least once, but thinks that under good conditions as regards maintenance of asepsis there is a good deal to be said for immediate incision and drainage. For smaller superficial abscesses such as those met with in the left lobe of the liver, if diagnosed in an early stage he would aspirate, in a later stage when the skin is involved he would incise.

17. Treatment in Liver Abscess.—Aspiration is Sandes' method of choice and he says should always be attempted even in apparently desperate cases. The puncture should be made in the posterior axillary line as high up as possible. No general anesthetic should be given and 1 grain of emetine should be injected hypodermically while the patient is in the operating-room. Incision and drainage should be performed for the abscesses of the left lobe and abscesses that are pointing, particularly if there is no great general enlargement of the liver. Free drainage by large rubber tubes should be provided. A combination of these methods is indicated when aspiration has not effected a cure.

18. Emetine and Ipecacuanha.—Carter's experience of abscess formation in amebic hepatitis leads him to consider it advisable always to suspect all cases of chronic pyrexia of uncertain origin with leukocytosis occurring in the tropics as being of the nature of amebic hepatitis and to treat them accordingly. By emetine treatment he considers it is possible not only to cure amebic dysentery giving rise to liver abscess via amebic hepatitis, but to check abscess formation in its earliest stages.

He finds on the other hand, that once a liver abscess has formed, the value of emetine has ceased and operative measures are alone sufficient. He has not noticed any marked curative acceleration of the condition of an amebic abscess after drainage due to amebicidal action of the alkaloid. In such cases, however, he occasionally administers emetine alone where there is any difficulty in drainage of the wound, to prevent amebal invasion of the external wound that rarely occurs.

Emetine treatment being a more rigorous and scientific administration of the specific amebicide, tends to diminish the number of ameba carriers in a community. If the drug is administered in the early stage of pathogenic amebiasis in sufficiently lethal doses it has a high economic value to the state, reducing the further incidence of amebiasis.

In a series of 150, the average total dosage of emetine to cure a case was $3\frac{1}{2}$ grains and 2 grains, respectively. Of the patients that died, the average duration of the disease before the patient sought hospital treatment was forty-four and one-half days. The average total emetine given before death was $4\frac{1}{4}$ grains. The dose varied from $\frac{1}{2}$ grain per diem to 1 grain per diem. All patients received pulv. ipecac. 15 to 30 grains three times a day in salol-coated pills; these were given half an hour after taking 15 to 20 minim of tinct. opii. Other drugs used were bismuth salicylate, bismuth subnitrate given in conjunction with tannic acid and catechu.

20. Emetine in Dysentery.—In the thirty-four cases with which Whitmore's paper deals the treatment adopted has been injection of emetine, generally in $\frac{1}{2}$ -grain doses twice a day, until the stools are reduced in frequency to two or three in twenty-four hours, and are free from mucus and blood; so that on a careful microscopic examination the stools appear to be normal, soft stools, save perhaps for some undigested food material.

In the majority of the thirty-four cases acute dysenteric symptoms have ceased and the stools assumed a normal character after four or at the most five days of hypodermic emetine treatment. For the rest of their stay in hospital the patients are given small doses (grains x to xv) or pulv. ipecac., twice or three times a day, unless treatment for some other disease such as malaria is required.

Lancet, London

March 28, I, No. 4726, pp. 877-946

- 24 *Physiology and Pathology of Uterine Hemorrhage. H. B. Whitehouse.
- 25 Anesthetics and Diagnosis. J. Blumfeld.
- 26 *Operations for Hemorrhoids: Review of 850 Cases. A. Neve.
- 27 Effects of Drinking-Water on Causation of Dental Caries in Schoolchildren. J. B. Cook.
- 28 Case of Malarial Coma Lasting Forty-Six Hours: Recovery. A. G. Tresidder.

24. Uterine Hemorrhage.—The experiments by Whitehouse appear to show that the uterine secretion in rabbits, at least, is under the control of the ovaries both as to amount and physiologic action. The normal secretion apparently aids coagulation of the blood—a point of interest when it is remembered that proestrus in this animal is not associated, as a rule, with external hemorrhage. The secretion also appears to stimulate estrus. Bond's experiments have shown that when the fluid is pent up, as in artificial hydrometra, estrus is frequent and prolonged, and his investigations tend to confirm Bond's observations. It appears possible, therefore, that uterine secretion, stimulated and controlled by an ovarian hormone, is partly absorbed and produces that dilatation of vessels which is characteristic of the late stages of proestrus and immediately precedes estrus. Whether this is the case with the human female, Whitehouse says it is only possible to surmise, but with the close analogy of menstruation to proestrus it is certainly possible. At the same time, clinical experience has shown that a period of estrus or sexual desire may occur in human species quite independently of both uterus and ovaries, as is the case when these organs have been removed singly or together at an early period of married life.

Concerning heterogeneous extracts prepared from the uterine endometrium and from the ovarian stroma and corpus luteum Whitehouse has been unable to satisfy himself that these have any effect in stimulating the onset of estrus or in accelerating menstruation. In six women who received intramuscular injections of these extracts during the premenstrual period, no alteration was noted either in the duration of the cycle or length of the actual menstrual period. Whitehouse is convinced, however, that there is ample evidence available to show that normal proestrus and menstruation are under the control of the ovary and its associated endocrine glands.

26. Operation for Hemorrhoids.—Comparing the three chief methods of operations Neve considers that the clamp is suited for all cases but that the very slight and pedunculated cases are as well treated by ligature, excision and suture. His experience of Whitehead's method is limited to twenty cases. He has no use for it. He says it is obviously only needed in the more severe cases with piles all round the circle. In his last 500 cases many very severe and affecting the whole pile-bearing area, he has failed to see one which could not be adequately treated by the clamp and cautery. He emphasizes the importance of the following details: The anus should be very thoroughly dilated and this should occupy at least four minutes by the clock. Each pile should be gripped with a suitable catch forceps and drawn down and out by an assistant. Beginning at the top pile the clamp is applied and screwed very tight. If there are only two or three not bulky piles it is applied with the blades longitudinal to the rectum—gripping high up the pedicle, crushing into a line or strip $1\frac{1}{2}$ inches long, then cutting off with curved scissors and very thoroughly cauterizing with the actual cautery, used almost, but not quite red hot. Each pile should take at least two minutes to crush and burn. After the clamp is released care should be taken not to drag on the wound and pull it open. If piles are protruding and inflamed or thrombosed it is often practicable to apply the clamp parallel to the anus, thus bringing the rectum down into apposition with the margin. If the piles are

mmnerous and large, Neve prefers to crush some in a longitudinal and the alternate ones in a horizontal direction so as to prevent the contraction and yet remove efficiently. The parts are then gently pressed up. At night in perhaps 10 per cent. of the cases the catheter is required, but almost never subsequently. On the fourth day a dose of castor oil is administered.

Annales de Médecine et Chirurgie Infantiles, Paris

March 15, XVIII, No. 6, pp. 177-212

- 29 Need of "Social Service." (A propos de dépopulation.) E. Périer.
30 Paratyphoid Bacillus Infection in Infant. L. Lagane.
31 *Neosalvarsan for Infants with Inherited Syphilis. (100 injections par les veines jugulaires et épieraniennes chez des nourrissons et des enfants du premier âge, appliquées au traitement de la syphilis héréditaire.) G. Blechmann.
32 Correction of Undescended Testicle. (Orchidopexie crurale dans le traitement chirurgical de l'ectopie testiculaire inguinale.) M. Ayguesparse.

31. Intravenous Treatment of Inherited Syphilis in Infants.

—Blechmann reports that injections of a solution of neosalvarsan into the jugular or temporal veins are easily made, even on small infants, and have a remarkable curative action. He injects less than 0.01 gm. per kilogram at first and gradually increases to a final dose of 0.01 gm., making the injections at intervals of one or two weeks, in series of five or seven injections, then suspending them for a period of six or seven weeks and then commencing anew. In nearly all infants the external jugular vein is prominent, especially during inspiration and when the child cries. The veins in the scalp, particularly the temporal veins, are unusually prominent with inherited syphilis and can be utilized for the injection, but are less convenient. He has made a hundred such injections and all without by-effects, except in one instance a syncopal condition developed at the second injection, but the child rapidly recovered under camphorated oil and epinephrin and showed no further ill effects. He has never found it necessary to expose the vein for the purpose. He says of the curative effect that it was remarkably successful.

Archives des Maladies de l'Appareil Digestif, Paris

February, VIII, No. 2, pp. 61-120

- 33 *Study of Movements of Intestines by Perfusion with Locke's Fluid. R. Glénard.
34 Paroxysmal Total Contraction of Stomach; Part of Contents Flung into Esophagus and Vomited or Not at Will; Cancerous Pyloric Stenosis Found at Operation. A. Mathieu.

33. Study of Isolated Perfused Intestine.—Glénard gives an illustrated description of the technic with which he isolates the small intestine in rabbits and keeps it functioning apparently normally by forcing Locke's fluid continuously through its vessels. The bowel keeps functioning for several hours and its movements can be recorded by the moving picture apparatus and its behavior under the influence of various physical, chemical and other factors, applied to the peritoneal surface or the lumen or in the circulating fluid. Conditions seem to be approximately normal except that the movements proceed faster than usual, probably owing to the absence of inhibiting influences. Most purgatives proved equally efficient whether they were deposited in the lumen of the bowel or injected into the circulating fluid; magnesium sulphate seemed to paralyze the bowel.

Archives de Médecine des Enfants, Paris

March, XVII, No. 3, pp. 161-240

- 35 *Evolution of Surgical Tuberculosis in Infants. Froelich.
36 Vaccination against Scarlet Fever. M. de Biehler.
37 Vulvovaginitis in Children. J. Comby.

35. Surgical Tuberculosis in Infants.—Froelich remarks that in general surgical tuberculous processes develop in infants about the same as in older children, but they have a few special features, especially a tendency to hypertrophy in bone and joint affections, and the process opens and sloughs off unusually early. The fistula period is very short. In infants the process is frequently in the shaft of the bone, while in older children the epiphysis is almost invariably attacked. When the hip-joint is involved, dislocation occurs early in infants. In the knee and occasionally in the elbow an acute form of tuberculous arthritis may develop in infants; it runs a rapid course and heals soon after evacuation of the pns, leaving very little stiffness. When an infant has a surgical tuber-

culous process in the bones, it often affects several bones at once, but this does not seem to render the prognosis graver.

In differentiation the main point is to exclude syphilis and the staphylococcus. The lesions heal more rapidly and in greater number as the infants grow older; the mortality is about 10 per cent. Tuberculous lymph-nodes run an acute course and leave scarcely any trace. Tuberculous processes in the viscera and peritoneum run the same grave course as in older children. Under other conditions the tendency to spontaneous healing should render the surgeon conservative in his treatment much more so than in older children. The testicle is so often the seat of a tuberculous process that this may be regarded as a special privilege of infancy. The entire gland may be invaded but the prostate escapes.

Presse Médicale, Paris

March 14, XXII, No. 21, pp. 201-212

- 38 Leprosy in Rats. E. Marchoux.
39 Diagnosis of Leprosy. L. M. Pautrier.
40 Syphilis as Factor in Disease of Aorta. (Du rôle étiologique de la syphilis dans les aortites chroniques avec ou sans insuffisance aortique et dans la néphrite hydrurique.) C. Lian and A. Vernes.

March 18, No. 22, pp. 213-220

- 41 History and Clinical Experience of Kala Azar. C. Nicolle.
42 Abbott's Method of Treating Curvature of the Spine. J. Calve.

March 21, No. 23, pp. 221-228

- 43 Deformities and Rachitis in Rabbits Born of Thyroidectomized Parents. (Rachitisme et dystrophies osseuses observés chez de jeunes animaux nés de procréateurs éthyroïdés.) H. Claude and J. Rouillard.
44 Organ-Cell Producing Property of Cancer Cells. (Puissance organogénique de la cellule cancéreuse.) M. Letulle.

Revue de Gynécologie, Paris

February, XXII, No. 2, pp. 81-160

- 45 *Present Status of Hysteropexy. (Les hystéropexies actuelles et le lieu d'élection pour le passage intrapariétal des ligaments ronds dans l'opération de Doléris.) G. Rouhier.
46 Aberrant and Remote Fibromas Originating in the Uterus; Two Cases. Goullioud.

45. Fixation of the Uterus.—Rouhier protests against all methods which fasten the uterus directly, or which are applied without having the abdomen open before one. He says that the principle of transperitoneal fixation of the round ligaments is superior to all others, but cases are on record in which this principle, applied according to Doléris' technic, entailed sudden hemorrhage or strangulation of the bowel. Analysis of the case shows, however, that the trouble is due to the method having been applied in the face of contra-indications such as genital prolapse. Study of conditions on the cadaver and at operations has shown that all such by-effects can be avoided by drawing the round ligaments through the space between the two tendons of the rectus below. It is easily found and it is plugged by adipose tissue which readily yields to the transfixing forceps. At this point there are no vessels to be injured; it is best reached through a transverse suprapubic incision.

Berliner klinische Wochenschrift

March 16, LI, No. 11, pp. 481-532. Ehrlich-Behring Number.

- 47 *Medicine and Science. C. Richet.
48 Reminiscences of Introduction of Antitoxin. O. Heubner.
49 Student Days with William Welch. (Lebenserinnerungen aus dem Breslauer Sommersemester 1877.) C. J. Salomonsen.
50 Is Smoking Harmful? (Ist das Rauchen schädlich?) P. K. Pel.
51 *Treatment of Syphilis. E. Lesser and von Zeissl.
52 Free Lipoids Demonstrated in Serums by Activation with Cobra Venom, Especially in Tuberculosis. A. Calmette.
53 Lipoids as Factor in Coagulation of the Blood. J. Bordet and L. Delange.
54 Metachromatic Bodies in Acid-Resistant Bacilli. V. Babes.
55 Transformation of Diphtheria Bacilli. P. H. Römer.
56 Epidemiology and Pathology of Poliomyelitis. S. Flexner.
57 Present Condition of a Two-Years' Old Strain of Connective Tissue. A. Carrel.
58 Application of Certain Cultivation Methods to the Study of Infectious Diseases. H. Noguchi.
59 The Lack of Stability of Conditional Reflexes. (Die bes. Labilität der inneren Hemmung bedingter Reflexe.) J. P. Pawlow.
60 Roentgenotherapy of Rhinoscleroma. (Ein mit Vaccin erfolglos behandelter und durch Anwendung physikalischer Behandlungsmethoden gebesserter Fall von Scleroma respiratorium der Nase und des Rachens.) H. Mestscherski and F. Grintschar.
61 Parotitis Secondary to Gastric Ulcer. (Akute Entzündung der Ohrspeicheldrüse im Anschluss an Unterleibsaffektionen.) S. Laache.
62 *Presenile Involution of Mammary Gland. E. Hedinger.
63 Pathogenesis of Urticaria. J. Jadassohn and L. Rothe.
64 *Pains from Compression of Nerves by Varicose Veins. (Phlebogene Schmerzen.) L. Edinger.

- 65 *Vaccination against Tuberculosis. (La vaccinazione preventiva per immunizzare l'uomo contro la tubercolosi.) E. Maragliano.
- 66 Substance Causing Wassermann Reaction a Product of the Lymphocytes. A. v. Wassermann and C. Lange.
March 23, No. 12, pp. 533-580
- 67 *Salvarsan Alone in Treatment of Syphilis. (Reine Salvarsantherapie.) W. Wechsellmann.
- 68 *Fundamental Problems in Treatment of Syphilis. A. Blaschko.
- 69 Modern Treatment of Recently Acquired Syphilis. F. Bodländer.
- 70 The Breslau Epidemic of Infectious Erythema. L. Tobler.
- 71 *Splenectomy in Pernicious Anemia. F. Port.
- 72 Operative Treatment of Paralysis. (Zur Lähmungstherapie.) G. A. Wollenberg.
- 73 *Kidney Disease and Tuberculosis. (Nierenkrankheiten und Tuberkulose.) W. Karo.
- 74 New Hemoglobin Scale. (Hämoglobinbestimmungsmethoden.) N. L. Petersen.

47. **Medicine and Science.**—In congratulating Ehrlich on his sixtieth birthday Richet remarks that the philosophical conclusion that can be drawn from Ehrlich's work is the necessity for medicine to depend on the experimental sciences to make progress. The clinic in the special case always has the last word. The physician, the surgeon, the obstetrician, the ophthalmologist have no right to neglect what old empiricism has taught them and what they learned under their professors. But if they want to do still better, unearth some new truth or discover some new remedy, they must interrogate living nature and get experiences outside of their clinical practice.

51. **Syphilis.**—Lesser recalls that it is only eleven years since syphilis was first transmitted to animals, and only nine years since the causal germ was discovered, then the Wassermann reaction and then salvarsan four years ago. Medicine has no other such a seven-year record in its entire history. We are able now, he says, to abort the disease and to determine with the Wassermann reaction when the cure is complete. By curing it up quicker the infection of others is prevented and thus we have advanced a long way toward the goal of eradicating the disease. He says of Mentberger's compilation of eighty-seven deaths for which salvarsan seemed to be directly responsible, that this is a very small number in comparison to the thousands who have been treated with salvarsan, even admitting that not all of the fatalities have been published. In these cases, neither the phase of the syphilis nor the constitution of the patients nor the dose of the salvarsan has thrown any light on the fatality, and we are still entirely in the dark as to the cause of the fatal outcome. Two in the list did not have syphilis, and in 33.3 per cent. the fatality followed the first injection of salvarsan so there could not have been any cumulative action. He further emphasizes that defective technic can also be positively excluded. He had a patient present the same train of symptoms, paresthesia, headache, vomiting, convulsions and coma, but venesection and repeated infusion and enemas of salt solution tided him past the danger point and he recovered. He advises saline infusion in all cases showing even slight disturbance after salvarsan. Milian has reported benefit from epinephrin injected subcutaneously when there were symptoms suggesting pressure on the brain after salvarsan. Mentberger's compilation included a further group of 187 fatalities in which salvarsan was only the indirect or immediate cause. Thirty-nine of the patients were non-syphilitic; in some of the others there was an excessive reaction in some vital organ affected by the syphilis.

Von Zeissl has never had any mishaps in his experience with 1,000 patients treated with salvarsan, and ascribes this to his careful preliminary examination of the entire body, especially heart, kidneys, liver and fundus of the eye, refraining from giving salvarsan if anything is found wrong outside of the syphilis. He graduates the dose to the age, sex and weight, and keeps the patient in bed for a day or two afterward, regulating the diet to permit nothing incompatible with arsenic. The interval between injections should never be less than eight days and the patients should be kept under conscientious supervision for two or three years. He always dissolves the salvarsan in distilled water and prepares it as short a time as possible before it is administered. Another point on which he insists is that mercury and salvarsan should never be given at the same time. As an illustration of the necessity for discrimination in selecting patients for treatment with salvarsan, he says a certain woman was impatient to be relieved of a papulous

syphilid which was yielding very slowly to mercurial injections. She insisted on being given salvarsan, but von Zeissl temporized and refused, telling her that she was too much debilitated, ordering a course of tonics, promising to give her the salvarsan as soon as she had gained in weight. An hour later she developed fatal hemiplegia.

62. **Presenile Involution of the Breast.**—Hedinger reports five cases in which the breast was removed on account of chronic local pain, and nothing was found to explain it except signs of presenile involution.

64. **Neuralgia from Hidden Varicose Veins.**—Edinger reports three cases in which sciatica or rheumatism had been diagnosed from the chronic pain, but years of treatment had failed to relieve the pain. Then treatment was applied on the assumption that the nerve was suffering from pressure from some enlarged vein, and benefit was at once apparent. An elastic stocking gave the desired relief, with or without first lifting the leg to expel the blood.

65. **Vaccination against Tuberculosis.**—Maragliano here brings down to date his report of his work in this line which has been repeatedly mentioned in THE JOURNAL. He says that the technic and method in general is exactly like that of vaccination against small-pox, and that years of experience have demonstrated its harmlessness, while prolonged control of the vaccinated has proven its efficacy. They were vaccinated because their environment exposed them particularly to infection, and none of 465 traced to date has developed tuberculosis. The Maragliano method was discussed at the Tuberculosis Congress at Washington, as reported in THE JOURNAL, Oct. 7, 1908, p. 1360.

67-68. **Salvarsan Alone in Syphilis.**—Wechsellmann remarks that the last four years have brought us farther on the road to the complete cure of syphilis than four centuries of mercury, and he now discards the latter altogether, pinning his faith to salvarsan alone, as already mentioned editorially, p. 1175. He describes the present condition of some of the first patients to whom he gave salvarsan treatment; everything seems to indicate that they are permanently cured. Blaschko discusses a number of important phases of the syphilis problem and states that we must now devote all our energies to perfecting the diagnosis of syphilis in the very earliest stages so that we can nip it in the bud, and also perfect our clinical, serologic and chemical knowledge so that we can recognize the slightest signs of a syphilitic affection in any organ and, last but not least, keep scrupulously exact case-histories regarding the effect of the various measures applied in treatment. This is a long and tedious task, but it is the only way to be sure.

71. **Splenectomy in Pernicious Anemia.**—Port's patient was a man of 31 whose blood had the typical features of the pernicious type even between the exacerbations. The spleen was removed and although there had been considerable loss of blood, it weighed 432 gm. Improvement followed until now, three months later, the hemoglobin is 77 per cent., the reds number 3,556,000, and the leukocytes 9,500, while there are not many Jolly bodies; at first they were extremely numerous.

73. **Tuberculosis of the Kidneys.**—Karo cites statistics to show that the kidneys become involved in fully 50 or 53 per cent. of the cases of tuberculous foci elsewhere, while tuberculosis is often an important factor in amyloid degeneration of the kidneys. When amyloid degeneration develops in the course of tuberculosis elsewhere, the prognosis is absolutely bad. The same may be said of any involvement of the kidneys with acute or subacute general miliary tuberculosis. Even when all the symptoms have subsided and the patient is apparently completely cured, the kidney trouble may flare up again and prove speedily fatal. It is still a question whether tubercle bacilli can be eliminated through a sound kidney.

Deutsche medizinische Wochenschrift, Berlin

March 19, XL, No. 12, pp. 577-624

- 75 Dilatation of the Aorta in Heller-Dochle's Aortitis. F. Kraus.
- 76 Tuberculosis and Gold Cantharidin. G. Spiess and A. Feldt.
- 77 Vaccination against Diphtheria. (Prophylaxe der Diphtherie nach v. Behring.) J. Bauer.
- 78 Influence of Weak Electric Current on Rat and Mouse Cancer. Seyderhelm.

- 79 *Sterilization of the Mouth with Ultraviolet Rays. E. Friedberger and E. Shioji.
80 *The Meistagmin Reaction. R. Roosen and N. Blumenthal.
81 *Serodiagnosis of Cancer and Tuberculosis. (A. R. bei Karzinom und Tuberculose.) E. Fränkel. (Epiphaninreaktion bei Krebskranken.) E. Jozsa and M. Tokeoka.
82 Tubercle Bacilli in the Blood of no Diagnostic Import. Baetge.
83 Diphtheria Bacilli May Penetrate All the Organs. Liedtke and Völckel.
84 History of Antitoxin Treatment of Diphtheria. (Wandlungen der spezifischen Bekämpfung der Diphtherie.) W. G. Ruppel. Commenced in No. 11.
85 Nasal Diphtheria in Infants. (Klinische Bewertung der Bakterientypen bei Nasendiphtherie.) W. Buttermilch.
86 Saponin in the Blood Serum. (Unbekannte Substanz im Blutserum des Menschen und einiger Tiere.) W. Frieboes.

79. **Disinfection of the Mouth with Ultraviolet Rays.**—Friedberger and Shioji report research which confirms the strong bactericidal action of the ultraviolet rays. With them it is possible to sterilize vaccine so that no chemical disinfectant is required. When applied inside the mouth of a rabbit previously infected with various germs, the germs were rapidly killed. It is possible, they suggest, that this method might prove a means to eradicate diphtheria bacilli from the throats of chronic carriers, also to sterilize the throat, teeth or vagina.

80. **The Meistagmin Reaction.**—This test was applied in a total of 168 cases and it elicited a positive response in 98 per cent. of the cancer cases, but a number of other affections gave a positive response also. This shows that while a negative response is strong evidence against carcinoma (not sarcoma), positive findings do not testify conclusively to cancer.

81. **Serodiagnosis of Cancer and Tuberculosis.**—Fränkel writes from the cancer research institute at Heidelberg to state that neither with cancer nor with tuberculosis were reliable results obtained with Abderhalden's method of serodiagnosis. Jozsa and Tokeoka state that in their application of the epiphanin test to seventy-two different serums, positive findings were obtained in 81.5 per cent. of the cancer cases while it was overwhelmingly negative in the non-malignant cases. The principle of the test was described in THE JOURNAL, 1913, lxi, 788.

Deutsche Zeitschrift für Chirurgie, Leipsic

February, CXXVII, Nos. 1-2, pp. 1-208

- 87 *Disease of the Lymphatic Vessels. (Die Lymphstauung und ihre Produkte.) H. Gross.
88 *Treatment of Granulating Wounds with Hot Air. (Die Behandlung granulierender Wundflächen mit getrockneter Luft: Siccor-Apparat von R. Kutner.) H. Poth.
89 Complete Restoration of Clavicle with Bone Flap. (Vollständige Wiederherstellung des Schlüsselbeins mit Hilfe der freien Knochenplastik.) S. F. Tschisch.

87. **Disease of the Lymphatic Vessels.**—Gross' article on lymph stasis and its products fills 168 pages. He regards lymph cysts and chyle cysts as well as lymphectasia of any kind as the local product of a general overloading of the blood-system. His compilation of 120 cases shows such a coincidence of various cardiovascular disturbances that it is impossible to accept the association as casual. When the circulation is impeded from any cause, especially when the blood-vessels are abnormally narrow, the lymphatics are called on to relieve the over-filled venous system, and the lymphatics stretch under the influence of the wave of blood that rushes into them and forces back the lymph.

88. **Hot Air in Treatment of Wounds.**—Kutner noticed that in places with low humidity, wounds heal exceptionally quick and he applied this principle in aseptic treatment of granulating wounds by playing a jet of hot air on them. Poth gives here the details of fifty-two cases in which this method was applied, with what he calls ideal results. The only objection is that the Kutner apparatus for the purpose is expensive. It heats and cleans the air and is applied for three-quarters of an hour once a day.

Medizinische Klinik, Berlin

March 22, X, No. 12, pp. 487-528

- 90 Roentgen and Radium Therapy in Gynecology. H. Peham.
91 The Causal Agent of Small-Pox. (Die Aetiologie der Variolavaccine und die neueren Forschungen über den Pockenerreger.) L. Unger. Concluded in No. 13.
92 Familial and Inherited Ataxia. Vorkastner. Commenced in No. 10.
93 *Psychoses and Menstrual Disturbances. A. Passow.
94 *Practical Aspect of Spastic Ileus. A. Fromme.
95 Protective Ferments in the Urine. V. Katka.
96 Diagnosis of Constitutional Anomalies between 20 and 50. (Diagnose der Konstitution.) V. Baar.

93. **Reciprocal Relations Between Psychoses and Menstrual Disturbances.**—Passow traces the history of this subject back to Hippocrates, and then relates a number of clinical points learned in his long years of service in a sanatorium for nervous diseases. He has noticed, for instance, that the patients brought in are almost always entering on a menstrual period. He also reports the case of a previously healthy and happy mother of several young children who passed through a period of grief, with fatigue from a long journey, and developed what seemed to be acute mania for two days. Then menstruation came on and after sleeping fourteen hours she was completely restored, with no memory of her period of excitement and no recurrence of the psychosis during a number of years to date. The emotions which most frequently cause suspension of the menses seem to be the fright at a fire, and when an unmarried woman believes that conception has occurred. Passow has always found amenorrhea in a psychosis a grave omen.

94. **Spastic Ileus.**—Fromme says that only twenty cases are on record in which spastic ileus caused disturbances of such gravity that operative treatment was required. Time should not be wasted on conservative measures unless the symptoms are mild or the patient is known to be subject to severe hysteria. When this is the case, sedatives, morphin, atropin in small doses may be tried. Purgatives are directly contra-indicated but the bowel can be flushed from below. When the abdomen is opened and mechanical stoppage of the bowel can be excluded, we can suture the incision with confidence that the spasm will subside spontaneously under the influence of the operation or with the aid of sedatives. With threatening symptoms, an opening into the bowel above may have to be made. In one such case in which the spastic ileus developed after an operation, eight weeks passed before the bowel relaxed and the fistula above could be dispensed with. Spasm of the bowel is often a factor in invagination. At necropsy of one child who had died with symptoms of ileus, he found that the spasm of the bowel still persisted.

Münchener medizinische Wochenschrift

March 17, LXI, No. 11, pp. 577-632

- 97 *Extension in Joint Disease. (Gelenkextension.) H. v. Baeyer.
98 Serodiagnosis of Tumors. (Klinische Studien mit dem Dialysierverfahren nach Abderhalden. II.) H. Oeller and R. Stephan.
99 Deformity of Mammalian Eye. (Entstehung angeb. Anomalien und Missbildungen im Säugetierauge.) H. E. Pagenstecher.
100 Action of Copper plus Methylene Blue on Tubercle Bacilli. v. Linden.
101 Cataract Destructive Process a Ferment Action. M. Hoffmann.
102 *Slow Endocarditis Due to Mic. Flavus. H. Kämmerer and R. N. Wegner.
103 Classification of Spirochetes. (Stellung der Spirochäten im System.) Meirowsky.
104 *Operative Restoration of Function to Ankylosed Joints. (Gelenkmobilisierung.) O. Vulpius.
105 *Diagnosis of Peritonitis in Young Children. R. Drahter.
106 Circular Suture of Blood-Vessel. (Klinischer Beitrag zur Bewertung der zirkulären Gefässnaht.) H. Flörcken.
107 Disorders in Children by Imitation and Induction. A. Strauch (Chicago).
108 Modified Technique for Abderhalden's Serodiagnosis. S. P. Swart and A. J. L. Terwen.
109 *Prophylaxis of Diphtheria. Baehauer.
110 Do We Give Drugs Too Often? (Kricken oder Beine? Angewöhnung und Abgewöhnung von Heilmitteln.) E. Bleuler.

97. **Extension in Treatment of Joint Disease.**—Baeyer reviews the causes which cooperate in the benefit from extension, analyzing the mechanism. The extension reduces the pressure of the articulating surfaces on each other; keeps the joint in repose; changes the points of contact; prevents the soft parts from protruding into the joint; prevents or eases contracture; relieves pain and fever, and brings serum into the joint in larger amounts, but the chief benefit from the extension is the hyperemia which it induces in the soft parts, articulating surfaces and bones forming the joint. Hyperemia follows later in the stretched muscles after the extension stops.

102. **Slow Endocarditis.**—A young lawyer had long had aortic insufficiency but it had never caused disturbance until he developed a febrile state with night sweats. The fever was of a remittent type and persisted after the chronically inflamed tonsils had been removed. Treatment on the basis of chronic endocarditis gave little relief and necropsy after intercurrent fatal pneumonia revealed typical suppurating "endocarditis

lenta," but instead of the *Streptococcus viridans* being found as the causal agent, the *Micrococcus flavus* proved to be responsible. The case is illustrated, the comment being that this is the first instance on record in the literature of this common saprophyte displaying pathogenic properties. Notwithstanding the extremely slow course of the endocarditis, the microbes swarmed in blood and heart.

104. Operative Mobilization of Stiff Joints.—Vulpus gives a number of illustrations showing the excellent functional results several years after an operation on ankylosed shoulders, knees or hip-joints. He operates through a bilateral incision, carves the articulating surfaces to the desired shape with delicate files and saws, and interposes large pedunculated flaps of fascia, not only covering the raw surface of the femur, for instance, but underpadding the patella. He gives an illustrated description of one case in which recent reexamination, years after, showed ideal results although the hip-joint had been previously ankylosed for over twenty-five years. He says that the two cases of severe and painful ankylosis of both hips which show such excellent results years after, justify operative measures for all chronic joint processes entailing ankylosis.

105. Diagnosis of Peritonitis in Young Children.—Drachter states that a young child was brought for an operation for appendicitis and peritonitis; everything seemed to justify this diagnosis except that when he lifted the child's stretched right leg and struck the sole, there was no sudden aggravation of the pain such as almost invariably causes the child to scream or grab his right flank when the peritoneum is really inflamed. He has found this a very instructive aid in differentiating peritonitis. The child in question had incipient pneumonia on the right side.

109. Prophylaxis of Diphtheria in the School.—Bachauer describes the arrangements in vogue at Augsburg and states that no new cases developed after they were applied. Children with diphtheria and also all children from the same family are excluded from the school until their throats are found free from diphtheria bacilli on several examinations. When several cases develop after each other in a schoolroom the above measure is applied also to all the children whose throats show signs of inflammation. If cases still develop in the schoolroom, then smears are taken from the throats of all the children, thus trying to detect any bacilli-carriers. In case such are found they are treated as above as if they had diphtheria. In 1913 there were 495 cases of diphtheria among the school-children and the throats were found sterile one or two weeks after diphtheria in about 10 per cent.; after three weeks in 17 per cent.; after six in 17; after seven in 12 and after ten in 2 per cent., while four convalescents were not found sterile until after ten weeks (2.31 per cent.), and one bacilli-carrier after twelve weeks. One great difficulty in prophylaxis is that when children are excluded from school as bacilli-carriers they may play with healthy children. That this can be prevented by enlightening the parents is shown by the fine results obtained in a number of other German cities in which the above measures are enforced. At Augsburg fully 25 per cent. of all persons in the environment of a diphtheria case were found harboring diphtheria bacilli. The parents of the younger children did not object to the measures enforced but considerable diplomacy was required to carry them through in the upper grades. An arrangement was made with the school board by which children who had to be excluded from school for a number of weeks were given special instruction afterward to enable them to catch up with their class. In a very few instances it was found necessary to appeal to the authority of the local board of health.

Wiener klinische Wochenschrift, Vienna

February 5, XXVII, No. 6, pp. 117-140

- 111 *Elderly Patients. (Das Greisenalter als wichtiger Variationsfaktor klinischer Krankheitsbilder.) H. Schlesinger.
- 112 The Edema with Anemia. L. Hess and H. Müller.
- 113 Radium Therapy in Urology. H. Schüler.
- 114 Technic for Intra-Uterine Treatment. K. J. Bucura.

*111. Old Age as Affecting the Clinical Picture.—Schlesinger comments on the scant attention that has been paid to the modifications in clinical pictures for which increasing age is

responsible, aside from truly senile affections. For example, among 1,800 cadavers over 60 years old, cancer of the gastrointestinal tract was found almost exclusively in men while less than a fourth of the cancers of the gall-bladder were in men. Study of this material shows further that old age in itself cannot be the most important factor in cancer, as after 70 comparatively few primary cancers develop. Persons just entering on old age seem most predisposed; in this material, 9.2 per cent. of the primary gastric cancers developed between 60 and 70 and only 4.1 per cent. after 76. Another point brought out is that the power to induce metastasis seems to decline with increasing age when the cancer is located elsewhere than in the pancreas or gall-bladder or bile ducts. There was metastasis from the gastric cancer in all but 11 per cent. of the patients between 60 and 65. After 70, 18 per cent. and after 76, 50 per cent. had no metastasis. There was no metastasis in over 66 per cent. of the patients over 60 with bowel cancer. These facts render the prospects of radio-therapy more encouraging for elderly patients.

The clinical picture of infectious processes may be modified by relics from former infections from which recovery seemed complete at the time. They may also have left more or less immunity. This is not the case with streptococci, pneumococci and influenza and colon bacilli; they seem to confer extra susceptibility rather than immunity. One pregnant feature of disease in the elderly is the intensity of the general symptoms while the local symptoms are extraordinarily mild or lacking altogether. The inelastic lung tissue, impaired blood-supply, and the way in which one nerve center may lag behind the others all help in obscuring the local findings. At no other period in life are there so many latent forms of disease, but this is simply because we have not learned to recognize the special signs of trouble at this age. The course of diseases is either unusually short or unusually prolonged in the elderly. If the elderly survive the onset of angina pectoris, they may live much longer with it than a younger person. But they take far longer to convalesce from an acute disease, and complications on the part of the cardiovascular system are liable at any time. The gravest dangers for the elderly are anorexia and marasmus. He knows of only one instance of recovery from senile anorexia. He says that treatment is futile and the patients succumb to inanition.

Zeitschrift für Urologie, Berlin

March, VIII, No. 3, pp. 161-240 and Supplement

- 115 Practical Importance of Urethroscopy. E. Wossidlo.
- 116 Local Treatment of Gonorrhea in the Male. C. Heinemann.
- 117 Operative Treatment of Atrophy of the Prostate. H. Dätwyler.
- 118 Bladder Calculi. (Blasensteine: Entstehung, Behandlung und Verhütung.) S. P. von Fedoroff, F. Schlagintweit and J. Preindlsberger.
- 119 Electrotherapy in Urology. H. Wossidlo and R. Oppenheimer.

Zentralblatt für Chirurgie, Leipsic

March 21, XLI, No. 12, pp. 497-544

- 120 Technic for Correction of Cleft Palate. (Zur Frage des Verschlusses der Kiefernspalte bei "einseitig durchgehender Gaumenspalte.") R. Drachter.
- 121 *The Thymus with Thyroid Disease. (Die Thymusdrüse bei Morbus Basedow und verwandten Krankheiten.) M. Simmonds.
- 122 Synthetic Epinephrin. (Zur Wirkung der synthetischen Nebennierenpräparate.) A. Schlesinger.
- 123 *After Prostatectomy. (Eine neue Methode zur Nachbehandlung der Prostatektomie.) J. W. Van Bisselick.

121. The Thymus in Exophthalmic Goiter.—Simmonds states that he found the thymus abnormally large in 14 of 18 cases of exophthalmic goiter and in 7 of 16 cases of mere thyroidism. That is to say, in 75 per cent. of all cases of exophthalmic goiter an abnormal thymus has to be reckoned with. He advises excising a scrap of the thymus when operating on the thyroid as microscopic examination may show whether the structure corresponds to that of a younger age or whether there is marked proliferation of the medullary substance. His article is based on necropsy findings in 10 exophthalmic goiter cases and 2 of thyroidism, and on the findings at operation in 8 genuine Basedow cases and 14 of thyroidism.

123. Technic after Prostatectomy.—Van Bisselick calls attention to the prompt recovery after prostatectomy when a retention catheter is worn continuously for a time and the

incision in the bladder is sutured except for a small space left open to bring out one strip of gauze. The bladder is rinsed every two hours and the catheter is changed daily. By this technic six of the nine patients were urinating spontaneously in less than two weeks; one man of 76 was up and about the sixth day. One of the others had cancer; in the two others the eatgut was absorbed too soon but no serious complications developed, although one of these patients had cystitis with chills on entering the hospital. He was operated on at two sittings.

Zentralblatt für Gynäkologie, Leipsic

March 21, XXXVIII, No. 12, pp. 425-464

- 124 Theoretical Study of Serodiagnosis of Pregnancy. (Zur Theorie der Abderhalden'schen Schwangerschaftsreaktion.) J. Schottlaender. (Zur Abderhalden'schen Schwangerschaftsreaktion.) F. Primsar.
125 Fascia Lata Graft to Correct Genital Prolapse. B. Nadory.

Gazzetta degli Ospedali e delle Cliniche, Milan

XXV, Nos. 34-35, pp. 353-376

- 126 *Urochromogen in the Urine with Pulmonary Tuberculosis. (Sul valore semeiologico e prognostico della reazione del permanganato nelle urine.) G. Pignacca.
127 Familial Enuresis. L. Gatti.

126. Urochromogen in Urine Pathognomonic of Pulmonary Tuberculosis.—This is the conclusion reached by Pignacca after repeated examination of forty-six patients and a number of healthy controls. He applied the Moritz-Weiss permanganate test and found it constantly negative in the healthy controls and in patients with non-tuberculous affections while it was constantly positive in nine patients with pulmonary tuberculosis with a single exception, and constantly negative with tuberculous affections elsewhere than in the lungs, likewise with a single exception.

Policlinico, Rome

XXI, Medical Section No. 3, pp. 97-144

- 128 Effects on the Blood of Removal of Ovaries. (Effetti della castrazione ovarica sul sangue.) G. Antonelli.
129 The Leukocytes in Progressive Pernicious Anemia. P. Sisto. Commenced in No. 1.
130 Differential Importance of Topographic Percussion of the Lung Apex. (Valore semiologico dei campi di risonanza del Krönig.) A. Fagioli.
131 Roentgenoscopic Diagnosis of Hour-Glass Stomach. (Stomaco biloculare.) L. Coleschi.

Riforma Medica, Naples

March 14, XXX, No. 11, pp. 281-307

- 132 The General Practitioner. (Il medico pratico.) A. Murri.
133 Diabetic Eclampsia. T. Silvestri.
134 Forward Dislocation of the Head of the Radius. (Lussazioni anteriori della testa del radio.) G. Anzilotti.
135 Deviation of Complement by Thyroid Extract in Serum of Febrile Patients. A. Rossi.

Rivista Ospedaliera, Rome

February 28, IV, No. 4, pp. 173-220

- 136 Serodiagnosis of Syphilis. (Il valore diagnostico delle precipitine nella sifilide.) C. Russo.
137 Behavior of the Leukocytes in the Blood after Antityphoid Inoculation. (Sul comportamento dei leucociti nel sangue dei tífosi vaccinati.) U. Daretti.

Brazil-Medico, Rio de Janeiro

March, XXVIII, No. 9, pp. 81-90

- 138 The Wassermann Reaction in Syphilis. G. da Silveira.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

II, Nos. 21-25, pp. 1767-2186

- 139 Cardiac Insufficiency. (Onvoldoende hartwerking en hartzwakte.) K. F. Wenckebach.
140 Herpes Zoster. (De path.-anat. bevindingen bij een geval van herpes zoster.) P. Nieuwenhuijse.
141 *Plague in the Netherlands. (Pestepidemieën te Gorinchem.) M. A. van Anel.
142 Medical Aspects of Bicycling. (Het wielrijden.) P. Plantenga.
143 Operative Treatment of Retrodisplacement of the Uterus. (De operatie van Alexander-Adam.) M. A. Mendes de Leon.
144 Medical Examination before License to Marry is Granted. (Geneeskundig onderzoek voor het huwelijk.) A. C. H. V. La Brand and A. L. Hagedoorn.
145 Mechanism of Tuberculin Reactions. (Analyse der tuberkuline-werking.) J. Hekman.
146 *Green Effusion in the Pleura. F. A. Steensma and E. H. B. van Lier.
147 Treatment of Fracture of the Neck of the Femur. (Over de loopende behandeling van de breuk van den dijbeenhals.) A. Lorenz (Vienna).
148 Diphtheria and the School. C. Bakker.

141. Plague.—This is a historical article about the plague from 1348 to 1667. It contains many interesting data regarding the prevention, quarantining, care of the sick, disposal of the dead, etc., in those days.

146. Green Effusion.—This case of pleuritis which furnished the green exudate was not complicated with jaundice. According to some writers the green color cannot be due to bile-pigment if icterus is not present. But in this case the effusion contained a considerable quantity of bilirubin; the urine did not contain this coloring matter; there was no communication between the liver and the pleural cavity. Spectroscopic and microscopic analysis of the blood and clinical examination failed to reveal any explanation for the presence of the pigment in the effusion.

Russky Vrach, St. Petersburg

February 1, XIII, No. 5, pp. 145-180

- 149 Bacteriology of Typhus. S. V. Levashoff. Commenced in 4.
150 *Stenosis and Obstruction of Superior Vena Cava. K. A. Wagner.
151 Serodiagnosis of Carcinoma. S. M. Poggenpol.
152 New Method of Determining the Real Dimensions of the Heart with Roentgen-Rays. A. N. Alekoff.
February 8, No. 6, pp. 181-216
153 Alleged New Method for Blood-Cell Count. N. K. Goriaeff.
154 Anastomosis between the Saphenous and Femoral Veins for Varicose Veins of the Legs. E. Hesse and W. Schaak.
February 15, No. 7, pp. 217-252
155 *Acute Thyroiditis as the Cause of Symptoms of Exophthalmic Goiter. D. D. Pletneff.
156 Modern Research in the Field of Auto-Intoxication. P. I. Philosophoff.
157 *Suppurative Peritonitis. I. I. Grekoff. Commenced in No. 1.
158 Connection between the Subarachnoid Space of the Brain and Spinal Cord and the Lymphatics in Man. M. Y. Radetzky.
159 Glycogen in the Tissues of a Chicken Embryo in Its Earliest Stages of Development. E. A. Kartashewsky and N. B. Veselkin. Commenced in No. 6.

150. Obstruction of Vena Cava.—Wagner reports four cases of stenosis of the superior vena cava caused by malignant tumors or tuberculosis of the mediastinum. The most constant and characteristic sign is the collateral circulation evident in the skin in the form of single dilated veins on the chest, abdomen, face or neck, most pronounced between the ensiform process and the umbilicus. Sometimes the dilated vessels form an actual network of interlacing veins. When pressed by the finger the veins became distended above the pressure point, thus indicating that the current flows from above downward. There are also numerous subjective clinical signs indicating involvement of the lungs and heart; dyspnea, cyanosis and edema of the face, dulness on percussion over the anterior surface of the chest, bloody pleural effusion, small pulse, etc. In recent cases of occlusion of the superior vena cava there may be only edema of the skin of the chest which subsides as collateral circulation develops. In older cases the latter is always present, and its absence speaks against the diagnosis of obstruction of the vena cava.

155. Acute Thyroiditis as the Cause of Symptoms of Exophthalmic Goiter.—Pletneff describes nine cases of infectious diseases, two of typhoid, two of sore throat and five of influenza in which the thyroid gland became involved. Clinically there were signs and symptoms of Basedow's disease, such as tachycardia, tremor, enlarged thyroid, Graefe, Moebius and Stelwag signs, etc. The toxic conditions involve apparently not only the thyroid, but other glands with an internal secretion, producing a so-called pluriglandular affection.

157. Suppurative Peritonitis.—Grekoff has had 217 cases of purulent peritonitis caused by appendicitis, cholecystitis, salpingitis, post-partum complications, typhoid, rupture of the intestines, stomach or bladder, perforation of ulcer of the stomach and duodenum, wounds of the intestines and stomach, etc. Of the 217 patients 205 were operated on, with 49.75 per cent. mortality. Grekoff prefers the open dry treatment of the infected peritoneal cavity by means of large incisions and large gauze tampons which, properly applied and changed, give as good results as any other method (lavage of the abdominal cavity, complete or partial closure of wound, etc.); all depends on the case. Whatever the method, the operation should be done early, expectant treatment being allowed only in those cases in which the infection shows a tendency to become circumscribed (gall-bladder trouble and gynecologic cases). In

such cases a treatment is used similar to Ochsner's. Otherwise he considers the expectant treatment as dangerous. All his patients with diffuse purulent peritonitis who refused operation died. Lavage of the peritoneal cavity was done nineteen times, with four recoveries. This method is to be used, he declares, only in late cases when the contents of the stomach and intestines get into the abdominal cavity. Complete closure of the laparotomy incision is indicated in early cases (in twelve cases only one patient died).

When there are no changes in the intestines, no hemorrhage, etc., drainage by means of tubes is condemned by Grekoff as intestinal obstruction may be the result. After operative treatment he advocates Fowler's position, repeated lavage of the stomach when the latter becomes distended, saline rectal injections, sometimes in drop form. In case the intestines become enormously distended, repeated puncture with a needle or pin proved to be a safe and reliable measure, while physostigmin, atropin and other drugs did not give very satisfactory results. Symptoms of adhesive peritonitis subsided under application of vacuum cups (Bier). Grekoff comes to the conclusion that in the fully developed cases of purulent peritonitis the prognosis is very bad. Prophylactic treatment is the best, i.e., early diagnosis and treatment of those diseases that may lead to peritonitis and an early operation of the latter when it has developed.

Hospitalstidende, Copenhagen

March 18, LVII, No. 11, pp. 321-352

- 160 *Sodium Glycocholate in Serodiagnosis of Syphilis from Blood in Umbilical Cord, etc. (Undersøgelser over Opvarmningens indflydelse paa Fældningsreaktionen med glykocholsurt Natron.) C. With.
- 161 *Differential Diagnosis of Tuberculosis and Syphilis of Mucous Membrane of Upper Respiratory Tract. O. Strandberg.

160. **Serodiagnosis of Syphilis.**—With reports research with various modifications of the sodium glycocholate precipitation test, especially with and without warming the serum, and with parallel tests with the Herman-Perutz and other technics. His material embraces 563 cases of syphilis and 44 controls; the blood from the umbilical cord was examined in 194 cases.

161. **Differential Diagnosis of Tuberculosis and Syphilis of Mucous Membrane.**—Strandberg calls attention among other differentiating points to the fact that lupus generally develops with an infiltrated margin, large granulations and mucopurulent secretion; in syphilis the granulations are fine and the secretion is thin and more purely serous. Another point is that tuberculosis or lupus extremely rarely invades the mucous membrane of the upper air passages as the primary lesion, while this is a frequent location for isolated syphilitic lesions in the third stage of the disease. The Wassermann test may give a negative response even when this is the case, especially not long after a course of treatment. Much's stain and inoculation of animals are not decisive on account of the almost inevitable mixed infection. A local reaction on the mucosa after injection of tuberculin is enlightening. Solger regards as pathognomonic for syphilis the finding of vessels obstructed with granulation tissue as shown by staining the elastin, although this does not always occur. A lesion of any kind on the palate is almost invariably of syphilitic origin, regardless of what the history of the case may apparently demonstrate otherwise. The syphilis of course may be associated with tuberculosis in any affection of the mucosa of the upper respiratory tract, but vigorous treatment may eliminate the syphilitic factor at least.

Hygiea, Stockholm

March 1, LXXVI, No. 5, pp. 257-318

- 162 *Adhesive Pericarditis. (Om synechia pericardii.) I. Holmgren.

162. **Adhesive Pericarditis.**—Holmgren comments on the rarity of pericarditic synechia in tuberculosis. In the course of years and hundreds of necropsies at a sanatorium for lung diseases, adhesive pericarditis for which tuberculosis was responsible was encountered only a very few times. He has diagnosed over twenty cases of adhesive pericarditis in his service since 1906; corroborated by necropsy in nine. In other cases simple adhesion was discovered at necropsy when there

had been no symptoms during life to call attention to it. Some typical cases are described. Necropsy in one young man showed that the adhesive pericarditis had involved the diaphragm and spread to the part of the liver just below; adhesions had welded the whole into a solid mass at this point. A tugging retraction of the chest wall over the apex region during systole is strong testimony for synechia if other causes can be excluded, especially traction on the heart from shriveling processes in the lungs. Still stronger evidence for synechia is afforded by retraction of the whole of the heart. This is often followed by a diastolic bulging of the wall over the heart. The veins in the neck may collapse suddenly during diastole; Brauer has also called attention to a third heart sound. Holmgren regards as significant a friction sound localized at the base of the heart, although a similar sound is often encountered in pulmonary tuberculosis or pleurisy and he reports a case in which it proved to be a sign of cancer metastasis. If other causes for pulsus paradoxus can be excluded it is strong evidence of pericardial synechia. The fixation of the diaphragm leads to disturbances in respiration out of all proportion to the symptoms of trouble in the heart. Another sign suggesting adhesions is the absence of the normal shifting of the position of the heart as the patient stands and reclines. If there are no symptoms except those of the synechia, the prognosis is not inevitably bad, but if there is complicating infection, a child seldom reaches the age of puberty; with an adult the outcome frequently depends on whether he can spare himself or not. Operative separation of the heart from the chest wall—eardiolysis—has been applied in only a few cases, but the results have been encouraging. The resection of ribs renders the chest wall more yielding. Heart tonics are needed as with other causes of insufficiency of the heart. Alcohol and tobacco are strictly contra-indicated with severe trouble.

Finsen suffered from chronic adhesive pericarditis and he learned by experience that he felt better on a salt-poor diet, his ascites growing less and returning again whenever he resumed salt.

Nordiskt medicinskt Arkiv, Stockholm

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- 163 Production of Uric Acid. (Bildung der Harnsäure beim Menschen.) J. P. Chrom.
- 164 *Pathogenesis of Goiter. (Die Strumafrage.) C. Schiøtz.
- 165 Absorption of Sodium Salicylate Depends on Its Concentration. (Bedeutung der Konzentration für die Resorption von Salicylas natrius bei verschiedenen Applikationsmethoden.) E. Levin.
- 166 Diaphragmatic Hernia. (Fall von Hernia diaphragmatica spuria congenita dextra.) P. Wetterdal.

164. **Pathogenesis of Goiter.**—In Schiøtz's district goiter is wide-spread and endemic, but very mild. Analysis of an extensive material has convinced him that the goiter is the anatomic expression of an increased functional response to greater demands made on the thyroid from some cause. The gland responds by enlarging its secreting surface. There must be some endemic harmful influence against which the thyroid seeks to rally all its forces. When they prove inadequate, cretinism or myxedema result. He says that animal food and protozoan affections make unusually great demands on the thyroid. The less vigorous the thyroid, the sooner it yields and enlarges, so that every goiter must be regarded as a sign of thyraesthesia. The thyroid in women has demands made on it in the course of the functioning of the ovaries and pregnancy, which cooperate to render it less resistant. This explains the larger proportion of goiters among women. The thyroid, adrenals and hypophysis are in one side of the balance; the genital glands, pancreas and parathyroid bodies in the other side. When one gland in each of these two groups becomes functionally deficient, the other glands in that group suffer with it. An unstable nervous system is liable to add its influence. This is the explanation for exophthalmic goiter, he thinks. It is a neurosis, and it is more correctly designated as neurotic thyreosis.

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- 167 Curds in Infants' Stools from Unmodified Milk. (Om raamaelkskoagler i flaskebørns afføring.) V. Poulsen.
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ANTITYPHOID VACCINATION IN THE ARMY DURING 1913

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The favorable results obtained with antityphoid vaccine during former years¹ led us to expect much from the measure, but the remarkable records of the past year, 1913, have far surpassed our expectations, and are of so striking a character that their publication seems desirable.

As will be shown in the accompanying charts and tables, in the entire army of over ninety thousand men, only three cases of typhoid fever, with no fatalities, have occurred during the year 1913.

The year 1911 marked the beginning of compulsory vaccination in the Army for all persons under 45 years of age; but the full effect of such vaccination was not immediately seen, since five times as many cases occurred that year as during 1913, and it is very probable that the rate has now reached an irreducible minimum.

TABLE 1.—TYPHOID FEVER, ENLISTED AMERICAN TROOPS SERVING IN U. S. PROPER *

| Year | Mean Strength | Absolute Cases | Number Deaths | To Each 1,000 Soldiers of the Command the Ratios Are: |
|-----------|---------------|----------------|---------------|---|
| | | | | For Cases For Deaths |
| 1907..... | 35,132 | 124 | 7 | 3.53 .19 |
| 1908..... | 46,316 | 136 | 11 | 2.94 .23 |
| 1909..... | 57,124 | 173 | 16 | 3.03 .28 |
| 1910..... | 55,680 | 129 | 9 | 2.32 .16 |
| 1911..... | 55,240 | 44 | 6 | 0.80 .11 |
| 1912..... | 58,119 | 15 | 2 | 0.26 .03 |
| 1913..... | 59,608 | 2 | 0 | .03 .00 |

* The vaccination was voluntary in 1909, 1910 and part of 1911, but compulsory in part of 1911 and in 1912 and 1913.

Table 1 shows that the number of cases in the United States proper has fallen from 3.53 per thousand men to 0.03 in the six years; the death-rate has fallen from 0.28 in 1909 to zero in 1913. In both instances the greatest improvement has been during the past three years, since the vaccination was made compulsory.

Table 2 includes officers and enlisted men, and shows the number of cases and deaths each year since the typhoid prophylactic was first used. It also shows the number of cases and deaths each year occurring among the vaccinated serving within the continental limits of the United States, and for the past two years, those infected with typhoid fever before enlistment and who developed the fever before vaccination could be carried

out. No doubt some men have enlisted each year who were at the time in the incubation stage of the disease; but accurate information is available for the past two years only.

TABLE 2.—NUMBER AND PROPORTION OF TYPHOID CASES CONTRACTED BEFORE ENLISTMENT AND AMONG THE PROTECTED (UNITED STATES PROPER ONLY) OFFICERS AND ENLISTED MEN

| Year | Total Cases | Total Deaths | Infected Prior to Enlistment No. | Among the Vaccinated Cases No. | Deaths |
|-----------|-------------|--------------|----------------------------------|--------------------------------|--------|
| 1909..... | 173 | 16 | ? | 1 | 0 |
| 1910..... | 129 | 9 | ? | 4 | 0 |
| 1911..... | 44 | 6 | ? | 7 | 0 |
| 1912..... | 18 | 3 | 5 | 6 | 0 |
| 1913..... | 2 | 0 | 2 | 0 | 0 |

The conditions of service, except perhaps along the Mexican border, are much more favorable in the United States proper than in our over-sea dependencies for practically all diseases; yet during the past year only one case of typhoid fever occurred outside of the United States, and that in China, among the 31,038 men serving abroad.

The results for the entire army at home and abroad, given in Table 3, demonstrate the efficiency of the protection under all conditions of life.

TABLE 3.—TYPHOID FEVER, 1907 TO 1913, FOR THE WHOLE ARMY, OFFICERS AND ENLISTED MEN, AMERICAN AND NATIVE TROOPS

| Year | Mean Strength | No. | Cases Ratio per 1,000 of Mean Strength | No. | Deaths Ratio per 1,000 of Mean Strength | Percentage of Total Cases | Occurring Among Those Who Were Vaccinated Cases | Deaths |
|-----------|---------------|-----|--|-----|---|---------------------------|---|--------|
| 1907 | 62,523 | 237 | 3.79 | 19 | .30 | 8.0 | .. | .. |
| 1908 | 74,692 | 239 | 3.20 | 24 | .31 | 10.0 | .. | .. |
| 1909 | 84,077 | 282 | 3.35 | 22 | .26 | 7.8 | 1 | 0 |
| 1910 | 81,434 | 198 | 2.43 | 14 | .17 | 7.1 | 7 | 0 |
| 1911 | 82,802 | 70 | .85 | 8 | .10 | 11.4 | 11 | 1 |
| 1912 | 88,478 | 27 | .31 | 4 | .044 | 14.8 | 8 | 0 |
| 1913 | 90,646 | 3 | .03 | 0 | .0 | 0. | 1 | 0 |

The statistics for enlisted men in the United States proper can be presented much more effectively in the charts.

Chart 1 shows the admission-rates per thousand (that is, the number of cases) for each year from 1901 to date.

The best record obtained by sanitary measures alone is noticed in the year 1908; vaccination, beginning in 1909, has steadily diminished the number of cases, until in 1913 the rate was reduced to five cases per hundred thousand men. What this signifies may be appreciated when one realizes that the civil death-rate (not case-rate), in the registration area of the United States, was 16.5 per hundred thousand of population

1. Russell, F. F.: Results of Antityphoid Vaccination in the Army in 1911, and Its Suitability for Use in Civil Communities, THE JOURNAL A. M. A., May 4, 1912, p. 1331; Antityphoid Vaccination in Children, ibid., Feb. 1, 1913, p. 344; Progress in Antityphoid Vaccination During 1912, ibid., Aug. 30, 1913, p. 666.

for the year 1912, the last for which the statistics have been published by the Bureau of the Census.

In Chart 2, giving the death-rates for typhoid fever, we see that the best record previous to the introduction of vaccination was 0.19 per thousand, made in 1907; this has now been far surpassed by the truly remarkable record of no deaths whatever from this disease in 1913.

Chart 3 presents a quantitative measure of typhoid fever, in what is called the constantly non-effective rate; this is a statement for each day during the year of the average number of men per thousand incapacitated for full duty by typhoid fever. This ratio is generally acknowledged to be the truest statistical measure of the loss of efficiency from any given cause. The lowest rate obtained with sanitary measures alone was, 0.5 in 1908; this has been rapidly reduced to 0.003 in 1913. In other words, there was in 1913 only one one hundred and sixty-seventh of the loss of time from

case-rates per thousand; these are eruptive fevers, other than measles, small-pox and typhoid (1.9 to 3.65); diphtheria (0.49 to 1.01); mumps (11 to 16.99); cancer and other malignant growths (0.21 to 0.22); diseases of the brain and spinal cord (2.90 to 4.09); pleurisy (3.03 to 3.22); tonsillitis and other diseases of the pharynx (64.78 to 65.33), and appendicitis (4.54 to 6.59). There is no reason for believing that the antityphoid vaccination is in any way responsible for these changes.

In answer to the second question we find that the case-rate for tuberculosis of all kinds shows a decrease from 4.51 per thousand for the decennial period ending 1911 to 3.49 for the year 1912, a decrease of 22 per cent. On page 70 of the same report is given a tabular statement of all forms of tuberculosis occurring in enlisted men for each year from 1908 to 1912. This table shows, also, not only that tuberculosis has not increased since the introduction of typhoid vac-

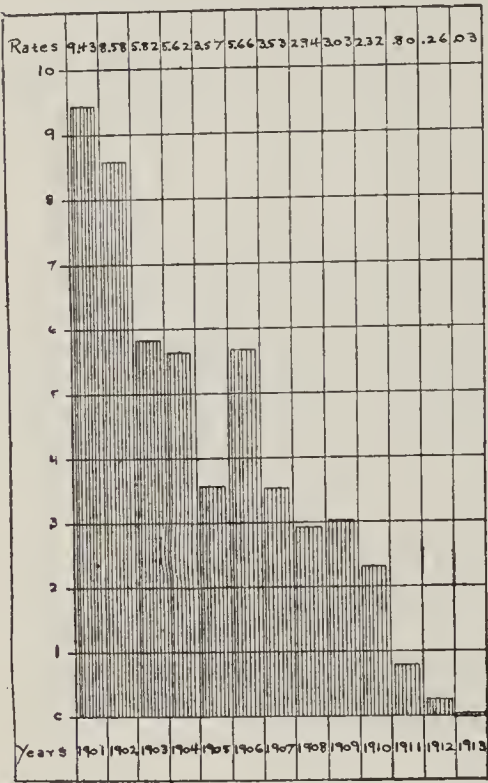


Chart 1.—Admission-rates for typhoid fever, United States (enlisted men).

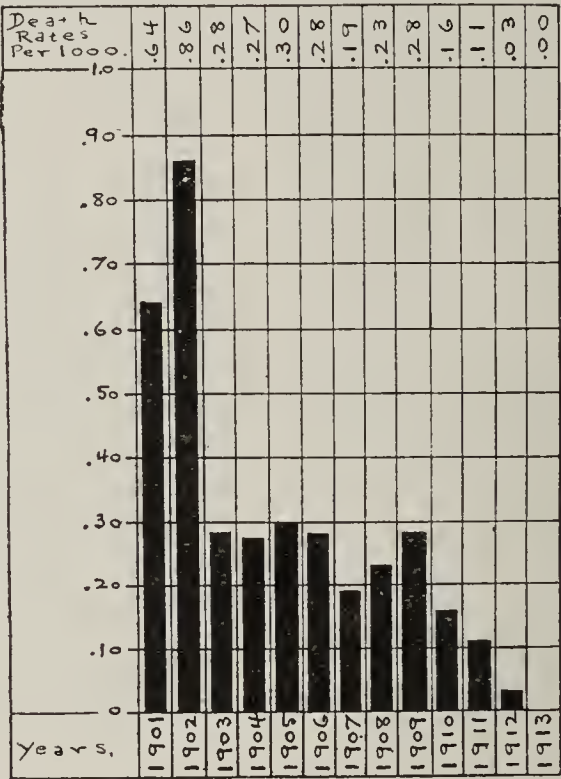


Chart 2.—Death-rates for typhoid fever, United States (enlisted men).

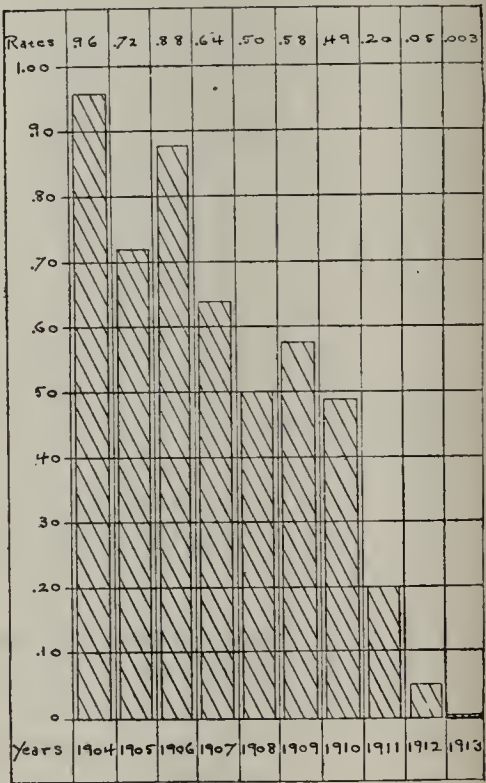


Chart 3.—Non-effective rates for typhoid fever, United States (enlisted men).

duty because of typhoid fever which occurred during the record year 1908, before the introduction of vaccination. These three charts are absolute proof of the efficacy of the typhoid prophylactic.

Have any harmful effects been produced by the typhoid prophylactic? This question may be definitely and decisively answered by the plain statement that no harmful effects have been produced. In the Surgeon-General's annual report are records not only of typhoid fever, but of all other diseases affecting soldiers' health. Since the annual report itself may be consulted by those interested in the subject, in almost any medical library, reference will be made hereto to only two points: first, the diseases which were more prevalent during 1912 than during the decade ending in 1911, and second, the effect of vaccination on the rates for tuberculosis, if there has been any.

In answer to the first question we find that the report of the Surgeon-General² states that only eight statistical groups of diseases show an increase in the

cination, but that it has actually decreased, a result due, no doubt, to improved sanitation and to the care used in the physical examination of recruits.

TABLE 4.—TUBERCULOSIS, ALL KINDS, ENLISTED MEN ONLY; CASE-RATE PER THOUSAND

| Year | United States | Philippine Islands | Alaska | Hawaii | Transports | Total |
|----------|---------------|--------------------|--------|--------|------------|-------|
| 1908.... | 3.99 | 6.10 | 2.96 | 3.92 | 3.46 | 4.39 |
| 1909.... | 4.53 | 5.06 | 3.76 | 2.96 | 3.00 | 4.53 |
| 1910.... | 3.34 | 5.46 | 1.85 | 4.10 | 0.80 | 3.65 |
| 1911.... | 3.64 | 3.77 | 2.68 | 1.99 | 1.76 | 3.55 |
| 1912.... | 3.25 | 5.02 | 4.18 | 2.07 | 2.74 | 3.49 |

The rate per thousand has decreased from 4.39 in 1908 to 3.49 in 1912, a diminution of 20 per cent. during the past five years.

From the accompanying tables and charts the conclusion is inevitable that the prophylactic vaccine as used in the Army has given almost absolute protection against typhoid fever without producing untoward

2. Ann. Report, Surg.-Gen., War Dept., Washington, 1913. Table 68, p. 236.

effects of any character, showing definitely that the vaccination is both efficient and harmless.

In the annals of preventive medicine there is only one other campaign with which to compare this, and that is the practical extermination of small-pox by vaccination. In a previous article³ it has been pointed out that in the suppression of infectious diseases, sanitarians encounter two types of infection which differ from one another in the following way:

First, yellow fever, malaria, Malta fever, cestode infections and to a great extent plague, etc., require an intermediate host for the completion of the life-cycle of the parasite, or its conveyance from the infected to new victims.

The second group is composed of diseases of mankind only, the infection passing directly or indirectly from one human being to another, no animal or insect host intervening; examples of this class of diseases are typhoid fever, small-pox, pulmonary tuberculosis, measles, scarlet fever and diphtheria.

In the first group the chain of infection has many links, the breaking of any one of which stops the spread of the disease; in the second, the chain consists of two links only, both human beings, and the inherent difficulties of breaking this short chain of infection are much greater than in the first group, in which the chances are many times as many. For this reason the results for typhoid fever given here should be compared only with the results obtained against other diseases of the same class.

DRAINAGE VERSUS IMMEDIATE SUTURE OF THE COMMON DUCT

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CLEVELAND

Drainage of the common duct presents three dangers: much bile is lost, cicatricial contraction occasionally occurs, and should the drain-tube be occluded, or even if it be not occluded, bile may escape into and infect the peritoneal cavity beyond the field of operation.

Owing to an interesting physiologic fact, the loss of bile may become a serious danger—a danger which is usually overlooked—as normally the bile passes through the intestinal tract, and the bile-salts are reabsorbed, return to the liver, again become a constituent of fluid bile, and thus continue their circuit. The continuous loss of bile by drainage in a good-risk patient may cause no apparent damage, but in elderly subjects and in poor risks from any cause, the steady loss of bile-salts and of fluid may prove fatal. In gall-bladder drainage the bile can be collected and, as Yates has suggested, may be returned to the bowel; but in drainage of the common or hepatic duct much bile is sure to be lost beyond recovery. Occasionally also the bile may leak into and infect the abdominal cavity beyond the field of operation—a circumstance that may prove fatal despite the greatest experience and care.

A third danger is also important: the presence of a drain-tube in a bile-duct may of itself cause a partial or a complete stricture of the duct. I venture to assert that if a thousand normal common ducts were considerably traumatized and then drained by close-fitting

drainage-tubes snugly sewed in and left for a considerable time, there would result a certain number of partial or complete strictures, just as strictures in the cystic duct are produced by the lodging of a stone, and just as any other duct may be occluded by the effect of the presence of a foreign body.

These three dangers account in large measure for the difference between the mortality rates after operations for stone in the common duct and after operations for stone in the gall-bladder. The records of operations on the gall-bladder and ducts performed by my associates, Dr. Bunts and Dr. Lower, and by myself, and the records of the surgical service of the Lakeside Hospital, demonstrate the truth of the foregoing statements.

It is obvious therefore that if drainage after common-duct operations could be safely dispensed with, the mortality and the morbidity would by so much be further controlled. Why not close the common duct immediately? In the cases in which there is no jaundice, there is free drainage into the intestine through a natural down-hill drainage-tube. Is any other surgical field provided with such an ideal drainage-tube as the common duct? And yet we add to this ideal down-hill natural drainage a foreign tube which drains straight up-hill, leaks around its base, loses bile, and infects the peritoneum; while, in addition, in almost every case, bile still gets by the drainage-tube and passes into the intestine, as is evidenced by its presence in the movements. Why then is the common duct drained as a matter of routine? Undoubtedly because *the duct is handled in a needlessly rough manner when the stone is extracted.*

That immediate closure will probably result favorably is indicated by the fact that the operation is rarely performed at the time of complete occlusion of the duct. If there be complete occlusion, then the extraction of the stone may leave an occluded common duct; but even in that case, if the gall-bladder can be utilized for drainage, the best procedure is to close the common duct at once, and let the gall-bladder be used as a drain until the lumen of the common duct is again opened. Surely restoration of the patency of the duct will occur more rapidly without the presence of a foreign body than with one. In the great majority of cases, however, the common duct is open—at least intermittently—before the operation; in many cases there is no obstruction—no jaundice. Under these conditions would any one think of drainage if the common duct were in a superficial position, easily accessible? The deep position of the common duct, hidden under adhesions as it is frequently, handicaps the operator so that his work is done without the definiteness and innocuousness of sharp dissection, but by tearing; and when the duct is opened its interior too is needlessly traumatized. Would any one consider using a similarly rough technic in operating on any superficial organs or structures?

To overcome the needless local injury, and to reduce the necessity for drainage to a minimum, I have evolved a sharp dissection technic, the possibilities of which are well illustrated by the following case:

A patient, aged 71, years before had had an abscess in the gall-bladder region, the result of a perforation of the gall-bladder, which was opened and drained. Gall-stone symptoms continued and another operation was performed later, but on account of the dense adhesions of the viscera to the abdominal wall, a satisfactory exposure could not be made, especially as the patient was already in a serious condition. The gall-bladder was drained in the hope that relief would

3. Russell, F. F.: Prevention and Treatment of Typhoid Fever with Antityphoid Vaccine, Boston Med. and Surg. Jour., Jan. 5, 1911.

follow; but intermittent pain, chills and jaundice continued for a year, at which time I performed the following operation:

Under nitrous-oxid-oxygen anesthesia, I made a wide exposure of the biliary field by a modified Wilms incision. This gave ample room for making a sharp-knife division of the firm adhesions between the viscera, as a result of which I gained a clear exposure of the dilated, stone-impacted common duct. Under the direct guidance of the eye and with a sharp knife a rather long longitudinal incision was made over the stones in the enlarged pathologic common duct. The incision exposed the stones so completely that when they were gently turned out not even a drop of blood came from the mucous membranc. This ample incision in the duct gave an opportunity for not only a complete, but also an *absolutely innocuous* exploration of the remainder of the duct. Six large stones were removed, some of which were embedded firmly. At the end of these procedures we had before us a common duct whose only injury was the sharp longitudinal division of its wall. What possible valid reason existed for draining this large patent duct whose interior was uninjured by the operation? Surely the drainage was no less free without than with the stones. The duct was sutured with as much care and accuracy as is used in suturing the intes-

MAN, THE PRINCIPAL ETIOLOGIC FACTOR IN THE PERPETUATION OF MALARIA, WITH SPECIAL REFERENCE TO THE ENDEMICITY OF THE DISEASE IN THE TEMPERATE ZONE *

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JACKSONVILLE, FLA.

The very brilliant results that have been obtained in certain parts of the world in the eradication of malaria by consistent campaigns against the mosquito are probably the direct result of the fact that another campaign, of equal promise, has been sadly neglected in other parts, where, by reason of soil conditions, we cannot expect to be able to eradicate, or even materially to reduce, the anopheles. I refer to the possibilities of a campaign against the sexual forms of the plasmodia in man.

The question arises, are we content to wait for the development of certain of our agricultural lands before ridding ourselves of a disease the economic loss from which is so tremendous, and a loss which, in addition to the heavy penalties imposed by death and depreciation of earning power, is actually in itself a heavy barrier to the development of these lands?

The literature on the prophylaxis of malarial fever teems with articles concerning the eradication of the mosquito, and means to prevent this insect from giving malaria to man, while little is said in reference to preventing man from giving malaria to the mosquito. The very marked success in some localities, of the fight against the mosquito should not blind us to the fact that there have also been dismal failures; for instance, the campaign at Mian Mir. Celli¹ considers that, although the destruction of mosquitoes is possible in the laboratory and in small areas, the difficulties in extensive areas are generally insuperable. Harris² writes:

It is not my intention to suggest any less vigilance in destroying the anopheles mosquitoes and their breeding places, and I would urge that these measures be employed to the fullest extent possible. I do maintain, however, that the most important and the most practical measure, at this time, in the crusade against malaria, is the radical cure of those harboring parasites, because every patient cured means one less focus of infection.

If then, as I think all will agree, the eradication of malaria throughout our southland by means of the destruction of mosquitoes depends on the development and drainage of our lands, and is necessarily a matter of many years, should we not at least make an earnest effort to solve this problem by other channels? Ross,³ one of the greatest advocates of mosquito reduction, in his report on malaria investigations in the Island of Mauritius, writes:

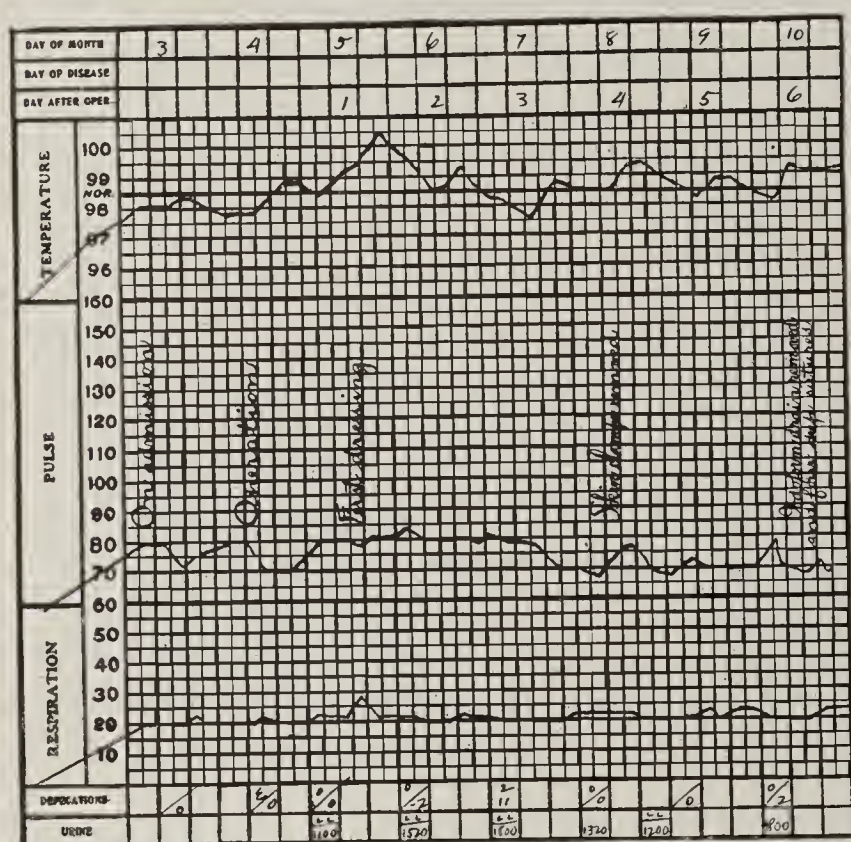
The second great antimalarial measure, that of case reduction, was originated in 1900 by Koch and Celli, who, feeling doubt as to the possibility of mosquito reduction, urged that

* Read by invitation before the Fulton County Medical Society, at Atlanta, Ga., March 19, 1914.

1. Celli: Cited by Leslie: Proc. of the Imperial Malarial Conf., Simla, India, 1910, p. 8.

2. Harris, Seale: The Radical Cure of Malaria: Its Importance and How It Is Attained, THE JOURNAL A. M. A., Nov. 26, 1910, p. 1881.

3. Ross: Prevention of Malaria, Abst. Pub. Health Rep., Washington, 1910, xxv. No. 3, p. 61.



Clinical record of operation for common-duct stone performed under anoci-association, nitrous-oxid-oxygen.

tines, a curved round needle and a double row of fine chromic gut sutures being employed. A piece of iodoform gauze was sewed with plain catgut to an adhesion below and external to the suture-line in the duct, but coming nowhere into actual contact with the suture-line. At the close of the operation the patient's pulse was the same as it had been in bed the day before. The entire wound healed by first intention, bile passing from the first through the ampulla. The accompanying chart shows the striking clinical result.

To accomplish the bloodless innocuous dissection which is the goal of the anoci technic, all adhesions are carefully divided with a sharp knife, the dissection being rigorously confined to the bloodless hair-line between the peritoneum and the adhesion. No blood-vessel ever crosses this white line. The whole line of dissection is therefore bloodless; no sponging is needed, and every tissue is accurately identified.

I have performed a number of common-duct operations under this technic, with a resultant uneventful convalescence such as is well illustrated by the chart shown here.

Osborn Building.

the best way of dealing with malaria would be to leave the mosquito alone and to cure the human patients from whom the insects became infected. . . . By the use of this method Stephensport, in New Guinea, was cleared of malaria in a few months.

It seems to me that the success of such a campaign in this country is assured and depends entirely on the education of the medical profession and the laity in certain fundamental principles concerning (a) the detection of gamete-carriers; (b) the formation of gametes in the circulation of man; (c) the transfer of these forms from one host to the other, and the evolution of the parasite in man and the mosquito; (d) the significance of an early diagnosis and the rational treatment of all malarial infections.

A. THE DETECTION OF GAMETE-CARRIERS

I am not so optimistic as to believe that we can in a single season detect every gamete-carrier throughout the entire country, but I do believe that a properly organized system could be provided that would gradually result in a decided reduction, if not an entire eradication, of the disease. While the recent observations of Le Prince⁴ demonstrated that, in some sections at least, anopheles will fly great distances, I think there is little doubt that in the great majority of places malaria is a local infection; that is, mosquitoes acquire gametes and transmit sporozoites within a restricted area, which means that with the destruction of either the mosquitoes or the gametes within a given area, malaria would be eradicated in that area. The destruction of the mosquito having been found unfeasible, in certain sections, an equally vigilant campaign against the gametes in man's circulation is at least worthy of trial. The large number of persons who harbor gametes without any great inconvenience to themselves has been demonstrated by many observers. Fusco⁵ in an examination of 147 children found 90.9 per cent. of those under 3 years, 92.03 per cent. under 7 years, and 74 per cent. of the entire number positive carriers, many of these children giving no histories of malarial infection. Ianni⁶ in an examination of 2,000 individuals found the plasmodia in the blood of 53 out of 146 persons in whom there was no clinical evidence of infection. Craig⁷ determined positive findings in 48.3 per cent. of 180 children examined in the Philippines. Byrd⁸ in an examination of 576 white children and 85 colored children in Florida found 5.7 per cent. positive in the former group and 12.9 per cent. in the latter. Many other illustrations could be cited confirming the observations of these investigators.

Most examinations for a malarial index have been confined to schoolchildren, but inasmuch as adults are also frequent carriers I would urge the dividing of malarial districts under either federal or state control, or both, into areas small enough so that all inhabitants could be examined. To demonstrate the feasibility of this proposal would not be so stupendous a work as one might infer. Selected areas of high

malarial morbidity with small populations should constitute the first point of attack in such a campaign. As the work proceeded it would suffice, in the larger areas with a low malarial morbidity, to confine the blood examinations to those giving histories of recent malarial infection.

B. THE FORMATION OF GAMETES IN THE CIRCULATION OF MAN

It is now generally held that gametes are the offspring of schizogony, that is, that after repeated cycles of the parasite in the human host, certain of the merozoites undergo a change and, instead of continuing the asexual cycle, become sexual forms, remaining such while contained within the human host, resuming the cycle as soon as transferred to mosquitoes capable of harboring the plasmodia. We have not at this time a clear understanding why some infections will produce large numbers of gametes, while others of equal severity produce few if any. We know, however, that, in general, protozoa having both a sexual and an asexual cycle will reproduce asexually so long as conditions are favorable for continued evolution, but as soon as conditions become unfavorable, the sexual cycle is assumed. It is probable that in certain persons resistance to plasmodia is low enough to allow continued reproduction by schizogony, and that, this being possible, gametes do not form.

Thomson⁹ has shown that, in cases in which sexual forms do develop, there is a numerical relationship between the asexual and sexual forms, depending on the intensity and duration of the infection. Thus in eight very acute cases a total of 724,000 asexual parasites per cubic millimeter, produced a total of 1,354 sexual forms per cubic millimeter, or a ratio of 535 asexual parasites to one sexual form; in eleven subacute paroxysms a total of 318,700 asexual parasites per cubic millimeter, produced a total of 3,952 sexual forms per cubic millimeter, or a ratio of eighty-one asexual parasites to one sexual form; in twenty-six mild chronic cases a total of 172,360 asexual parasites per cubic millimeter, produced a total of 3,343 sexual forms per cubic millimeter, or a ratio of fifty-two asexual parasites to one sexual form. This elaborate work is of great value in demonstrating the significance of the formation of gametes and will be referred to again in discussing the significance of early diagnosis and rational treatment. Attention is here especially called to the fact that in the acute cases the sexual producing power is a tenth of that in the chronic cases, and considerably less than in even the subacute cases. Not only this, but the same investigations show further that only 37.5 per cent. of the acute cases developed any sexual forms, while 63.6 per cent. of the subacute cases later showed sexual forms and in the chronic cases this percentage was further increased to 69.25. It is clearly shown, therefore, that it is the recurring infections in which gametes are principally formed.

The length of time that elapses between the appearance of asexual and sexual parasites varies in the different types of infection and is no doubt further regulated by the action of the human host on the asexual parasites in regard to the amount of resistance offered this cycle. In the estivo-autumnal fevers

9. Thomson: A Research into the Production, Life and Death of Crescents in Malignant Tertian Malaria, in Treated and Untreated Cases, by an Enumerative Method, *Ann. Trop. Med. and Parasit.*, April, 1911, v, p. 62.

4. LePrince: Recent Progress in Antimalaria Work, With Special Reference to Anopheles Flight as Studied on the Isthmus of Panama, *Tr. Fifteenth Internat. Cong. on Hygiene and Demography*, v, Part 11, p. 544.

5. Fusco: La malaria nell infanzia, *Policlinico*, 1912, xix, No. 8, p. 261.

6. Ianni, G.: Latent Malaria, *Policlinico*, Rome, Dec. 4, 1910; abstr., *THE JOURNAL A. M. A.*, Jan. 21, 1911, p. 231.

7. Craig: The Malarial Fevers, Haemoglobinuric Fever and the Blood Protozoa of Man, New York, 1909, p. 233.

8. Byrd: Cited by Henson: Malaria, Etiology, Pathology, Diagnosis, Prophylaxis and Treatment, St. Louis, 1913, p. 123.

the average period required for the development of these forms is twelve days, in the quartan type nine days and in the benign tertian seven days.

The effect of quinin on the formation of gametes has been demonstrated by many observers. Since they evolve from schizonts as a result of the action of the human host on the merozoites, and since further, quinin kills all schizonts, it is plainly evident that, regardless of the unsettled question at this time of the action of this drug on the gametes themselves, with the destruction of the asexual cycle the gametes must become eradicated also.

C. THE TRANSFER OF THESE FORMS FROM ONE HOST TO THE OTHER AND THE EVOLUTION OF THE PARASITES IN MAN AND THE MOSQUITO¹⁰

Gametes, having once formed in the blood of man, will remain more or less constant in the peripheral circulation for an indefinite time so far as we know, the length of time necessarily depending on treatment instituted and possibly certain unknown factors. They will no doubt in some instances disappear spontaneously without treatment, occasionally not to recur but in nearly all instances reappearing when conditions become favorable. With our knowledge concerning latent carriers and the formation of gametes, it is evident that when, from a clinical point of view, a malarial subject may be rapidly improving it is just at this time he is the greatest source of danger, as a carrier, to the community in which he resides. While it may not be practicable to quarantine such persons, some effort should be made toward the enactment of legislation providing that malaria be included in the reportable diseases. There are, at present, other diseases included in the reportable group of a great deal less danger to the welfare of the public health than is malaria.

Inasmuch as heavy gamete-carriers are directly responsible for heavy infections, as shown by Christopher,¹¹ some effort should be made to detect them. The general opinion that a gamete-carrier has to remain one for a protracted period is erroneous, and there is absolutely nothing impractical in advocating the screening of these carriers, so as to prevent them from infecting mosquitoes. As there is little, if any, danger of anopheles feeding during the daytime the patient may be free to go around as he pleases during the day hours, restrictions being placed on his movements only from sundown to sunrise. While in some instances possibly several weeks will be necessary completely to eradicate these forms from the circulation they can be generally, if not always, reduced to non-infective numbers in a very few days.

I wish to emphasize especially a most valuable auxiliary prophylactic unit present in the entire temperate zone but not applicable to the tropical zone. It is the fact that the evolution of the parasite within the mosquito cannot proceed when the mean temperature is less than 60 F. While it is true that many species of mosquitoes are capable of hibernation during our cold months, the sporozoites and other forms of the plasmodia undergoing evolution in the body of the mosquito die when the thermometer reaches this level.

Drake¹² assumed that an average temperature of 60 F. is necessary for the continuation of the evolution of the parasite in the mosquito, and Jansco¹³ has demonstrated the significant fact that in a temperature of 16 C. (60.8 F.), or lower, the organisms perish. Inasmuch as the thermometer reaches this level within the entire temperate zone during every winter season, it is self-evident that, with the departure of our winter season and the advent of warm weather, while many mosquitoes may be present, they have been rendered sterile by climatic conditions and are unable to infect man until they succeed in reaching and biting persons who harbor sexual forms of the plasmodia. In this way the mosquitoes become infected again, to remain so during the warm season and are again able to infect any persons on whom they feed. What Leslie¹⁴ writes concerning popular opinion in the Punjab is applicable to all malarial districts:

One frequently hears matters discussed as if the population were uninfected and remained so until the fever season came around, when any individual was more or less liable to catch infection. It is nearer the truth to say that we have a population already infected and that what happens in the fever season is the "hastening up" of this infection and its kindling into a flame.

A study of the morbidity rate of all malaria-infected foci will show the maximum malarial rate at the height, or toward the end, of the warm season. This is due, in my opinion, not only to the fact that the mosquitoes become more numerous, but that the other focus of infection, infected man, is also largely increased.

D. THE SIGNIFICANCE OF EARLY DIAGNOSIS AND THE RATIONAL TREATMENT OF ALL MALARIAL INFECTIONS

With the facts established that the sexual forms originate in the asexual cycle, that these forms do not make their appearance until after the asexual cycle has been active for several days and that proper treatment instituted early in the disease, in practically every instance, not only cures the disease but prevents even the formation of gametes, the responsibility of the physician in making an early diagnosis and instituting rational treatment is plainly evident.

While it is not within the scope of this paper to go into a general discussion on the treatment of the malarial infections, I do wish to emphasize the fact that in practically every instance quinin, if properly administered, will cure the disease. The work of Thomson, previously referred to, showing the numerical relationship between the asexual parasites and the later formed gametes demonstrates the value of, and necessity for, the prompt institution of the use of this drug. We have no drug that is as perfect a specific as quinin in malaria, and the fact that in a very few instances it fails should not be used as an argument against its great value.

A significant lesson may be obtained from a perusal of the studies of Ross and Thomson¹⁵ of pseudorelapses in a series of their malarial cases. They cite many instances in which patients suffered apparent

10. Owing to lack of space, a description of the evolution of the parasite is omitted in this text. Those not familiar with it are referred to any text-book on the subject.

11. Christopher: Proc. of the Imperial Malarial Conf., Simla, India, p. 40.

12. Drake: Cited by Deaderick, *A Practical Study of Malaria*, p. 39, Philadelphia, 1909.

13. Jansco: Cited by Craig: *The Malarial Fevers, Haemoglobinuric Fever and the Blood Protozoa of Man*, New York, 1909, p. 109.

14. Leslie: Proc. of the Imperial Malarial Conf., Simla, India, p. 41.

15. Ross and Thomson: *Pseudo-Relapses in Cases of Malarial Fever during Continuous Quinin Treatment*, Ann. Trop. Med. and Parasit., December, 1911, p. 409.

relapse while under treatment with quinin, but a careful examination of the blood of these patients by thin and thick film methods failed to reveal any parasites, and a careful examination disclosed that other causes were responsible for the fever exacerbations. They found the most common causes for these pseudo-relapses were latent phthisis, valvular heart disease, Bright's disease, chorea, rheumatism and bronchitis. Vanderhoof¹⁶ reports forty-seven cases of pyelitis, of which twenty-one had been improperly diagnosed and treated for malaria. When, therefore, quinin does not cure malaria it might be well to question the diagnosis first, the specific action of the drug afterward. That there are exceptional instances in which a resistant form of the parasite is developed, is shown by Ross and Thomson¹⁷ who report a case showing a true parasitic relapse while under vigorous and continued quinin treatment. I agree with Brem,¹⁸ who writes:

Chronic malaria and malaria cachexia are much-abused terms; they describe a condition and not a disease, and should be used only in elaboration of a diagnosis of malarial fever, for which proper cause should be shown.

There is little doubt in my mind that the convenient misapplication of these terms in cases in which the true condition is hard to ascertain, tends to discredit the most potent specific drug in our possession.

THE CULTIVATION OF TISSUE CELLS IN VITRO AND ITS PRACTICAL APPLICATION *

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In 1901, Leo Loeb¹ published an account of the cultivation of epithelial cells from the guinea-pig embryo. He embedded bits of epithelium in solidified blocks of agar or serum and then planted these in subcutaneous pockets of adult guinea-pigs, from which they were excised at stated intervals, embedded in celloidin and sectioned serially. He thus used the adult pig as a living incubator of constant temperature with a constant flow of fresh sterile nourishment. He found that epithelium can grow without the presence of connective or other tissue, but in the absence of connective tissue, epithelial growth seems to be self-limited with no development of normal formations.

The first reports of the cultivation of animal tissues outside of the body were those made by R. G. Harrison² in 1907 and again in 1910. He cultivated successfully bits of nervous tissue, using the excised medullary folds from early frog embryos in solidified lymph from the lymph-sacs of anesthetized adult frogs. This method was very difficult and only a

limited amount of lymph was obtainable from one frog (5 or 6 drops).

In 1910, M. T. Burrows,³ working in Harrison's laboratory, substituted frog's plasma for lymph, and later used chicken plasma with chick embryo tissues, and then various other plasma and tissues and serum agar. The methods of Harrison and Burrows have been adopted by Alexis Carrel for his work on continuous life of tissue *in vitro* and tissue preservation for surgical purposes. He and Burrows and others have changed and elaborated the technic from time to time, and it has probably not yet been standardized.

The plasma for these cultures may be kept liquid until used if the blood is collected in paraffined tubes, the red blood-cells centrifuged out, and stored in the ice-chest; or blood may be collected in sodium oxalate solution and the oxalate precipitated out quantitatively with calcium chlorid just before using, when the plasma will jelly quickly; or plasma may be replaced with serum agar. Carrel and Burrows found most vigorous growth in plasma rendered slightly hypotonic by dilution with sterile distilled water, or better, plasma diluted with embryonal juice. G. C. Weil, however, asserts that epithelial tissues grow best in serum agar. Various observers using these methods have obtained growths from most embryonal and many adult tissues of different species of animals, and from fragments of avian, mammalian and human tumors, but no one has yet reported successful cultivation of normal human tissues. Tissues will not grow when free in liquid mediums, and adult tissues grow only in plasma. Embryonal tissues, however, grow well in serum agar, and M. R. and W. H. Lewis obtained growth of embryonal tissues in Ringer's solution plus bouillon and even in sterile saline solutions. In the latter cases, however, the growth is very limited and dependent on the amount of stored nourishment in the cells rather than any nutrient properties of the salines. In using liquid mediums a silk veiling or threads must be used as support for the cells as they will not grow without.

To obtain uniformly successful growths of tissue cells *in vitro* great care must be exercised in the technic, as slight variations influence results very markedly. The plasma for this purpose may be autogenous (from the same animal as the tissue) for adult tissues, or homogenous (from an animal of the same species), or even heterogenous (from different species), or mixed for embryonal cultures. Chick embryo tissues will grow well in chicken, dog, rabbit or human plasma. I have worked only with adult and embryonal chicken tissues in chicken plasma and serum agar. I have obtained growth from chicken kidney, liver and heart (connective-tissue cells only from the last), and from embryonal heart, liver, spleen, kidney, brain, cord, eye, skin, lung and intestine. Fragments of embryonal intestine planted in plasma will continue peristaltic contractions for from twenty-four to forty-eight hours, and heart tissue I have known to pulsate as long as eleven days after planting, though I have never seen pulsation in new growth from heart cultures. Much of my work has been with heart tissue from embryos ranging from four to sixteen days old, the most satisfactory growths being from seven-day to eleven-day hearts. The younger heart tissues pulsate so violently that they

16. Vanderhoof: Douglas: The Pseudomalarial Types of Pyelitis, THE JOURNAL A. M. A., April 20, 1912, p. 1172.

17. Ross and Thomson: A Case of Malarial Fever, Showing a True Parasitic Relapse, during Vigorous and Continuous Quinin Treatment, Ann. Trop. Med. and Parasit., February, 1912, p. 539.

18. Brem, Walter V.: Studies of Malaria in Panama: 1. Clinical Studies of Malaria in the White Race, Arch. Int. Med., December, 1910, p. 646.

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1. Loeb, Leo: Arch. f. Entwcklungsmech. d. Organ., 1901, xiii, 487.

2. Harrison, R. G.: Proc. Soc. Exper. Biol. and Med., 1907, iv, 140; Jour. Exper. Zool., 1910, ix, 787.

3. Burrows, M. T.: Smithson. Rep., 1910, p. 573.

are apt to tear loose from their plasma supports and then contract permanently, and the older ones are slow to start pulsating, pulsate more sluggishly and make less growth.

The plasma I obtain by bleeding a young healthy chicken from the jugular vein through a glass cannula sterilized in olive oil, the first few drops of blood mixed with oil being discarded. The blood is collected in paraffin-lined glass tubes, chilled and kept chilled by immersion in ice-water, and as soon as possible centrifuged to remove the blood-cells. I have never succeeded in obtaining plasma entirely free from red cells, owing to fear of prolonged centrifuging heating the blood sufficiently to cause coagulation. After centrifuging, the clear straw-colored plasma is carefully drawn off with a fresh paraffin-lined pipet into fresh paraffined tubes and if not for immediate use is stored in the ice-chest. If kept at from 4 to 6 degrees C. chicken plasma may be kept liquid for over two months. I have used successfully plasma so stored for as long as twenty-three days, but found that it did not make so firm a jelly, and growth of tissue cells in it was not so vigorous or rapid as in fresh plasma. I usually obtain from four to six small centrifuge tubes of blood from a chicken, bleeding to death, and this yields about half as much clear plasma, which I store in small lots so as to avoid too frequent dipping into one tube.

The tissue for use in planting must be taken from a live or just killed animal, and must be kept from drying by handling and making all comminutions in Ringer's solution. Chick embryo tissues I obtain by flaming the egg and then cutting a circular window in the side over the germinal area, when the embryo can be lifted out with sterile forceps, the membranes severed, and the embryo dropped in a dish of Ringer's solution where the tissue desired can be dissected out. The tissue is then cut into minute fragments, a fraction of a millimeter in diameter, with a cataract or other sharp knife and a mounted needle, and transferred on the point of the knife to the surface where it is to be grown, along with a little saline solution to prevent drying.

The cultures may be of three kinds: first, hanging-block cover-glass preparations containing from one to six very minute fragments (0.25 mm. or less) mounted in one or two drops of plasma; second, larger cultures, several cubic centimeters in diameter, containing numerous somewhat larger fragments on the under-surface of glass plates used as covers to glass boxes containing a layer of sterile water to keep the cultures from drying; and third, similar boxes or Gabritschewski boxes arranged with a concave receptacle in the center to collect the fluid dropping from the cultures (extruded serum and digested plasma) and keep it free from dilution. These last are necessary only when one is studying antibody production or attempting to analyze the metabolic products resulting from the cultures. For large cultures some workers use Petri dishes, but I prefer glass boxes with ground rims, as they are more easily sealed. For the cover-glass preparations thick slides with deep, round, flat-bottomed cells (culture slides) are preferable to the ordinary hollow-ground slides. All cultures are sealed with petrolatum or soft paraffin to keep in moisture and keep out infection, though

in cover-glass preparations molds will occasionally grow in through this.

The final comminutions of tissue should be made on the surface in which they are to be planted to avoid undue handling of the minute fragments. Tissues cut with a sharp knife will make better growth than those teased apart. The plasma, diluted to the desired point, is taken up with a fresh paraffined pipet and dropped on the tissue fragments, where it soon solidifies, leaving them embedded in a clear jelly. The cover-glasses or plates are inverted and sealed with soft paraffin at once and placed in the incubator, where they are kept at constant temperature; 39 C. is the optimum temperature for chick tissues. If the plasma is slow in solidifying it may be hastened by the addition of a drop or two of muscle or embryonal extract.

Cultures so prepared may be studied from time to time in the living condition under the microscope, a warm stage being used or preferably a warm box, in which the microscope is kept; the low power is used for the box cultures and low and high powers for the cover-glass preparations. For study of the cells and for permanent preparations they may be fixed by any of the usual methods. The cover-glass preparations may be stained and mounted as they are in balsam, and the box cultures, after fixing and hardening in alcohol, freed carefully from the glass and embedded in paraffin or celloidin and sectioned and then stained.

In these cultures the plasma has a twofold function, acting as a support and framework for cell growth, some support being absolutely essential, and also furnishing nourishment. The cells obtain their nitrogenous food by digestion of the plasma proteids to form amino-acids and possibly tryptophan.

Embryonal tissues start growth almost at once; I have seen undoubted growth in one case within an hour. Adult tissues have a latent period before growth begins of from twelve to twenty-four or more hours. Growth continues for from five to ten days or more (I have never seen it continue over eleven days), being limited by the amount of nourishment available and by the accumulation of waste products within and around the cells. Life in connective-tissue cultures may be prolonged indefinitely by washing cultures for a few minutes at room temperature in Ringer's solution and replanting in fresh plasma, but extreme care must be exercised to prevent bacterial contamination. For this work it is best to use a small square of silk veiling on the cover-glass as an added support for the tissues so that they will be less disturbed by handling. Carrel,⁴ by this method, using two parts of chicken plasma with one part of eight-day embryo juice, has kept connective tissue from embryo heart alive and growing for over sixteen months, and Ebling⁵ reports growth for over a year, replants being made every two or three days. Carrel⁶ has also demonstrated that fresh tissues, if placed at once in deep tubes of petrolatum or Ringer's solution (sterile, of course) and sealed, may be kept in "latent life" in cold storage for some days or weeks, and if then planted in plasma and incubated they will become active and grow like fresh tissues.

4. Carrel, A.: Jour. Exper. Med., 1912, xv, 516.

5. Ebling: Jour. Exper. Med., 1913, xvii, 273.

6. Carrel, A.: The Preservation of Tissues and Its Applications in Surgery, THE JOURNAL A. M. A., Aug. 17, 1912, p. 523.

The new cells developing from these cultures are of two general types, the first to appear being elongated bipolar or multipolar spindle cells, the young undifferentiated connective-tissue cells, usually with elongated nuclei having their long axes parallel with the long axes of the cells, often in young cultures with two or more nuclei in each cell. These cells radiate in all directions from the original fragment, some forming rays of connected cells, some interlacing their processes to form a network and others free and unattached. The second type of cells appearing later are spherical or polygonal with spherical nuclei. These represent differentiated epithelium and vary in size and shape, depending on the type of epithelium from which they spring. Both types of cell when young have ameboid properties, as shown by their wandering out into the clear plasma. The fusiform cells may frequently be observed with phagocytized red blood-cells within them. Polymorphonuclear leukocytes, being themselves degeneration cells, do not multiply but do wander out away from the original tissue, but lymphocytes and myeloblasts do multiply by mitosis as shown by Awroroff and Timofeiewsky,⁷ and amitotically as shown by Foot.⁸ Both connective tissue and epithelial cells in young cultures show beautiful mitotic figures when properly fixed and stained. As the cultures age the growth becomes slower and the cells fill with granules and droplets of metabolic products of a fatty nature, as shown by osmic acid staining. The droplets increase in size and coalesce to form large drops seen as vacuoles in stained preparations, the cells draw in their processes and round out as though edematous, the cell wall and the nuclei finally disintegrate after cell death and there remains only a collection of masses of fat droplets.

In making these cultures various accidents must be guarded against in order to insure success. First, as I have said before, strict asepsis is absolutely essential in making cultures, in preparing tissue and in collecting and storing plasma. In collecting plasma, coagulation is prevented by using an oiled cannula, by thoroughness in paraffining tubes and pipets, by keeping the plasma cold by the use of ice-water, and by speed in collecting and centrifuging. This last is not so important with chicken plasma as with that of some mammalia. Rat and mouse plasma will jelly in half an hour; human and dog plasma will keep a few days, while chicken plasma, if stored in the cold, will remain fluid for over two months. In making the cultures themselves reasonable speed must be observed and it is best to work in rather a warm room or on a warm table to prevent chilling of the cells. Also drying must be avoided, and as soon as the plasma has solidified the cultures must be placed in the incubator and kept at a constant temperature and must not again be exposed to room temperature for any length of time. If cultures fail to grow one of the following reasons is responsible:

1. Bacterial infection.
2. Chilling of the tissue.
3. Drying of the tissue.
4. Searing of the tissue with too hot a knife.
5. Alterations in incubator temperature.

I have obtained growth and pulsation from chick embryo heart cultures placed in the incubator one

hour after the egg was opened, but I usually try to work more rapidly than this.

Various factors influence the rate, duration and amount of growth, so care must be exercised in making comparisons between different cultures. For comparative studies of external influences it is best to use tissues from the same embryo or one of the same age, planted in the same lot of plasma with the same dilution. The factors influencing growth are:

1. Age of animal or embryo from which tissue is taken (growth being inversely proportional to age).
2. Age of plasma after bleeding (fresh plasma giving the best result).

3. Age of animal from which plasma was taken (again inversely proportional).

4. Time of exposure of tissue to room temperature.

5. Condition of animal from which plasma was taken.

6. Amount and nature of diluent used for plasma (the optimum dilution varying with tissue and animal).

7. Source of plasma, autogenous, homogenous, heterogenous or mixed (usually autogenous giving the best results for adult tissues and homogenous for embryonal).

8. Kind of tissue used (adult glandular tissue grows very slowly, while embryonal spleen may multiply forty-fold in twenty-seven hours).

9. Proportion of plasma to tissue.

10. Position of tissue in plasma (on lower surface, in depth or against glass).

11. Thickness of the layer of plasma as it affects proportion of plasma to tissue and position of tissue in plasma.

12. Temperature of incubation.

13. Thoroughness of sealing of cultures as it affects drying.

14. Amount and nature of bacterial or mold infection (molds usually not hindering growth and the influence of different bacteria varying greatly).

15. Number of washings and replantings of tissue. After several replantings the cells become accustomed to artificial life and grow more freely.

Peyton Rous⁹ has demonstrated the production of acid by growth of adult tissues and uses litmus-tinted mediums to demonstrate growth, any fragments which do not grow remaining blue, while a pink color is a macroscopic indication of growth. Very young embryonal tissues, however, remain colorless. In actively growing cultures growth is seen by the naked eye as a halo around the original tissue.

Now that we have reviewed the history and methods of tissue cultivation *in vitro*, let us consider to what uses it has been and may be put.

Harrison² first used the method to study the origin and growth of nerve-fibers in the embryo, and Ingebrigtsen¹⁰ and Burrows¹¹ have demonstrated degeneration and regeneration of nerve-fibers in cultures, the former obtaining growth of nerve-fibers from the cerebellum of young cats and guinea-pigs. Axis cylinders grow very rapidly, 1 to 1.5 microns per minute, but their growth is limited to from forty-eight to seventy-two hours.

Various other observers have studied and are studying phases of cell growth, multiplication and degen-

7. Awroroff and Timofeiewsky: Russk. Vrach, 1913, p. 549.

8. Foot: Jour. Exper. Med., 1913, xvii, 24.

9. Rous, Peyton: Growth of Tissue in Acid Media, Jour. Exper. Med., 1913, xviii, 183.

10. Ingebrigtsen: Jour. Exper. Med., 1913, xvii, 132; 1913, xviii, 412.

11. Burrows: Jour. Exper. Zool., 1911, x, 63.

eration, the cultures showing beautiful karyokinetic figures, and degeneration processes being well brought out by osmic acid fixation. Awroroff and Timofeiewsky⁷ have recently published some interesting observations on leukemic blood, claiming the multiplication of white blood-cells, their transformation into fixed cells, giant cells and macrophages and the development of leukemic tumors from such cells retained from the blood-stream in various organs. They seem to prove the view that in wound-healing and tissue regeneration a portion of the white cells alter to form fixed cells. Foot⁸ has studied hematogenesis in bone-marrow cultures from chick embryos. He finds the development of polymorphonuclear leukocytes from a mesenchymal lymphoid type of cell and rapid amitotic proliferation from unripe small types. He says that all cells of chicken-bone marrow can undergo a transformation to a type of cell resembling although not proved to be identical with the cells of connective tissue. Lambert and Hanes¹² and Weil¹³ have produced foreign body giant cells in cultures at will by the introduction of irritants.

The action of various mediums on cell growth, especially of various saline substances, has been studied by Carrel and Burrows,¹⁴ Ingebrigtsen,¹⁵ M. R. and W. H. Lewis,¹⁶ and Legendre,¹⁷ and the effect of plasma of alien species on normal and tumor tissues by Carrel and Burrows,¹⁸ and Lambert and Hanes.¹⁹

The action of various deleterious agents on growth may be studied in these cultures; such as the effect of heat and cold on the mediums and tissues, as studied by Ingebrigtsen²⁰ and Lambert,²¹ and the action of ricin as studied by Levaditi and Mutermilch.²² They added ricin to cultures of kidney and heart cells and found that it arrested multiplication of both, but had no influence on the pulsations of the latter. With splenic cultures it also prevented migration of the leukocytes. The same authors²³ added cobra venom to cultures of heart and spleen of embryo chicks and found that it prevented the formation of new fusiform connective-tissue cells and prevented migration of cells even when previously heated to 100 C. The absorption of the poison was very rapid, but if the exposure was not too long the effect could be counteracted by the further addition of anticobra serum. Previous addition of antiserum will prevent any deleterious action of the venom.

The effect of various gases, as oxygen, nitrogen, hydrogen, carbon dioxide and monoxide and methane, of chemicals in solution and of light rays, as Roentgen rays, radium and ultraviolet rays may be studied on these cultures. Levaditi and Mutermilch²⁴ have studied the action of ultraviolet light and find that an exposure of from twenty to thirty minutes will check connective-tissue growth and cell migration. I have

planned in the future to consider the action of gases and of Roentgen rays myself if opportunity avails.

Interesting studies have been made on the subject of wound healing by E. S. Ruth,²⁵ using mass cultures of frog skin with windows cut in the center.

The growth and transmissibility of various tumors is being studied by several different workers. Rous⁸ and Carrel and Burrows²⁶ have cultivated Rous chicken tumors due to a filterable agent, Carrel and Burrows,²⁷ and Albrecht and Joannovicz²⁸ have cultivated human malignant tumors in blood taken from the patient's arm vein at the time of operation, and Lambert and Hanes²⁹ have cultivated rat and mouse sarcoma and carcinoma. The last observers note that in carcinoma cultures there is often first a growth of connective tissue or sarcoma-like stroma cells. Doyen, Lytchowsky, Browne and Smyrnof³⁰ are also studying tumor growth, but have not reported any different results from others.

From the study of *in vitro* cultures Carrel⁶ developed his suggestion of the preservation of tissues in latent life in cold storage for surgical purposes.

Pfeiler and Lentz³¹ mention casually in an article on another subject the fact that they have been studying the influence of various micro-organisms on tissue cultures with reference to chemotaxis, phagocytosis and nuclear changes, but do not give any account of their findings. My own work has been on the study of the action of the pathogenic bacteria and their products on tissue cultures *in vitro*, and I hope soon to publish some interesting observations on these lines. These cell cultures make excellent culture mediums for bacteria, as we have in them, as it were, living and actively growing mediums producing in nascent form the amino-acids now recognized as important bacterial foods. It is to supply these acids that Noguchi adds tissue fragments to his spirochete mediums and Rivas trypsinizes his egg medium for the rapid differentiation of cholera. I am in hopes that on these cultures we may be able to cultivate more of the strictly or nearly strictly parasitic micro-organisms that grow with difficulty or not at all on ordinary mediums. In these cultures we have an opportunity hitherto wanting of watching under the microscope the interaction of bacteria and tissue cells.

Carrel and Ingebrigtsen³² have demonstrated the production of hemolysins in tissue cultures by adding washed goat red blood-cells to fresh cultures of guinea-pig bone-marrow and lymph-glands and, after four or five days, testing the digested mass with washed goat corpuscles. The development of hemolysins was preceded by phagocytosis of the original red cells in the culture. Herman Lüdke³³ has also demonstrated the production of agglutinins and hemolysins in these cultures, but he injects a live animal with the bacterial

12. Lambert and Hanes: Jour. Exper. Med., 1912, xv, 510.

13. Weil: Jour. Path. and Bacteriol., 1913, xviii, 1.

14. Carrel and Burrows: Jour. Exper. Med., 1913, xviii, 287.

15. Ingebrigtsen: Jour. Exper. Med., 1912, xvi, 421.

16. Lewis, M. R. and W. H.: Anat. Rec., 1912, v, 277.

17. Legendre: Compt. rend. Soc. de biol., 1913, lxxv, 246.

18. Carrel and Burrows: Jour. Exper. Med., 1911, xiii, 562.

19. Lambert and Hanes: Jour. Exper. Med., 1911, xiv, 129.

20. Ingebrigtsen: Jour. Exper. Med., 1912, xv, 397.

21. Lambert: Jour. Exper. Med., 1913, xviii, 406.

22. Levaditi and Mutermilch: Compt. rend. Soc. de biol., 1913, lxxiv, 611.

23. Levaditi and Mutermilch: Compt. rend. Soc. de biol., 1913, lxxiv, 1305; 1913, lxxiv, 1379.

24. Levaditi and Mutermilch: Compt. rend. Soc. de biol., 1913, lxxiv, 1180.

25. Ruth, E. S.: Jour. Exper. Med., 1911, xiii, 422; May, 1911, 599.

26. Carrel, Alexis, and Burrows, M. T.: Cultivation of Sarcoma Outside of Body (a Second Note), THE JOURNAL A. M. A., Oct. 29, 1910, p. 1554.

27. Carrel, A., and Burrows, M. T.: Human Sarcoma Cultivated Outside of the Body (a Third Note), THE JOURNAL A. M. A., Nov. 12, 1910, p. 1732.

28. Albrecht and Joannovicz: Wien. klin. Wchnschr., 1913, No. 20, p. 781.

29. Lambert, R. A., and Hanes, Frederic M.: Growth in Vitro of the Transplantable Sarcomas of Rats and Mice, THE JOURNAL A. M. A., Jan. 7, 1911, p. 33; Jour. Exper. Med., 1911, xiii, 495; Columbia Univ. Press, 1912, ii, 161.

30. Browne and Smyrnof: Compt. rend. Soc. de biol., 1913, T. 74, 1331.

31. Pfeiler and Lentz: Centralbl. f. Bakteriologie, 1913, i, 68, 122.

32. Carrel, A., and Ingebrigtsen: Jour. Exper. Med., January, 1912, xv, 287.

33. Lüdke, Herman: Berl. klin. Wchnschr., 1912, xlix, 22, 1034.

culture or red cells and kills the animal in twenty-four hours, when tests show no antibodies have yet been formed, and makes cultures of tissue from the freshly killed animal in homogenous serum and incubates for from two to five days. Then on testing the serum the antibodies are found to have developed *in vitro* in the extirpated cells. He also obtains results with the use of Ringer's solution in place of serum, so this shows that growth is not essential for antibody formation. Hadda and Rosenthal³⁴ have also been studying the action of normally present hemolysins in serums. Lambert³⁵ has demonstrated the formation of cytotoxins for mouse sarcoma cells in the blood of rats immunized with such sarcoma. H. Reiter,³⁶ using Carrel and Ingebrigtsen's methods, has demonstrated that kidney cells as well as cells of the hemopoietic organs can produce agglutinins, and Przygode³⁷ has repeated the work of Carrel and Ingebrigtsen and of Lüdke on immune body production.

V. H. Moon³⁸ has cultivated the virus of rabies in test-tubes. He used the brain of a dog injected with street virus and killed in from twelve to eighteen days on the appearance of the first symptoms. At this time no Negri bodies or only very minute ones were found, but if the tissue is placed in sterile dog serum and covered with olive oil to exclude oxygen and incubated, and one tube examined every twenty-four hours, the Negri bodies will be seen to develop and increase in size and number. He obtains the same results in Ringer's solution and finds continued virulence and presence of Negri bodies in fifth and sixth subcultures.

Steinhardt, Israeli and Lambert,³⁹ in a joint article, report the cultivation of the virus of vaccinia by similar methods from stock glycerinated, phenolated, calf virus dialyzed through collodion sacs. Small pieces of rabbit or guinea-pig cornea are placed for a few minutes in this solution and then planted in homogenous plasma. No vaccine bodies are seen, but virus from these cultures is proved active by skin inoculations and successful inoculations have been made from third transfer cultures.

I have purposely refrained from giving any details of my own problems or results, as they will appear in another form in the not distant future.

34. Hadda and Rosenthal: Ztschr. f. Immunitätsforsch. u. exper. Therap., 1913, Orig. 16, 524.

35. Lambert: Jour. Exper. Med., 1911, xiii, 453.

36. Reiter, H.: Ztschr. f. Immunitätsforsch. u. exper. Therap., 1913, Orig. 18, 5.

37. Przygode: Wien. klin. Wchnschr., 1913, No. 21, p. 84.

38. Moon, V. H.: Jour. Infect. Dis., 1913, xiii, 232.

39. Steinhardt, Israeli and Lambert: Jour. Infect. Dis., 1913, xiii, 294.

Constitutionality of Illinois Child Labor Law Affirmed.—

The United States Supreme Court holds that the Illinois child labor law is valid. The decision refers particularly to Section 11, which prohibits the employment of children under 16 in various hazardous occupations. It is said that it was clearly within the power of the legislature to secure the safety of the young by imposing absolute requirements of the kind mentioned in the act. The decision in substance states that a minor employed contrary to the provisions of the child labor law if injured in such employment has a right of action and may recover damages even if an employer in hiring him acted in good faith and relied on the representations of the minor that he was over 16. In the case on which the decision is based, the boy presented an affidavit as to his age and the company failed to investigate the correctness of the statement that he was over 16. The statute of 1913 places the responsibility as to the correct age of a minor on an employer.

BENZOL IN THE TREATMENT OF POLYCYTHEMIA RUBRA

WITH REPORT OF A CASE

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The use of benzol (benzene, C_6H_6), as a medicinal agent was suggested by the observations of Selling,¹ who studied its influence in the anemia of certain factory-girls whose occupation led to the inhalation of benzol gas. His subsequent experimental work on animals showed that benzol caused, first, a marked reduction in the white blood-cells, and later a diminution in the red blood-cells. Examination of the tissues of animals thus poisoned indicated a selective action on the bone-marrow.

Von Korányi² was the first to make practical use of those observations. Stimulated by Selling's work, he administered benzol to a patient with splenomyelogenous leukemia and produced a remarkable fall in the leukocyte-count as well as reduction in the size of the spleen and improvement in the patient's general condition. He recommends its use in leukemia and also suggested that it might be of value in polycythemia. Numerous other observers have subsequently attested the value of this drug in leukemia. A recent article by Barker³ gives a summary of the literature together with the report of a case. In the literature of polycythemia, however, I can find only the following instances of benzol administration:

Korányi² observed the red blood-cells to fall from 9,000,000 to 6,700,000 after three weeks' benzol therapy.

Moewes⁴ case was one of long standing. The patient had exhibited a somewhat cyanotic appearance for about twenty years. Twenty-three years previously he acquired syphilis. At one time he was in Senator's clinic with nephritis, at which time he had an enlarged spleen, and 11,000,000 red blood-cells. He there underwent numerous "cures" for polycythemia, including repeated venesection and the administration of both mercury and tuberculin, all to little avail. Salvarsan later produced slight but temporary improvement. Moewes began the administration of benzol when the red cells were 9,500,000. Under the influence of this drug these cells fell in six weeks to 6,500,000, and the patient also showed improvement in his general condition. The dosage is not stated. For six months the blood remained apparently unchanged, when, without obvious cause, the patient developed acute nephritis and died of uremia. At necropsy the tissue changes produced by the nephritis and the old syphilis predominated and prevented any satisfactory study of the polycythemia. Moewes speculates on the possible rôle of benzol in producing the nephritis; I shall refer to this later.

Beltz⁵ reported a case of polycythemia at a recent meeting of the Allgemeiner Aertzlicher Verein zu Köln, in which the administration of "300 capsules, each 0.5 gm. of benzol" has produced as yet no influence on the disease.

Kiralify⁶ reports two cases of polycythemia, neither with enlarged spleen, treated with benzol. In the

1. Selling: Johns Hopkins Hosp. Bull., 1910, xxi, 33.

2. Von Korányi: Berl. klin. Wchnschr., 1912, xlix, 1357.

3. Barker: Johns Hopkins Hosp. Bull., 1913, xxiv, 363.

4. Moewes: Deutsch. Arch. f. klin. Med., 1913, cxi, 281.

5. Beltz: München. med. Wchnschr., 1913, lx, 161.

6. Kiralfy: Virchows Arch. f. Path. Anat., 1913, ccxiii, 399.

first case, after several months' administration of the drug, up to 5 gm. daily, the red cells were seen to fall from 8,700,000 to 4,800,000, and coincident improvement in all symptoms was noted. During five weeks without benzol the red cells increased to 5,170,000. The second patient was benefited in a similar manner, the red cells falling from 6,500,000 to 4,960,000 and remaining at the latter figure. In this case the drug was given by enema as it could not be retained by the stomach.

Diet, Roentgen ray exposures of the spleen and long bones, and repeated venesection are the other methods of treatment usually recommended in polycythemia. Reports do not indicate that any of these methods have produced satisfactory results.

I wish to report the case of a patient who showed complete amelioration of all symptoms following the administration of benzol, which improvement continues to hold good after three months without benzol.

The patient, W. D., is 50 years of age, a wine merchant, and has always been temperate in the use of alcohol. The family history is unimportant, and he has never been ill. Syphilis is denied and the Wassermann test is negative. For several years (five or six probably) it has been noted that his complexion was florid and that his lips had somewhat of a bluish tint. He first consulted a physician early in 1911 when he was under rather severe mental strain and had reason for anxiety concerning his business. At that time he complained of "nervousness," headaches, pain in the left hypochondrium, itching of the entire body, which at times was very distressing, and blurring of vision. He states that albumin and casts were at that time found in the urine. All symptoms gradually increased in severity.

I first saw the patient two years later, in March, 1913. The skin was of a "dusky" color and the mucous membrane "bluish-red." The tongue looked somewhat like a piece of raw beef, yet was of a violet tint. The veins of the face were dilated and tortuous. At the apex of the left lung a few fine râles could be heard. The heart was apparently normal, as were the peripheral arteries. Systolic blood-pressure was 140 mm. The spleen could be palpated on inspiration and was a little tender. The size of the liver was apparently normal. The deep and superficial reflexes were preserved. There was no elevation of body temperature. The skin appeared dry. There was no unusual enlargement of the lymph-nodes.

The eyes were examined by Dr. K. W. Constantine, who reported: "The color of the fundus-reflex is darker than usual. . . . The red color of the retinal vessels is denser than normal. . . . There are no hemorrhages or signs of inflammation."

The urine, normal in amount, specific gravity 1.020, contained an abundance of albumin, hyaline and granular casts, and great numbers of red blood-cells. The phenolsulphonephthalein test of kidney function gave normal values.

The red blood-cells were 8,300,000, and the leukocytes, 26,000. The differential count made with Wright's stain is given in Table 1.

TABLE 1.—DIFFERENTIAL COUNT MADE WITH WRIGHT'S STAIN

| | Cells Counted | Percentages |
|-------------------------------|---------------|-------------|
| Polymorphonuclear neutrophils | 471 | 94 |
| Polymorphonuclear eosinophils | 10 | 2 |
| Polymorphonuclear basophils | 0 | 0 |
| Small mononuclears | 12 | 2.5 |
| Large mononuclears | 7 | 1.5 |
| Myelocytes | 0 | 0 |
| | 500 | |

Nothing widely at variance from the normal could be seen in the character of the red cells. Slight variations in size and in tinctorial characters were seen. Occasionally mild polychromatophilia and very rarely a nucleated cell appeared. One megaloblast was found. Beyond great increase in the

number of the white cells, at the expense of the polymorphonuclears, these cells presented nothing unusual.

The hemoglobin, estimated by means of 10-c.c. volumetric flasks and the Autentrieth-Königsberger colorimeter, was 185 per cent.

During the following three months, with no treatment beyond diet and hygienic measures, the red cells increased, as shown in Table 2, to 12,700,000, and the leukocytes to 29,000 (June 10, 1913). Slight downward fluctuation followed, and July 21, with the red blood-cells 10,500,000, benzol was begun.

Ascending doses, beginning with 1 gm. three times daily and finally reaching 4 gm. three times daily, of an emulsion containing 25 per cent. benzol, 25 per cent. olive-oil and 50 per cent. mucilage of acacia, were given. Thus, the maximum dose of benzol was 4 gm. per day. A gradual fall in the number of red cells as well as in the number of the leukocytes was noted. After five months (Dec. 13, 1913) the red cells numbered 6,600,000, the whites 10,000. Within the next four weeks the red cells dropped to 5,000,000. Thinking this perhaps an error, I requested the patient to return for another count. On his return three days later the red cells were 4,300,000. The benzol was immediately discontinued. Within the next four weeks the red cells rose to 6,000,000. In the four weeks following they fell to 5,000,000, and for the next seven weeks (February 17-April 8) the red cells have remained stationary.

TABLE 2.—BLOOD-COUNTS, MARCH 24, 1913-APRIL 8, 1914

| Date | Reds | Whites | Hemoglobin |
|----------|---------------------|--------|------------|
| 3/24/13 | 8,300,000 | 26,000 | 180 |
| 4/ 9/13 | 9,000,000 | 24,000 | 185 |
| 4/14/13 | 9,000,000 | 22,400 | ... |
| 5/ 5/13 | 9,200,000 | ..... | ... |
| 5/17/13 | 9,900,000 | ..... | 185 |
| 5/27/13 | 11,300,000 | 29,200 | ... |
| 6/10/13 | 12,700,000 | 27,300 | ... |
| 6/27/13 | 9,600,000 | 28,000 | ... |
| 7/22/13 | Benzol begun | ..... | ... |
| 7/22/13 | 10,500,000 | 22,500 | ... |
| 7/31/13 | 9,900,000 | 21,000 | ... |
| 8/ 7/13 | 9,800,000 | ..... | ... |
| 8/15/13 | 9,200,000 | ..... | ... |
| 8/23/13 | 9,600,000 | ..... | ... |
| 9/13/13 | 8,800,000 | ..... | ... |
| 9/29/13 | 8,300,000 | 15,700 | ... |
| 10/27/13 | 7,500,000 | 17,000 | ... |
| 11/ 8/13 | 7,400,000 | 15,000 | ... |
| 11/28/13 | 6,900,000 | 11,000 | ... |
| 12/13/13 | 6,600,000 | 10,000 | 110 |
| 1/10/14 | 5,000,000 | 7,100 | ... |
| 1/13/14 | 4,300,000 | ..... | ... |
| 1/13/14 | Benzol discontinued | ..... | ... |
| 1/24/14 | 4,500,000 | 10,000 | ... |
| 2/ 3/14 | 6,000,000 | 8,800 | 100 |
| 2/ 5/14 | 6,000,000 | ..... | 105 |
| 2/17/14 | 5,000,000 | 8,700 | ... |
| 3/10/14 | 5,000,000 | 9,500 | 100 |
| 3/23/14 | 5,000,000 | 12,300 | 100 |
| 4/ 8/14 | 4,800,000 | 10,500 | 95 |

Table 3 gives the last differential count made March 10, 1914. This and the differential count above noted represent the extremes in percentages. Counts made on intervening dates show corresponding figures (Wright's stain).

TABLE 3.—LAST DIFFERENTIAL COUNT

| | Cells Counted | Percentages |
|-------------------------------|---------------|-------------|
| Polymorphonuclear neutrophils | 425 | 85 |
| Polymorphonuclear eosinophils | 13 | 2.6 |
| Polymorphonuclear basophils | 4 | 0.8 |
| Small mononuclears | 35 | 7 |
| Large mononuclears | 23 | 4.6 |
| Myelocytes | 0 | 0 |
| | 500 | |

The changes in the urine are noteworthy. The casts and red blood-cells have gradually disappeared, and, though a trace of albumin is now present, it also at one time disappeared. Evidently Moewes' suspicions as to the irritating effect of benzol on the kidney are not confirmed by this case.

During the period of improvement in the blood-picture the patient has shown equal improvement from every other aspect. His appearance is now that of a normal man. The itching, the disturbance of vision and the headaches have completely disappeared. The pain in the left hypochondrium and the pain under the left scapula, of which he frequently com-

plained, no longer disturb him. The spleen cannot be palpated. The suggestive râles formerly heard at the apex of the left lung can no longer be detected. The patient's general sense of well-being is marked. He states that he feels better than he has felt in years.

Benzol in this instance caused occasional disagreeable gaseous eructations but no other disturbance of the stomach.

Since there was a slight fall in the number of the red cells just before benzol was begun, it might be surmised that the subsequent fall to normal was due to natural causes rather than to the drug. On the other hand, such small fluctuations in the red cells are frequently seen in polycythemia, while no case reported has without benzol shown the steady and complete decrease to normal which immediately accompanied the administration of this substance.

The experimental and clinical experiences of the observers above quoted, together with the improvement in this case, justifies, I think the conclusion that benzol is a valuable therapeutic agent in polycythemia.

At the same time, this patient must not be regarded as cured. No doubt we shall see another increase in the red cells, when recourse must again be had to benzol. The ultimate result is as yet a matter of conjecture.

For the suggestion that benzol be used I am very grateful to Dr. W. S. Thayer, who saw the patient a short time before he came under my care.

EXTRAPERITONEAL CESAREAN SECTION

WITH REPORT OF A CASE

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The management of contracted pelvis and cesarean section has not yet reached so high a degree of perfection as to leave no room for further improvement. I therefore recommend for the treatment of dystocia in contracted pelvis an operation which is rarely performed in America, but rather frequently abroad, and which I deem an improvement on the classical cesarean section.

REPORT OF CASE

Mrs. J. G., age 21, primipara, was admitted to the Sydenham Hospital Jan. 11, 1914, at 6:30 a. m. The patient, a short slender woman, stated that she had been having labor pains every ten minutes for the preceding six and one-half hours and that the membranes had ruptured just prior to her admission. No history was given of rickets or other diseases bearing on the case.

Examination.—Pelvis generally contracted. Measurements: interspinous, 19.5 cm.; intercrystal, 26; intertrochanteric, 31; conjugate diagonal, 10 minus; conjugata vera, $8\frac{1}{4}$. Double promontory, moderately projecting. Internal os, obliterated; external os admitted one finger; head of child above the brim; back to the right; small parts to the left. Liquor amnii dribbling away. Labor pains continued but descent into the pelvis did not take place.

January 13, at 11:45 a. m., patient received pituitary extract, 5 minims, hypodermatically. Pains became strong; half an hour later came a gush of liquor amnii. The last examination made at 2 p. m. showed the external os four fingers breadth dilated, membranes ruptured; head well fixed with large diameter in the pelvic inlet. At 4 p. m., thinning of the lower uterine segment having occurred and the fetal heart-sounds

being good, extraperitoneal casarean section was decided on. Patient had been in labor sixty-three hours. Preliminary filling of the bladder, having been unsuccessful, was dispensed with.

Operation.—A median incision was made 2 cm. above the symphysis and extending upward 12 cm.; the fascia was incised; the recti muscles and prevascular connective tissue were separated; the bladder also separated from the lower uterine segment on the left side; an incision was made through the ligamentum umbilicale sinistrum, with separation both of the peritoneal fold from the bladder as far as the urachus, sharp and blunt, and of the peritoneal fold from the lower uterine segment on the left; the bladder was retracted to the right. A plexus of large veins was exposed without injury or bleeding. Median incision was made of the lower uterine segment, from 10 to 12 cm. (3 or 4 inches) long; right ear presented; finger was put into mouth and face rotated anteriorly; forceps applied bilaterally; head extracted by flexion with ease, body followed. Child cried. Placenta was removed manually; uterus well contracted; bleeding minimal. Cervical incision was closed by running catgut suture, taking in the entire thickness of the cervix, and covered by a second layer of interrupted suture. The bladder was replaced and fixed above to the peritoneal fold and at the left to the pelvic connective tissue. Drain was inserted; abdominal wound closed in three layers. At the time the uterus was incised, patient received pituitary extract, 1c.c. and ergot 1 c.c.

Postoperative History.—The condition of the patient, the next day, was very good. Although it was necessary to catheterize her several times during labor, she now was able to urinate spontaneously in spite of the great separation of the bladder. The patient complained of hunger. The drain was shortened daily and removed entirely on the fifth day. The patient was out of bed on the seventh day. Except for a bronchitis contracted on the fifth day, the patient was well. Examination made February 17 showed no general or local disturbance.

Two questions possibly may be asked: A. Why did I wait over two days before operating? B. What are the advantages of the extraperitoneal section over the classical operation?

A. In patients with contracted pelvis with a conjugata vera measurement of $8\frac{1}{4}$ cm. from 65 to 70 per cent. of cases of labor terminate spontaneously, and we cannot with tape and pelvimeter determine beforehand what the outcome of such cases will be. In primiparas in particular the indications to operate must be exceptionally clear. Nothing but a fair trial for natural labor and careful observation on the part of the attendant during that time can determine whether labor will not terminate without operation.

B. The advantages of the extraperitoneal cesarean section are: (1) lessened bleeding; (2) non-exposure of peritoneum; (3) lessened danger of postoperative hernia, and (4) most important of all, the fact that the operation can be performed at a time when it would no longer be safe to do the classical operation.

1. *Lessened Bleeding.*—In cervical cesarean there is very little bleeding; first, because the lower uterine segment is distended and thinned out, the muscle often being of the thinness of paper; secondly, because no large sinuses are located there; thirdly, because the placenta is not encountered.

2. *Non-Exposure of Peritoneum.*—The peritoneum remains sealed to infection. No blood or questionable liquor amnii can enter the peritoneal cavity. The intestines do not come into the field of operation. There is no cooling or lesion of the abdominal contents. The operative shock is reduced to a minimum.

3. *Exclusion of Postoperative Hernia.*—In spite of the fact that the wound is drained, there is no tendency to postoperative hernia; first, because the abdom-

inal wound can be sutured in layers except at the lower angle, and second, the part drained is outside of the abdominal cavity in the space of Retzius.

4. *Time of Operation.*—The operation can be performed when it would no longer be safe to do the classical operation. In fact, it is generally performed after the woman has been in labor a considerable time, long after the membranes have ruptured and after repeated vaginal examinations by physicians and midwives.

TECHNIC OF OPERATION

The technic followed by me and recommended in this paper is the combined Latzko-Sellheim method. It is based on a study of about fifty cases at the Wertheim clinic in Vienna.

The underlying principle is the separation of the bladder to one side (Latzko), and the separation of the plica upward (Sellheim). This gives the surgeon sufficient room to extract the child, and at the same time obviates extensive separation of the bladder or peritoneum from the lower uterine segment. It is thus possible to avoid subsequent paralysis or gangrene of the bladder, and injury to the peritoneum at the time of the operation. Further, if the operator adheres to the rule not to separate the peritoneum from the bladder beyond the urachus where it is firmly attached, injury to the bladder or peritoneum can be avoided without difficulty. This is a vital point in the operation, for if either the bladder or peritoneum is opened, the operation fails to be a true extraperitoneal operation.

The bladder may be separated from the lower uterine segment on the left or right side. I prefer the left side, first, because in pregnancy the bladder inclines more to the right, and, secondly, because as a rule the lower uterine segment is more distended on the left side. If, however, the presenting part is on the right side causing marked distention there, I separate on that side.

The ureters and large blood-vessels do not come within the field of operation. Caution must be observed, however, not to dissect too far laterally, lest large venous plexuses be encountered, resulting in severe and troublesome bleeding, or the iliac blood-vessels may even be exposed.

Time for Operating.—The operation can be done at any stage of labor, but is best done when there is distention of the lower uterine segment. The longer one can wait without causing a rupture of the uterus, the higher will the reduplication of the plica be carried up and the easier will be the operation.

Position of the Patient.—It is advantageous to place the patient in the Trendelenburg position before extracting the child. This aids by causing the fetal head to recede. As soon as the child is extracted, the patient should be changed to horizontal or median Fowler. The blood and amniotic fluid will thus drain through the vagina, and any bleeding from the uterus is noticed at once.

The Bladder.—I do not concern myself much about the bladder contents. At the Wertheim clinic operations were performed with filled, half-filled and empty bladder, but I prefer a moderately (from 100 to 150 c.c.) filled bladder, or a well-filled bladder (from 200 to 300 c.c.) with a self-retention catheter which enables me to empty the bladder contents at will. I always found room enough, but it is certain that an overfilled bladder obstructs the field of operation, while an empty

bladder renders the finding of the bladder boundary and its dissection more difficult. The filling of the bladder has the further advantage of lifting still higher the plica vesico-uterina.

Abdominal Incision.—I prefer a median incision just above the symphysis, from 12 to 14 cm. in length.

A Pfannenstiel incision is not advisable; first, because it may be necessary to drain from above; secondly, because a second cesarean section on the same patient may sometime be necessary. Besides, the danger of hernia with median incision after an extraperitoneal cesarean is negligible.

Delivery of the Child.—In vertex presentation the fetus may be expressed, with the aid of a finger placed in the mouth and traction applied on the upper jaw. I prefer extraction by the application of forceps to the head. If a Latzko forceps is at hand, I permit the vertex to remain in the wound and extract by extension. Otherwise, a finger is hooked into the mouth, the face is rotated into the incision, ordinary forceps are applied bilaterally and the fetus extracted by flexion. The rest of the body follows with ease.

Drainage.—If the wound is perfectly dry and the case is not too suspicious, drainage may be dispensed with. When there is any doubt, the wound should be drained. This can be done either from above, through the abdominal wound or below through the vagina. The uterine cavity is not drained.

Sutures.—Sutures may be interrupted or continuous, of silk or catgut. In nearly all cases at the clinic interrupted silk sutures were used. I take in the entire thickness of the lower uterine segment at once, and cover this by a second layer of sutures. I think it advisable not only to replace the bladder, but also to secure it laterally as well as above with catgut sutures. The abdominal wall is closed in three layers.

Time Consumed and Difficulty of Procedure.—The extraperitoneal cesarean section is more difficult and more time-consuming than the classical operation; but success does not depend so much on the rapidity as on the exactness with which an operation is performed. Neither mother nor child suffers through the longer time consumed. In fact, one who has observed post-operative cases of classical cesarean section with the patients often suffering intensely and nearly always in discomfort, is struck by the well-being of patients who have undergone the extraperitoneal cesarean section.

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Blindness in Cebu.—L. Schwartz of the Public Health Service (*Pub. Health Rep.*, March 27, 1914) investigated the question of blindness in Cebu, Philippine Islands. In the twenty-three towns visited, with a population of 451,751, or a little more than half the population of the province, there are about 322 cases of blindness, and in the whole island about 600, of whom perhaps 200 might be made to see and become self-supporting. Of 145 cases examined by him, 50 were found to be suitable for surgical treatment with almost certain restoration of vision. They included cataracts with good light perception and pupil reaction, leukomas the result of keratitis, ophthalmia, pterygiums covering the pupil, cases of old iritis with occlusion of the pupil but with light perception, etc. The chief cause of blindness was found to be small-pox, 48 of the 145 cases found being due to this cause. Since the Americans have begun systematic and compulsory vaccination, small-pox is no longer a cause of blindness. There were 18 cases due to cataract, and 17 due to trachoma, which latter disease is the cause of about 18 per cent. of the blindness in Cebu. About 15 per cent. of the cases were due to causes not preventable, such as traumatism, etc.

A COMPARISON OF THE ONSET AND
CHARACTER OF THE APOPLEXY
CAUSED BY CEREBRAL HEMOR-
RHAGE AND BY VASCULAR
OCCLUSION*

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INTRODUCTION

The differentiation during life between spontaneous intracerebral hemorrhage and cerebral softening consequent on vascular occlusion is notoriously uncertain. Nevertheless, it is generally admitted, whether correctly or incorrectly, that the mode of onset and character of the apoplectic attack may be sufficient to determine the nature of the underlying lesion.

Thrombosis, like hemorrhage, is dependent on arteriosclerosis or syphilitic arteritis, though some cases of vascular occlusion can be ascribed to certain changes in the blood, as in pneumonia and typhoid fever. Without trauma healthy blood-vessels never rupture. This may account for the rarity of cerebral apoplexy in the lower animals. Dr. Herbert Fox, director of the pathologic laboratory at the Philadelphia Zoological Gardens, has informed me that he has never observed arteriosclerosis of the brain or its results—softening or hemorrhage—in a series of more than twenty-three hundred post-mortem examinations of a large variety of mammals, birds and reptiles.

Disturbance of consciousness is the most characteristic feature of apoplexy. Gowers¹ considered a patient to be unconscious or to have lost consciousness when there was no longer spontaneous evidence of mental action and none could be elicited by sensory stimulation. The exact mechanism concerned in producing this condition is not clearly understood; it is reasonably certain, however, that the preservation of consciousness depends on the proper regulation of intracranial pressure with an adequate supply of blood to the cerebral cortex.

It is believed that the intracerebral pressure may vary slightly under normal conditions, but according to Geigel² it must at all times equal the difference between the arterial pressure and the vascular tension, when the arterial pressure remains the same. An increase of vascular tension leads to diminution, and a cessation of vascular tension to increase of intracerebral tension. It is not the quantity of blood constantly present in the cranial cavity, but the quantity propelled in a given unit of time through the vessels of the brain, which determines the nutrition and proper function of the living cerebral substance. When intracerebral pressure increases, the veins and capillaries having very thin walls are necessarily compressed, thus a deficiency in the circulation of the brain is produced. Hence, even a decrease of arterial tension while the arterial pressure remains the same represents a causative factor in the production of the attack.

Anything which brings about a disturbance between the normal relationship of intracerebral pressure,

arterial pressure and vascular tension, may cause an apoplectic attack; moreover, it is probable that the character of the attack can be directly influenced not only by the degree of disturbance, but also by the rapidity with which the normal neutralization of these forces is disarranged. Obviously, both hemorrhage and thrombosis can produce such disharmony in relationship and regulation of the forces concerned, although perhaps not in exactly the same manner; still the end-results may be similar.

Thomas,³ in his article on apoplexy in Osler's "System" quotes von Monakow, who gives the following analysis of the various effects of hemorrhage into the brain: (1) the primary local destruction of the nervous tissue; (2) the edema in its neighborhood; (3) the decrease in the amount of blood in the vessels in the neighborhood of the clot; (4) the accompanying circulatory changes in the cortex; (5) the transmission of the mechanical shock caused by the sudden escape of blood into the brain in all directions throughout the intracranial cavity (this shock besides its physical action, is a physiologic stimulus to various parts of the brain; and especially, von Monakow thinks, it may stimulate the vasomotor centers and cause a reflex contraction of the cortical vessels); (6) increase in intracranial pressure; (7) interference with the circulation of the cerebrospinal fluid. Disturbance of consciousness, he believes, depends on a sudden cerebral anemia, and that this is brought about by some or all of the various factors enumerated above, but that probably the mechanical stimulation of the vasomotor centers is the most important.

All explanations of the real mechanical changes which do take place within the brain at the time of the initial onset of an apoplectic attack must be somewhat imperfect; still a proper theoretical conception of the various principles concerned is of great assistance in understanding the character of the clinical manifestations of the different conditions under discussion.

In order to ascertain to what extent differences in the character of an attack can be relied on for diagnostic purposes, seventy-two cases of cerebral hemorrhage and fifty of softening have been studied. In each case a post-mortem examination of the brain was made. In addition, the histories of more than three hundred non-fatal cases of hemiplegia were examined, in which an acute vascular lesion had undoubtedly been the initial source of paralysis, but only one hundred of these were found satisfactory for analysis. On account of the fact that so many patients suffering with apoplexy are not observed during the beginning of the attack, many being picked up on the street and brought to the hospital in an unconscious state, the difficulty of obtaining an accurate history is very great; therefore, a large number of cases had to be discarded, and only thirty-eight cases of hemorrhage and twenty-four of softening were made use of, for the accuracy of the statements obtained seemed to be beyond all possible doubt.

In order to facilitate comparisons, cases of hemorrhage and softening have been grouped according to the rapidity with which consciousness was lost.

GROUP A, IN WHICH CONSCIOUSNESS WAS LOST
SUDDENLY

This group comprises twenty-four cases of hemorrhage and eleven of softening, each of which began

* From the Laboratory of Neuropathology at the University of Pennsylvania, Department of Medicine.

1. Gowers: Text-Book, Diseases of the Nervous System, 1907, ii, 99.

2. Geigel: Text-Book, Modern Clinical Medicine, Diseases of the Nervous System, 1908, p. 259.

3. Thomas: Osler's Modern Medicine, vii, p. 382.

with sudden profound loss of consciousness. These patients were variously occupied pursuing their daily vocations, and were instantaneously struck down totally oblivious of their surroundings. Premonitory symptoms were not recorded. Vomiting occurred early in two cases of hemorrhage, but was absent in each of eleven cases of softening. Violent general convulsions were observed in three cases of hemorrhage and in three of softening. In two of the former cases blood had filled both lateral ventricles, and the convulsions were not only severe, but rapidly repeated until death occurred. In one case of hemorrhage, severe but infrequent convulsions were noted, and the lateral ventricles were not filled with blood; in seven cases the lateral ventricles were filled with blood, yet convulsions did not occur. In two of the cases of softening in which convulsions took place, the basal ganglia alone were affected; but in another case of softening the lesion was confined to the cortex, yet the patient had violent bilateral general convulsions. In every case of this group, whether with hemorrhage or vascular occlusion, the loss of consciousness was equally profound, and except for momentary remissions it was not regained. Hemiplegia was invariably present. In twenty-three of the twenty-five cases the hemorrhage was situated in the region of the basal ganglia and internal capsule, and in nine the lateral ventricles were filled with blood. Only one hemorrhage was small, measuring 5 by 2.5 cm. This was situated directly under the cortex of the right temporal lobe. Each one of the softenings belonging to this group were found in the region of the basal ganglia and internal capsule. Nine were extensive, while only two were small, measuring from 3 to 4 cm. in diameter. In each case thrombosis has been the cause.

The duration of life varied considerably. Only four patients with hemorrhage lived less than one day, one died in six hours, and one survived twenty-one days; but in this latter case the hemorrhage was small and close to the temporal cortex of the right side and death may have been hastened by erysipelas. Of the patients with softening, one died after twelve hours and one lived sixteen days, the average being four days. These results seem to be in accordance with Spiller's⁴ observations.

GROUP B, IN WHICH CONSCIOUSNESS WAS NOT LOST SUDDENLY

The second group includes those cases in which the initial disturbance of consciousness was rather mild and then gradually increased till in about ten or fifteen minutes or longer the stage of coma was reached. Partial recovery frequently occurred for short periods of time. There were eleven hemorrhages and only three softenings with this type of onset. Premonitions were recorded in each case of the softenings as well as in five of the eleven hemorrhages. Vomiting occurred only once and then with hemorrhage. General convulsions did not occur in any case, whether of hemorrhage or softening, but in one case of hemorrhage convulsive movements of the upper extremities preceded impairment of consciousness by a few minutes. In every case hemiplegia was present. Twice hemorrhage originated from a cortical vessel, and a large mass of blood was found covering much of the cerebral cortex. As in the preceding group, hemorrhage occurred

in the region of the internal capsule and basal ganglia nine times, but the hemorrhages differed from those of the former group in that they were smaller and more localized and blood had not filled the lateral ventricles. Only two were really small, however, one measuring 2 by 2 cm. situated within the lenticular nucleus and implicating about 1 cm. of the internal capsule, and one 3.5 by 3.5 cm., within the frontal lobe near the cortex.

Of the softenings, three had been very gradual in onset. Hemiplegia and aphasia were established slowly, requiring some days previous to the impairment of consciousness. In these cases the left sylvian artery has been occluded and a large part of the cerebral cortex on the left side was destroyed, including the motor convolution, temporal convolution and parietal lobe. There were three cases of hemorrhage in which motor weakness preceded disturbances of consciousness, but only by a few minutes and not by hours or days, as in some softenings.

The average duration of life was six days in this group of hemorrhages; one patient lived eleven days and one died in three days. Unlike those of the previous group, none died during the first twenty-four hours. Each of the three patients in whom extensive softening had occurred lived for five days after consciousness was lost, but motor weakness had preceded the attack by some time, exactly how long could not be determined, still at least four days in one instance. In four cases of softening consciousness had not been disturbed in the least; but each of these had been caused by an embolus of the middle cerebral artery during an acute disease; a large part of the central portion of one hemisphere was destroyed, including all the basal ganglia and part of the temporal lobes. Two patients lived more than a month, and death was probably caused by cardiac failure and not by the cerebral lesion. In one instance of hemorrhage confined to the pons, consciousness was not impaired until the fifth day after paralysis had occurred, and even then it was not lost until a few hours before death.

HEMIPLEGIA

For the purpose of comparison one hundred cases of hemiplegia have been studied. All of these patients were seen at the Orthopaedic Hospital and Infirmary for Nervous Diseases, and were believed to have had an acute vascular lesion of the brain, that is, thrombosis, embolism or hemorrhage. The period of time which had elapsed after the original apoplectic attack and time of the physical examination varied considerably; the average, however, was five or six months.

Thirty-two of these patients complained of various degrees of ill health preceding the date of the onset of apoplexy; headache was described in nine cases, and syphilis was evident in thirteen. The attack began during the course of an acute illness seven times. In only three cases were there more or less definite sensations of numbness and tingling with some pain and discomfort spoken of as occurring on the side of the body which shortly became paralyzed.

In fifty-two cases consciousness was said not to have been disturbed even in the slightest degree, but these patients did complain of various sensations, such as headache, vertigo, weakness, nausea, faintness, etc. which are too indefinite to be classified, but which might be collectively considered as the "apoplectic equivalent." Hemiplegia developed during sleep in twelve cases.

4. Spiller: Univ. of Penn. Med. Bull., October, 1906.

Consciousness was lost suddenly before any signs of paralysis were noticed in seventeen cases, but in five cases paralytic signs developed first and were then followed by a sudden loss of consciousness. Slow progressively increasing loss of consciousness was rare, occurring only three times, twice preceding any sign of weakness, while in the one case definite impairment of function was the first indication of disease.

Convulsive movements preceded paralysis by some hours in two cases, but general convulsions were not recorded. Aphasia was recorded in nine cases.

The character of the paralysis in every case was the ordinary type of hemiplegia or hemiparesis, with increased tendon reflexes. Sensation was impaired in eight cases, and the face entirely escaped four times.

Many writers have formed the habit of describing premonitory symptoms, which are of value in differentiating hemorrhage, thrombosis and embolism. On purely theoretical grounds it is almost inconceivable that a miliary aneurysm or an arteriosclerotic vessel within the brain in the act of bursting can give rise to symptoms which could be separated from and not confused with the various phenomena of the early stage of the rapidly oncoming apoplectic state. On the other hand, there undoubtedly exist many cases of vascular occlusion in which the lumen of the vessel is cut off gradually, causing thereby gradual impairment of function of that part of the brain nourished by the vessel affected. Chiefly on this ground the statement is often made that premonitory symptoms are absent in cases of hemorrhage and frequently present in cases of thrombotic softening.

Arteriosclerosis or syphilitic arteritis is the common forerunner of most cases of apoplexy. Patients so affected frequently complain of various sensations referable to cerebral disease—headache, vertigo, numbness and tingling of one or more extremities, and a variety of subjective disturbances. These are the symptoms so frequently referred to as premonitions immediately preceding an attack. It must be remembered that when an apoplectic attack begins, the loss of consciousness may develop gradually or suddenly. In the latter case, the starting-point of the attack is unmistakable; but, whenever consciousness is lost very gradually, many symptoms may develop which are in reality caused by the acute vascular lesion, and are indeed actually nothing more than the first and earliest manifestations of a gradual transition from the conscious to the unconscious state. Many apoplexies begin with vertigo, headache, confusion or disorientation, which phenomena may more or less rapidly progress till the grade of profound coma is reached. Taking this point of view, it is evident that symptoms of chronic vascular disease of the brain or arteriosclerosis cannot be distinguished clinically from the earliest symptoms of some cases of apoplexy regardless of the nature of the lesion causing it. This fact is only too well illustrated when it is remembered that some arteriosclerotic patients suffer from apoplectiform attacks which are not associated with cerebral softening or hemorrhages, and which differ only in degree and not in the essential characteristics of the attack itself from true apoplexy.

From what has been said, the so-called premonitions should be more frequently observed whenever consciousness is disturbed at first slowly and therefore incompletely, and less frequently when it is disturbed suddenly and severely.

Many years ago it was said by Trousseau (quoted by Thomas,⁵) that sudden loss of consciousness is rarely if ever the initial symptom of apoplexy. But physicians seldom have the opportunity of observing the beginning of an attack, so that much judgment is required in interpreting the descriptions given by the patient or friends. I was once present where an elderly lady was quietly sitting at the dinner table carrying on an animated conversation—curiously enough, with two physicians—when suddenly she dropped knife and fork from her grasp and fell backward in her chair totally unconscious; some hours later she was dead. If premonitions had been present, they would surely have been noticed.

Of the thirty-eight cases of hemorrhage which have been studied here, premonitory symptoms of short duration were recorded five times. In one there had been a feeling of excitement and apprehension lasting fifteen minutes, accompanied by convulsive movements of both arms. Numbness and tingling of all four extremities and headache occurred once; general restlessness and excitement were present once; while in two instances there was a feeling of intense general weakness. In each case these symptoms were the first symptoms of cerebral hemorrhage, and were recognized only because consciousness was lost gradually. In one case of softening the patient complained of numbness of one side, and three developed motor weakness before the attack; in each consciousness was gradually lost.

RELATION OF THE SIZE OF THE LESION TO SEVERITY OF ATTACK

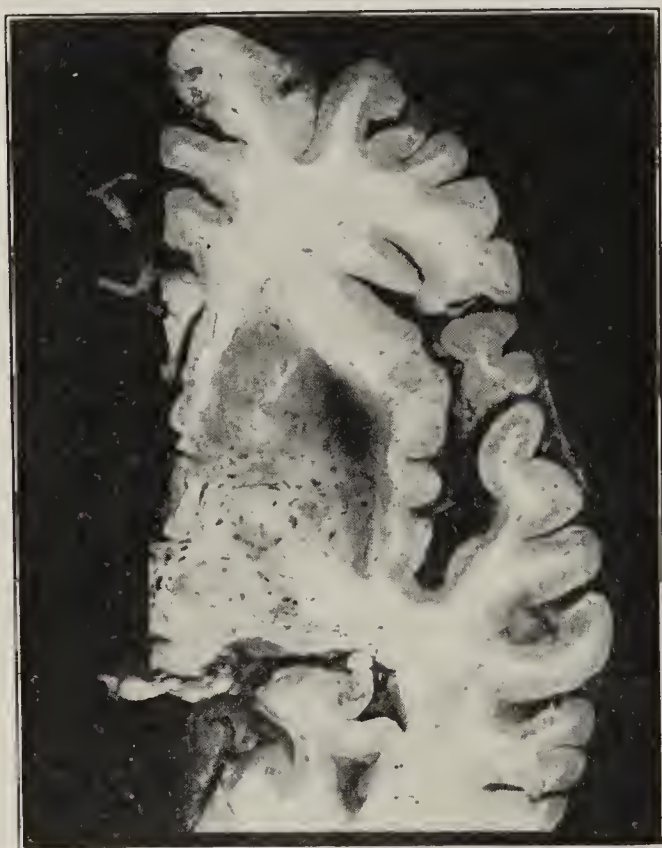
As already mentioned, the hemorrhages of the first group, with only one exception, were large, and in all the initial apoplexy was sudden and severe. Those of the second group were smaller, though only two were really small; the smallest of all measured 2 by 2 cm. In these apoplexy was less abrupt than in the former group. Naturally hemorrhages may vary greatly in size. Cases have been observed in which nearly all of one hemisphere and part of the other have been destroyed, and many are seen as small as an English walnut. Small hemorrhages, however, are exceedingly uncommon—that is to say, those as small as a pea. Attention has been called to this fact by von Monakow.⁵ The cases studied here would indicate that large hemorrhages are most common and also that the sudden severe types of apoplexy usually result. I know of no instance in which a large spontaneous hemorrhage within the brain did not produce loss of consciousness, though the initial onset may not have been sudden. Even a moderately small hemorrhage may cause a severe and sudden attack, as in one case recorded in the first group. It seems correct to conclude that the size and rapidity of growth of the hemorrhage may have a very decided influence on the severity of the initial apoplexy. No doubt Gowers⁶ statement that “the intensity of apoplexy is a graver indication than its duration” can be explained on those grounds, for the duration of life is apt to be longer when hemorrhage is small. The cases of my first group seem to corroborate this statement. Of softening from thrombosis or embolism, in a measure the same statements are true, but not so regularly.

Fairly large softenings are occasionally found at necropsy which had not caused very distinct apoplexy

5. Von Monakow: *Gehirnpathologie*, 1897, p. 97.

6. Gowers: *Text-Book of Nervous Diseases*, 1907, ii, 443.

during life. Indeed, there are four cases already referred to in which the middle cerebral artery had been occluded, two by embolism, during the course of an acute endocarditis, and twice by thrombosis during pneumonia. In each a large portion of the basal ganglia and adjoining structures were destroyed, yet a very indistinct apoplectic attack was observed during life. The smallest hemorrhage of which I have knowledge is shown in the photograph given here. It occurred in a patient in the service of Dr. Charles K. Mills at the Philadelphia Hospital, and the specimen is in Dr. Spiller's laboratory. Unfortunately the history of this case is incomplete, but it is probable that there had not been a very distinct apoplectic attack, consciousness was not disturbed early. On the other hand, there were two softenings recorded in the first group measuring only from 3 to 4 cm. in diameter, with distinct apoplexy. Again Gowers⁷ has said, "of lesions of equal size the more sudden the obstruction



Very small intracerebral hemorrhage which caused death.

the more pronounced the attack." I would accept the statement as correct in the majority of instances, and would further enlarge on it by adding that the more gradually vascular occlusion is produced the less pronounced the attack or the more gradual the onset. This is well illustrated by the cases mentioned in the second group, in which the sylvian artery had become thrombosed; in each of these cases there had been a very gradual and progressive development of paralytic symptoms with little disturbance of consciousness. Spiller⁸ has called attention to this type of case in distinction to the gradually increasing hemiplegia of cerebral tumor. In this connection it should be remembered that when a vessel is suddenly occluded, apoplexy may immediately result, together with paralysis, but actual softening of the brain requires at least a day to develop after occlusion takes place. I have been able to prove this to my own satisfaction by experiments on dogs.

It is difficult to explain the very sudden loss of consciousness that occurs in some cases of cerebral

softening; a rapid onset, however, suggests that the affected vessel is occluded suddenly. Cases of so-called angiosclerosis which have been carefully studied with the ophthalmoscope seem to furnish considerable evidence to strengthen the belief that cerebral vessels may be affected like the arteries of the retinae, which become instantaneously and permanently occluded. In some instances the retinal vessels have been watched while being occluded.

This subject has been recently discussed by Taylor, Werner and Coates.⁹

Assuming that coma when caused by hemorrhage was due entirely to increased intracranial pressure, Cushing³ (quoted by Thomas) proposed opening the cranium and evacuating the clot. There can be no doubt, that when hemorrhage is fairly large, the intracerebral pressure is greatly increased and that this is one of the most important factors producing coma and death, for it is not uncommon to find at necropsy that the hemisphere in which hemorrhage has occurred is distended and larger than the opposite or sound side. In a recent communication Marie¹⁰ stated that coma is due much less to the sudden eruption of a large mass of blood into the affected hemisphere than to the compression of the brain caused by the presence of this quantity of blood. The sudden eruption of the blood produces ictus, which is a transitory phenomenon; the compression of the brain produces coma, which is a persistent phenomenon; but a deep and lasting coma is not produced unless the opposite hemisphere is compressed also. He was able to demonstrate that hemorrhages measuring as much as from 5 or 6 cm. by 3 or 4 cm. did not produce coma unless there was compression of the opposite side. When the unaffected hemisphere was compressed, the coma was profound and absolute. As a result of these observations, Marie advocates trephining on the sound side in order to relieve pressure. In four instances his results were good, but he does not give histories of his cases.

Marie's views would seem to be logical. In certain cases operation might be beneficial, for without operation death cannot be prevented.

CONCLUSIONS

It is thoroughly appreciated that "generalizations may be dangerous," for exceptions always occur. Nevertheless, the following conclusions would seem to be warranted:

Spontaneous intracerebral hemorrhages are apt to be large; very small hemorrhages are rare. Of seventy-two specimens examined, only four measured less than 4 cm. in their broadest diameter.

It is certain that large hemorrhages are always fatal, and it is also certain that small hemorrhages may be fatal, and it even seems probable that hemorrhages are always fatal, no matter whether small or large.

When repeated attacks of apoplexy with hemiplegia occur in the same patient at different times, the final or fatal attack may be due either to softening or to hemorrhage, but the former non-fatal attack is invariably caused by vascular obstruction and softening and not by hemorrhage. Repeated attacks of intracerebral hemorrhage are not compatible with life.

Small and moderate-sized lesions within the brain, generally described as cysts, are apt to be considered

7. Gowers: Text-Book of Nervous Diseases, 197, ii, 432.

8. Spiller, William G.: Brain Tumor, THE JOURNAL A. M. A., Dec. 18, 1909, p. 2078.

9. Taylor, Werner and Coates: Tr. Ophth. Soc. U. Kingdom, 1913, xxxiii, pp. 1, 9, 30.

10. Marie: Bull. d. l'Acad. de méd., Paris, Nov. 18, 1913, p. 405.

the result of vascular occlusion; but in some instances such lesions may be produced by hemorrhage which has become healed. Their true origin in some cases seems uncertain, but they have been classified here as softenings.

The duration of life is generally longer with small hemorrhages than with large ones. Sudden death within a few minutes after the onset of apoplexy does not occur even though the lesion is a large one. It is remarkable that fairly large hemorrhages may not in all instances cause rapid death. Spiller⁶ has recorded a case in which a clot was found partly encapsulated and measured 7 by 2.5 cm., yet the patient lived almost two months.

The type of apoplexy produced by hemorrhage and by vascular obstruction is not of a distinctive kind. The onset and character of the apoplexy may be exactly alike, though the lesion is entirely different. But a sudden onset with rapidly developing and persistent coma usually indicates hemorrhage. A slow onset with premonitory symptoms without profound coma may be due to hemorrhage or to softening, but the less severe the disturbance of consciousness the more likely that it is caused by softening and not by hemorrhage.

Premonitory symptoms are not characteristic of the lesion; as a general rule they are recorded in the milder types of apoplexy in which the onset is not abrupt.

Slowly increasing loss of consciousness ending in profound coma, known as *ingravescent apoplexy*, is generally due to hemorrhage.

It is doubtful if hemorrhage ever occurs without causing very distinct disturbances of consciousness, but it is certain that many softenings do occur without producing distinct apoplectic attacks. Most non-fatal cases of hemiplegia are caused by vascular occlusion and subsequent softening. The mere fact that life is preserved is in itself indicative of the absence of hemorrhage.

The type of apoplexy probably depends more on the size of the hemorrhage than its situation, but with softening the rapidity with which the vessel is occluded may influence the rapidity of onset of the attack as well as the extent of the lesion.

I am indebted to Dr. Allen Smith for the photograph and I also wish to express my thanks to Dr. Spiller, who very kindly allowed me to use the specimens in his laboratory, and to Dr. Warfield T. Longcope for the material obtained in the Ayer Clinical Laboratory of the Pennsylvania Hospital, and also to the Medical Staff of the Orthopaedic Hospital and Infirmary for Nervous Diseases for the use of the records of cases examined in their service.

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The Use of Vaccines.—We must ever keep in mind, in considering the value to be derived from the use of vaccines and antitoxins, that we have to deal in each case with at least two forms of life. We shall do well to keep constantly and intently before us that each of these living agencies possesses more or less limited biologic characteristics which are in large part peculiar to its own particular kind, and are even at times exceedingly individual in character. Expressing this idea more concretely, we say that a human being possesses degrees of susceptibility and immunity to the microscopic invaders, while we say that the attacking microbic army possesses saprophytic, parasitic or pathogenic properties, according as we merely live happily in their company, simply tolerate their society, or actually succumb, in varying degree, to their attacks on us.—H. D. Pease.

TECHNIC FOR ARTHROPLASTY OF THE SHOULDER-JOINT

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AND

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With our limited access to the literature we have been unable to find any satisfactory description for an arthroplasty of the shoulder-joint. Having a case for operation, we began the work on the cadaver and developed the following technic, which we believe is nearest anatomically correct of anything we have been able to find.

In this operation we have utilized a portion of the short head of the biceps for a flap to interpose, because it is covered by more dense tendinous sheath than any other structure in the neighborhood of the shoulder-joint, is correctly located anatomically and we believe in the majority of cases will furnish suffi-

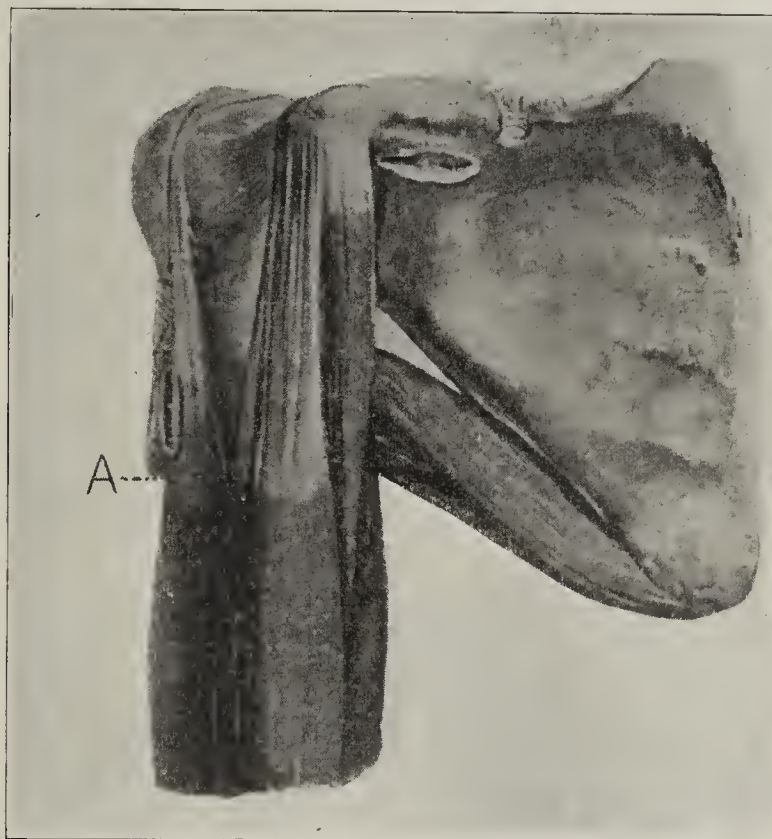


Fig. 1.—Broad, tendinous, short head of biceps (A); from Cunningham's Anatomy.

cient fascia and muscle to make a flap of necessary dimensions. The flap obtained is quite sufficient to line the glenoid fossa and cover the entire head of the humerus.

In our clinical case there was considerable enlargement of the head of the humerus, and it would have been necessary either to reduce it in size or to obtain an additional flap for interposition. We obtained the additional flap by taking off a strip from the under side of the reflected deltoid sufficient to fill out the small amount which we lacked in our biceps flap. Use of the pectoralis major for an interposing flap is impracticable, owing to the distance of its attachment from the joint and to the presence of other anatomic structures between it and the joint. In addition to this the sheath of the pectoralis major is very delicate and there is but little fat on its anterior surface. There is no fat on the under surface of the deltoid, and its sheath is also very thin and delicate. The opposite is true of the short head of the biceps.

In addition to this, the attachment of the inner head of the biceps is to the coracoid process, which gives it a pedicle in exactly the right location.

A reversed letter S incision is made, beginning at the junction of the middle and outer third of the



Fig. 2.—Reversed S incision beginning at junction of middle and outer third clavicle, passing outward half-way between coracoid and acromion processes, then downward and inward to vertical line, inner side of arm, curving outward to point $4\frac{1}{2}$ inches directly below acromion process.

clavicle, passing outward half-way between the coracoid and acromion process, then inclining forward and downward to the vertical line of the inner side of the arm, and then downward and backward to a

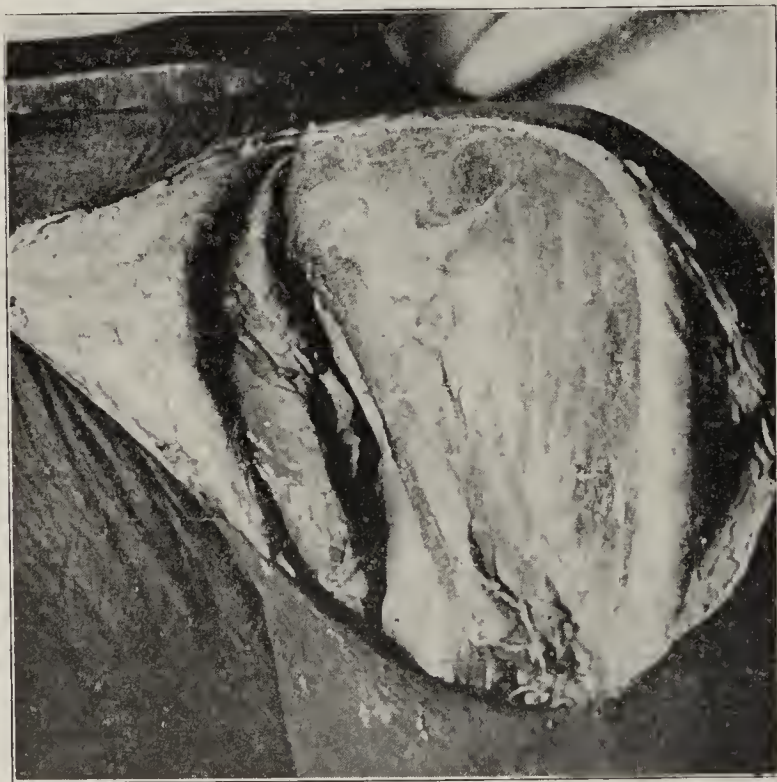


Fig. 3.—Skin flaps reflected, showing separation of muscle fibers in sulcus between deltoid and pectoralis major, exposing short head of biceps in lower angle of wound.

point $4\frac{1}{2}$ inches directly below the acromion process. This incision gives an abundance of exposure, and just to the inner side of the wound will be observed the sulcus between the pectoralis major and the deltoid. These muscle-fibers should be separated, coming

down directly on the tendinous attachment of the inner head of the biceps.

To expose the field properly, the tendon of the pectoralis major should be transfixed with a linen thread, and then cut loose from the humerus; the attachment of the inner fibers of the deltoid is transfixed and severed from the humerus, which will facilitate its retraction, making a complete exposure of the joint-capsule and inner head of the biceps. The forefinger of the left hand is passed beneath the inner head of the biceps, separating it from the coracobrachialis, and then its sheath and fibers are cut across $4\frac{1}{2}$ inches below its attachment at the glenoid cavity, it being necessary to take about half the muscle, giving a fan-shaped flap $4\frac{1}{2}$ inches long by $3\frac{1}{2}$ inches wide at its distal extremity.

The capsule of the joint is then opened, and the head of the humerus separated from the glenoid fossa, the long head of the biceps being preserved if possible. If the capsule is much thickened and adherent, the long head of the biceps is liable to be lost in this



Fig. 4.—Pectoralis major tendon transfixed, cut from humerus, part of attachment of deltoid transfixed, cut and reflected, flap raised from short head biceps, to origin at coracoid process, capsule opened and long head of biceps displaced inward.

mass. Therefore it is much more convenient to disregard it, cutting it across as the capsule is opened. Even in a normal shoulder-joint it is difficult to dislocate the head of the humerus with the long head of the biceps in place; when not adherent or lost in the thickened capsule it may be retracted to the inner side, allowing the head to be dislocated. Enough of the capsule is severed to mobilize the joint completely; three No. 1 chromicized catgut sutures are attached, one to each corner and one to the center of the flap, and the forefinger of the left hand is passed into the joint to the distal extremities of the capsule attachment to the humerus in such locations as will be found necessary to bring the flap into proper position. A very large curved needle is threaded on each of the guy-ropes, guided by the finger pushed through the capsule, soft tissues and skin to the surface, and then used to pull the flap into place, and when tied externally, to anchor it there securely. Two or three additional catgut sutures will be found neces-

sary at other points to hold the flap in proper position, making a complete lining for the cavity. If the long head of the biceps has been displaced, it should now be replaced and the sheath closed over it in the bicipital groove. If it was lost in the thickened capsule and severed, the capsule at this point should be securely sutured. If the capsule seems to be sufficiently free to allow good motion in the joint, it should be sutured; otherwise it is better to leave it unsutured except at the long head of the biceps, than greatly to restrict the arc of motion. If the pectoralis major was so contracted that it would interfere with the motion of the joint it should not be reattached to the humerus, unless it was thought best to do some plastic operation to lengthen it. The part of the deltoid severed should be carefully reattached to the humerus; the arm put in a cast at right angles to the body, including the chest, with the forearm flexed if the long head of the biceps has been severed. The cast should be removed in ten days, the sutures removed and gentle passive motion begun.



Fig. 5.—Smooth, dense, fan-shaped fascia over anterior surface flap, or insert, this measuring $4\frac{1}{2}$ inches long and $3\frac{1}{2}$ inches wide at extremity, and $\frac{3}{4}$ inch wide at glenoid cavity, with the three threads attached to draw it into place.

REPORT OF CASE

J. W., aged 44, German, carpenter, who had had only the sicknesses of childhood, and who denied all venereal disease, in November, 1912, was working in a cold basement and took 'cold.' This was followed by a chill, and six or seven days later he began to have a swelling in the region of the right shoulder. This was very painful and extended down the upper arm to the elbow. Pus formed, and a large quantity was evacuated through an opening just above the elbow. Three days after the evacuation of this pus, an abscess had to be opened on the inner side of the right leg just above the ankle. After a tedious convalescence both of these openings healed, and the shoulder-joint was never incised. After the recovery, however, the patient found that he had very imperfect use of the right shoulder and considerable atrophy of the shoulder muscles, particularly the deltoid.

In June, 1913, six months after the onset of the trouble, he was anesthetized and the friable adhesions in the shoulder-joint were broken and extension was put on the arm at right angles to the body. After a few days passive motion was begun and the extension was kept on for ten days. Owing,

however, to the irregular attendance of the patient and his inability to stand the necessary pain, the adhesions reformed, and when he returned six months later he had bony ankylosis in the shoulder. The arm was carried by the side, the deltoid muscle was greatly atrophied, the pectoralis major contracted and he was unable to follow his trade as a carpenter.

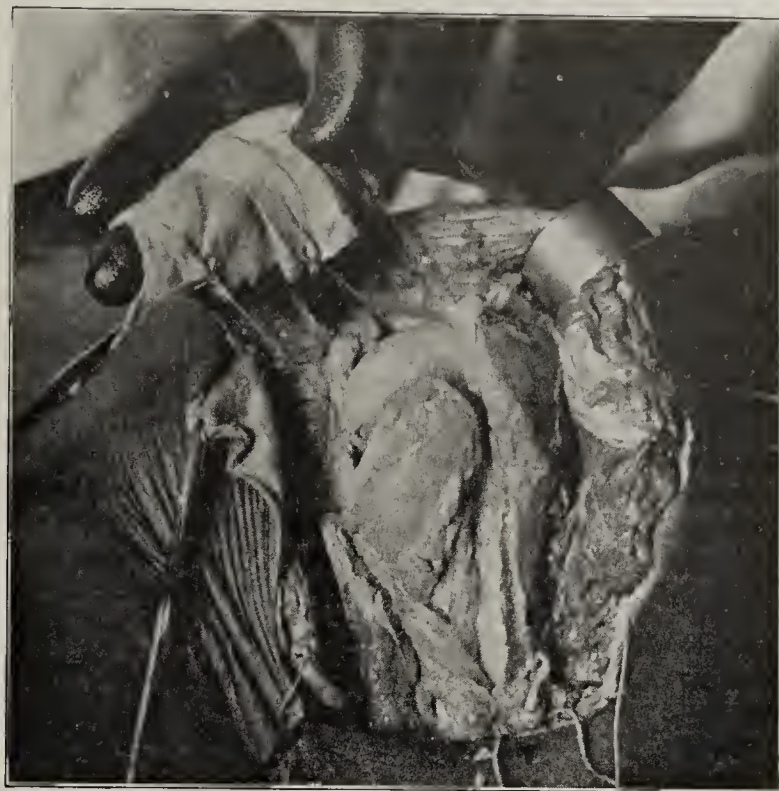


Fig. 6.—Guy-ropes of catgut have been passed through suitable locations at junction of capsule and neck of humerus, through the muscle and skin posteriorly, ready to draw flap into place and act as anchor sutures to hold it there, when tied externally.

Jan. 13, 1914, arthroplasty was performed according to the foregoing technic, except that the head of the humerus was considerably enlarged and a few muscle-fibers were turned in from the under side of the deltoid to make the biceps insert large enough to cover completely. At operation there

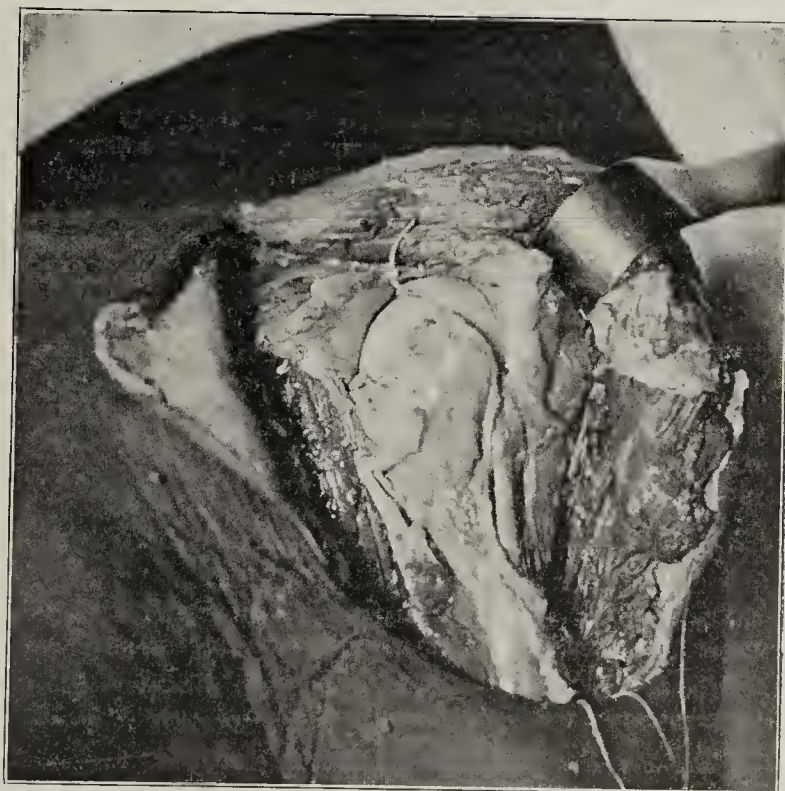


Fig. 7.—Flap in place with two anchor sutures to capsule; other three at extremity of flap do not show.

was found to be considerable bony deposit in the lower fourth of the capsule, so that it was impossible to pass the needles through it with anchor sutures, and they had to be passed on each side of it.

At the time of operation the tendon of the pectoralis major was not reattached because of its contraction. The wound

was dressed in carbolized gauze, the arm at right angles to the body enveloped in a cast with the forearm at right angles to the arm.

The best roentgenograms which we were able to secure were not satisfactory. They showed the bony deposit in the



Fig. 8.—Patient before operation. Owing to atrophy of the upper arm muscle, it was only by extreme effort that he was able to bring the hand to the level of the waist. No joint motion; scapular motion entirely.

lower part of the capsule, however, and absence of the joint cavity.

Six weeks after the operation he is again at work at his trade as carpenter, with perfect motion in his shoulder but some restriction of the arc because of periarticular contractions, contraction in the lower part of the capsule and atrophy of the deltoïd muscle. The muscle is developing rapidly and



Fig. 9.—Six weeks following operation, showing considerable improvement in muscles; the arm can now be brought almost to right angle. The patient can comb his hair and do all his work as a carpenter, except overhead work. Motion is restricted only by a periarticular contraction, which is rapidly improving.

the arc of motion is also increasing rapidly, and he can do all kinds of work now, except overhead.

There has been entire absence of pain since the first day or two following the operation, and even then the patient never required morphin.

THE EFFECT OF INJECTING COLLARGOL INTO THE RENAL PELVIS

PRELIMINARY NOTE *

DANIEL N. EISENDRATH, A.B., M.D.
CHICAGO

Ever since the introduction, by Voelcker in 1905, of a method of injecting solutions into the renal pelvis for roentgenographic purposes, the question whether or not such substances damage the kidneys or other organs has been actively discussed. During the past few years a number of deaths have occurred within a short time after the injection of collargol into the renal pelvis, and these fatalities have aroused even greater interest in the method. Assisted by Dr. E. W. Schnoor, I have made an experimental study of the effect of the injection of collargol solutions into the

kidneys of dogs and shall report our results in detail at the Atlantic City Session of the American Medical Association in June. We have imitated the conditions as found in the human being more closely than any previous investigators, and in addition have been the first to study the effect of injecting solutions under varying degrees of pressure, as measured by the manometer. For the purpose of placing on record at this time the results obtained in two experiments in which death was due to collargol, we deemed it advisable to make this preliminary report.

In Experiment 304, from which the sections shown in Figures 1, 2 and 3 were taken, a dog's right renal pelvis was injected with 20 c.c. of a 10 per cent. solution of collargol under a pressure of 100 mm. Hg. Our work has taught us that the normal capacity of the dog's renal pelvis is 2.5 c.c. and that as long as only moderate pressure is employed, up to 50 mm. Hg, for instance, and the normal capacity not greatly exceeded, no harm results. The animal in this experiment died within five minutes after the injection of a

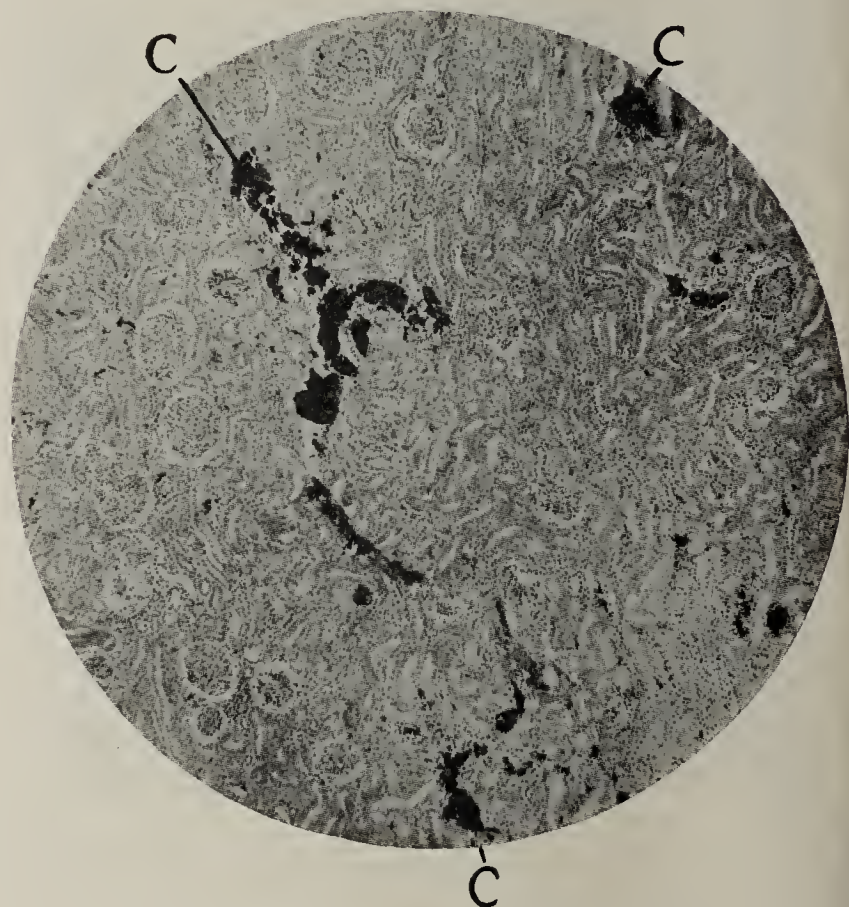


Fig. 1.—Section of kidney from Experiment 304 showing how collargol (C) is forced into intertubular connective-tissue spaces of medulla; 20 c.c. collargol injected under 100 mm. Hg pressure.

quantity eight times the capacity of its renal pelvis and under doubly as much pressure as it is safe to employ when the quantity used is even equal to the capacity of the renal pelvis. Necropsy was performed immediately, and showed large quantities of collargol in the inferior vena cava, and the right auricle and ventricle. There was a smaller amount of collargol in the left side of the heart. The lobes of both lungs were uniformly black and showed microscopically the condition shown in the photomicrograph (Fig. 3). Almost every interalveolar capillary and the blood-vessels accompanying the bronchioles were filled with collargol. The liver showed many raised areas on its surface, which were seen microscopically to be due to masses of collargol (Fig. 2), and the silver salt could also be seen in the blood-vessels of the liver acini. The nodules on the liver were due to these collargol infarcts or deposits (Fig. 2). The spleen and gastric

* From an experimental study of the question at the Morris Institute for Medical Research of the Michael Reese Hospital.

mucosa showed many hemorrhagic areas and deposits of collargol. The kidney (Fig. 3) showed the typical appearance described by Wossidlo, Smith and others. The collargol had forced its way into cavities arti-

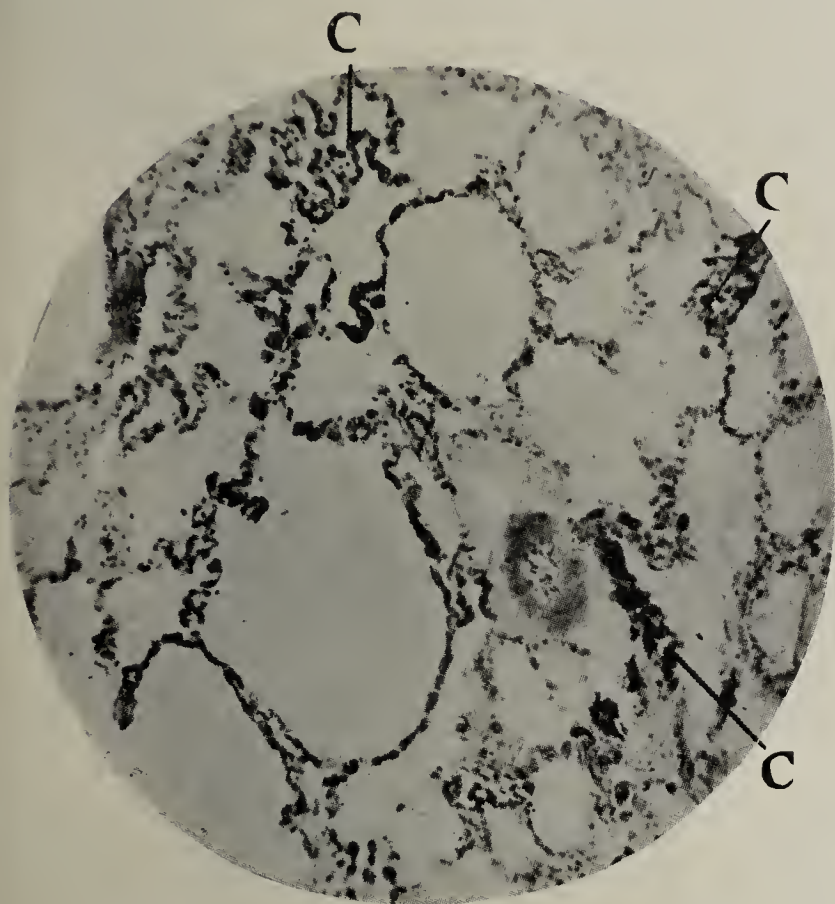


Fig. 2.—Section of lung from Experiment 304, showing advanced degree of collargol embolism. Note how almost every capillary in the septa between the alveoli is filled with the collargol (C). Animal died five minutes after injection of 20 c.c. collargol under 100 mm. pressure.

ficially formed in the interstitial connective tissue, and in places one could see the collargol just outside of the vessels, separated from the lumen by the endothe-

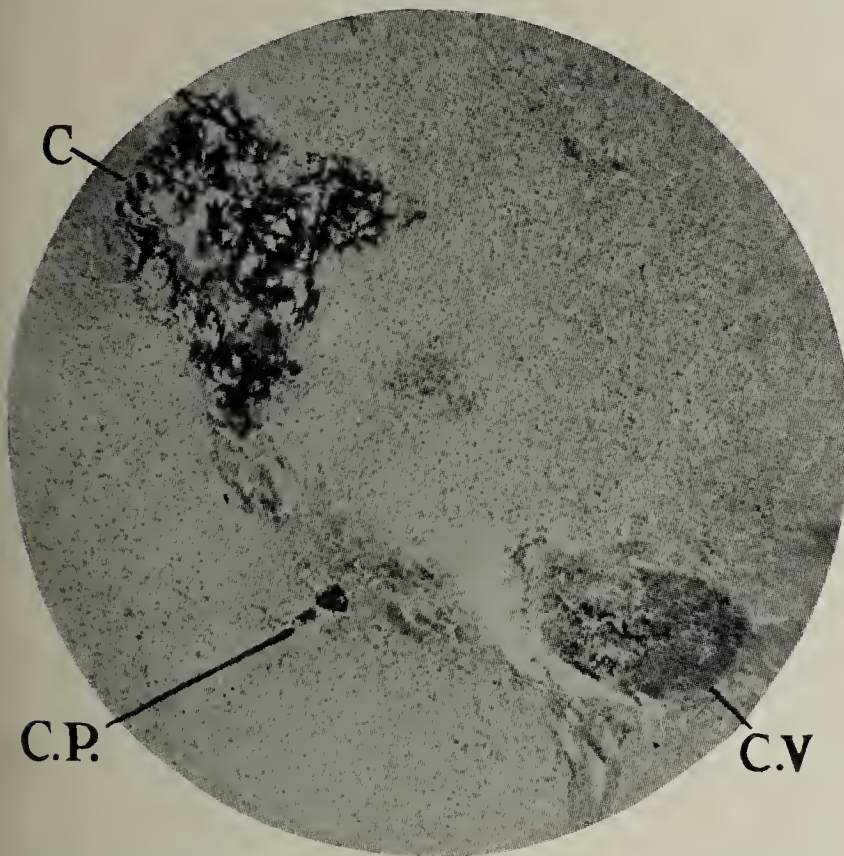


Fig. 3.—Section of liver from Experiment 304 in which animal died five minutes after injection of 20 c.c. of a 10 per cent. collargol solution into pelvis of right kidney (Fig. 1) under 100 mm. Hg pressure. Note collargol infarct at C, and also the collargol in a vessel (interacinous) at C. V. and the collargol at C. P. in the interacinous septum.

lium alone. We are at present examining serial sections in order to find a place of actual rupture of a collargol deposit into the vessel lumen.

In a second experiment (310), 30 c.c. of a 10 per cent. solution of collargol were injected into the renal pelvis through a ureteral catheter introduced through the vesical orifice of the ureter, while the bladder was held open as in Experiment 304. The pressure employed was 100 mm. Hg, the same as in Experiment 304. In spite of the large amount injected (30 c.c.) and the high pressure (100 mm.), the greater part of the collargol escaped into the tissues around the renal pelvis. The animal died thirty minutes after the injection. The lungs (Fig. 4), liver, spleen and kidneys showed deposits of collargol in the blood-vessels and interstitial connective tissue as in the other experiment but in far smaller amount, because only a small amount of the collargol entered the systemic circulation through the renal veins. We have seen death result in two animals from extensive and widely distributed collargol embolism, and believe that these experiments offer for the first time a logical explana-

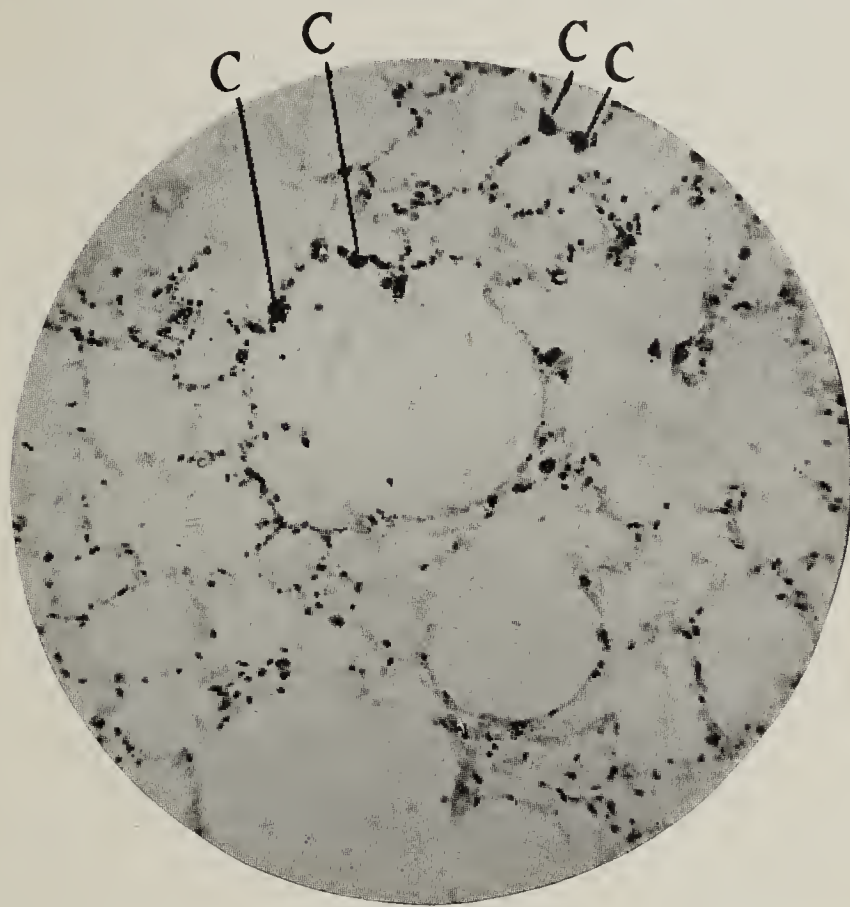


Fig. 4.—Section of lung from Experiment 310; 30 c.c. of 10 per cent. collargol injected into right renal pelvis under 100 mm. pressure. Most of collargol escaped into connective tissue around renal pelvis. But little collargol entered systemic circulation and lung shows minimal degree of collargol embolism of pulmonary capillaries at C.

tion of the deaths observed in the human being. We shall postpone further discussion of the subject until the paper is presented in full.

31 North State Street.

Constructive Medicine and Good Housing.—We have done great things, and in the doing of them have created a new profession, that of preventive medicine. Since the days when the physician was content to cure those already sick to these days when the physician, whatever his technical titles, labors to keep men from becoming sick, we have advanced far. But perhaps the time has now come when we must create another profession, that of "constructive medicine." Its field may be even larger than the field of preventive medicine, the multitude of its practitioners divided into a greater number of groups than those who now guard our food, our water, our air and our neighbors from infection and contagion. And one of its tasks will be to see that our houses are adapted to serve as family homes. For that is what good housing means. —John Ihlder, *Amer. Jour. Pub. Health.*

ARGYRISM FOLLOWING THE USE OF
COLLARGOLANTONIO M. CRISPIN, M.D.
NEW YORK

Since argyrisms is a rare condition, a report of the following case, which came under my observation recently, may be of interest. We do not see the baneful effect of chronic silver poisoning, as did our forefathers, because we do not employ this metal internally so often as they did. There is nevertheless a danger to argyrisms resulting from the prolonged use of the colloidal preparations of silver now in vogue, especially since the manufacturing houses advertise widely that these preparations are innocuous and vaunt their virtue to the skies.

The patient was a young woman sent to me by her physician, with the request that she be operated on. In his letter he said that she had been suffering for years from gastrointestinal troubles, which he attributed to gall-bladder obstruction. The most noticeable thing about the patient was her complexion, which had a dark bluish hue, with bright glistening eyes, compelling the wonder and admiration of all who beheld her. To the medical man it suggested a congenital heart lesion or intense cyanosis. This chromatic effect was a source of constant worry and anguish to this otherwise pretty girl. Sunlight seemed to increase the darkness of her color.

Examination of the chest revealed a perfectly normal heart and lungs. The abdomen presented a slight tenderness over McBurney's point; and slight rigidity of the right rectus muscle. The most careful search failed to show anything abnormal with the hepatic function, nothing in fact to account for the blueness or supposed jaundice. By interrogation it was elicited that for four years she had taken collargol internally under her physician's advice, and that after that she had become jaundiced, and they both attributed it to obstruction to the flow of bile.

This was then a case of chronic argyric poisoning, and since collargol is a colloidal silver preparation, said to contain 80 per cent. of silver, the cause of the patient's deeply dyed skin seemed clear. Examination at the French Hospital revealed no abnormality with the circulatory or biliary system. The blood-count showed a marked anemia and no parasites. The diagnosis of chronic appendicitis and argyrisms was made.

Before operating it was thought prudent to improve the patient's general condition, and incidentally to try to clear her complexion. Potassium iodid had not the slightest effect on her color. During the preoperative preparations the patient developed an attack of acute coryza, for which I prescribed 10 grains of hexamethylenamin, when to my astonishment and her great joy, her color began to fade, becoming several shades lighter. She informs me that when she takes her bath there remains on top of the water a supernatant film, resembling oil, which she had never observed before. She was delighted with the result and naturally desired to continue with the hexamethylenamin medication.

At operation, performed at the French Hospital, I did not find any abnormality with the liver or gall-bladder, but a chronic inflamed and adherent appendix. This was removed, and the patient made an uninterrupted recovery. A noteworthy condition, observed by all, was that her tissue, muscles and intestines had a blueish tinge.

Few if any will have the courage to persist in one medication for such length of time, and one does not know which is more to admire, the persistency of the doctor or the constancy of the patient.

The suggestion which I wish to make is, that if there is another unfortunate person suffering from argyrisms, hexamethylenamin deserves a trial.

854 Lexington Avenue.

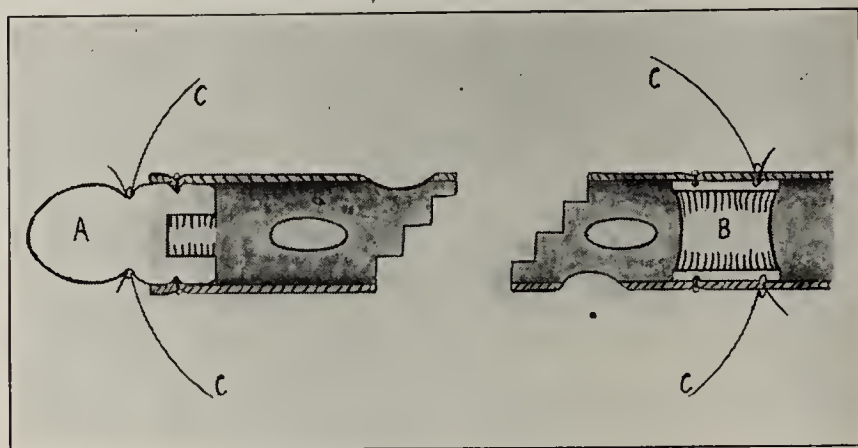
A NEW TECHNIC OF ROENTGEN-RAY
EXAMINATION FOR EARLY DIAG-
NOSIS OF CANCER OF
THE ESOPHAGUS

ANTHONY BASSLER, M.D.

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NEW YORK

About a year ago I published an article¹ in which was described a method of plugging the cardia to hold bismuth suspensions in the gullet so as to obtain sharp outlines of it in radiographic plates. As experience with the method went along, it was learned that certain unsurmountable difficulties were encountered. These were, the marked degree of distress some persons suffered when the cardia was plugged tightly enough to hold the suspension within the tube, the distress caused in the gullet by forcible peristalsis trying to overcome the plugging below, a dyspnea some experienced when the gullet was distended, regurgitations of bismuth into the mouth, and the



Apparatus for early diagnosis of cancer of the esophagus.

fact that quick work was necessary in making the plates or the peristalsis would overcome the plugging beyond the point that traction on the bag seemed safe. It was learned that certain cases of even minor lesions of the gullet had an intolerant condition of the tube, in which tremendous and most powerful peristalsis invariably ensued when plugging and distention of it was brought about. To obviate these as far as possible, a number of changes in technic were tried, which finally culminated in the one here described, which seems as near perfect as possible. By this method there is distinctly less substernal and general chest distress, less dyspnea and forcible peristalsis, and these always under control, no regurgitation of bismuth suspension into the mouth and loss into the stomach, and time may be taken in making the observations and plates, the latter being an important factor for satisfactory Roentgen-ray work.

The apparatus now in use, which is giving complete satisfaction, is the following: A piece of soft elastic tubing, about the length of an ordinary stomach-tube but narrower, is cut across about 23 cm. (9 inches) from one end. The short piece is fenestrated with a number of rather large openings which can easily

1. Bassler, Anthony: Early Diagnosis of Cancer of the Esophagus, a New Technic of X-Ray Examination, THE JOURNAL A. M. A., April 26, 1913.

be cut in it with an ordinary scissors. The solid brass tip (*A*), bored at the inside to hold the end of the mandrin, is tied in one end. A brass collar insert (*B*) is tied to the other end (this collar has two grooves for strings to hold the tubing and the condom). An end of the remaining tubing is now fastened over the brass collar. A skin condom (*C*) is cut at its tip and tied on end piece *A*, and to its upper end in the groove of collar *B*. About 18 cm. (7 inches) above the condom is placed one of the ordinary kinds of pinch-cock. The rest of the apparatus consists of a spiral wire mandrin, of diameter to fit into the bored hole in tip *A* and long enough to extend well beyond the entire length of tubing, and some form of hand-syringe of about 180 c.c. (6 ounces) or more capacity.

Some points in the technic of the use of this apparatus are important. With the patient stripped, the length of the gullet and mouth are measured by the apparatus. This is done by holding the end piece *A* at the ensiform and coursing the tubing upward over the sternum, the left side of the neck, tightly over the external ear, where it joins the head, and forward to the incisor teeth. My custom is to slip the distal end of the pinch-cock to this measured point so as to mark it for introduction. The mandrin is now put in, the pinch-cock closed on it so as to hold the tube stiff, the tube and condom are well soaked in warm water so as to soften the condom, and introduction to the pinch-cock is made. The pinch-cock is now opened, the mandrin withdrawn, and, when possible, the patient allowed a few minutes to become somewhat accustomed to the tube *in situ*. With everything ready, so far as plate-holders, energizer, tube, and tube-shift if stereoscopic plates are to be made, the patient is now prepared. The first step is to extract the air from the apparatus. This is done with the syringe by simply attaching it to the tube, sucking the air out of the apparatus, and pinching the cock so that none will flow back. The acacia-bismuth, or finely powdered barium mixture, ready, the syringe is filled, fastened into the tube, the pinch-cock opened, and it is run into the tube. At the first sign of distress from distention of the condom within, there should be a moment's pause with the injection. Usually more can be delivered after that, but one should not try to deliver the full contents of the syringe unless tolerated. The pinch-cock is then closed, the syringe detached, and after a few minutes the plates are made. After this the cock is opened and most of the suspension siphoned out, particularly when a little traction on the tube is made in the withdrawal.

By use of this apparatus and technic, sharp outline plates of the entire gullet, from the cricoid through the cardia, are possible. Small lesions in the esophagus, pressure effects on it, the width, and observations of the peristalsis are easily accomplished.

21 West Seventy-Fourth Street.

TREATMENT OF INFECTED WOUNDS

THOMAS J. WATKINS, M.D.

CHICAGO

It may be said that infected wounds now so seldom occur that it is unnecessary to discuss their treatment. No wounds should become infected except in cases in which operation is performed during acute infections.

The abuse of wounds frequently observed is the reason for this paper, which will include chiefly suppurative wounds following abdominal and vaginal sections. Infected wounds, however, require much the same care irrespective of their location.

SUPPURATIVE ABDOMINAL WOUNDS

The treatment which I employ is as follows: An infected abdominal wound is covered with a hot moist non-irritating dressing of gauze. The gauze is kept moist with boric acid or normal salt solution. The dressing is covered by a protective layer of rubber tissue, oiled paper or silk to prevent evaporation. Heat is supplied by a hot-water bag. This dressing is changed from one to three times daily, depending on the amount and character of the discharge. This treatment is continued until the redness, induration, active suppuration or sloughing disappear; that is, until the wound assumes a healthy appearance. The edges of the wound, if separated, are then drawn together by sterile strips of adhesive plaster and a dry dressing applied.

Sutures are rarely removed, except in instances in which they cut through the skin. The wounds are not probed or separated; no drainage material is inserted and no medication is used. No exception is made in cases of intestinal fistulas or abdominal sinuses.

The moisture is used solely to promote drainage. It favors drainage chiefly by preventing coagulation and desiccation of the discharge. The heat increases the blood-supply and hastens suppuration, and has some of the features of the Bier treatment. An extensive suppuration will drain through a very small opening if desiccation of the discharge is prevented. For example, in a recent case of extensive suppuration following an operation for a large ventral hernia, satisfactory drainage occurred through two small openings at the site of tension sutures.

Posture is at times used to promote drainage. Care is observed to avoid all procedures which would tend to disseminate the infection, such as probing, manipulation, separation of the wound or use of rubber tubing, packing, irrigation and the like. It has been known for a long time that the use of antiseptics injures the tissues more than it does the bacteria. Aside from the destructive power of antiseptics and the dangers of dissemination of the infections by irrigation solutions, the force of the fluid mechanically removes some of the delicate reparative tissue.

There is a general tendency to overestimate the ill effects of pus in wounds. Pus is the result and not the cause of the illness. Recovery does not result because the pus disappears, but because the bacteria are destroyed. There is a suggestion that the pus in the early period of suppuration is of some use in destroying the bacteria. In infection in a wound it is probable that the bacteria are mostly destroyed by localized processes and only in a small measure by general immunizing bodies. This, however, must occur to some extent as some of the bacteria must gain

The Food Problem.—It must always be kept in mind in discussing pure food problems that the public has two vital interests at stake. It must be protected against foods definitely proved to be dangerous to health; but it is quite as essential that it should not be robbed of any safe foods on account of unreasoning prejudices. The use of the milk and meat from cows slightly affected with tuberculosis is a case in point.—C. E. A. Winslow.

access to the general circulation, and "bacteria are found outside the area of inflammation."

Pus contains active phagocytes. Leukocytes outside the vessel wall actively destroy bacteria, but when in the blood-stream have but little such power.¹ The toxins that accumulate in the pus also destroy bacteria. It is interesting to note that Traub and Lister observed that "blood to which putrefying matter was added had within certain limits the power of remaining sweet," and decided that it had definite bactericidal properties. It is a common observation that bacteria gradually lessen in an abscess. The presence of pus means auto-vaccination. It is suggestive that in certain cases at least it may be better treatment to use autovaccines rather than autogenous or stock vaccines. The damage from pus in wounds is quite generally overestimated. The presence of pus is not an invariable indication for immediate operation. The pus often does less damage than the treatment which is quite generally employed in removing it.

INFECTION IN CASES OF VAGINAL SECTION

This occasionally results, especially in cases in which there has been an extensive operation. If there is much retention of wound secretion, contamination from vaginal bacteria is almost certain to result and produce infection.

Prophylactic treatment is important, especially in regard to strict asepsis and care to avoid retention of wound secretion. The ligation of all bleeding points and the use of a minimum amount of sutures and unnecessary strangulation of tissue lessen the dangers of infection. I have also abandoned much postoperative treatment of such wounds. The treatment usually employed in such cases is to elevate the head of the bed and to apply hot moist dressings over the vulva. The principle of the treatment is the same as in infected abdominal wounds.

RESULTS

I described² this treatment before the Chicago Medical Society in 1907, after an experience of two or three years. This treatment has been continued since then and has been modified somewhat by gradual employment of less surgical interference.

I have never had any experience with too early superficial closure of infected abdominal wounds when treated with moist dressings. Sinuses will occasionally close on the surface for a short time before complete union results, but will reopen spontaneously without disturbance. The same is true of fistulas.

The special advantages of this treatment are:

1. The patient is but little disturbed mentally or injured physically.
2. The wounds heal quickly as there is little surface for repair.
3. The strength of the wound is relatively not much impaired in the absence of much sloughing.
4. The danger of secondary contamination is minimized.

104 South Michigan Boulevard.

REPORT OF A CASE OF QUININ POISONING

ELIZABETH C. UNDERHILL, M.D., SOUTH HADLEY, MASS.

The patient, S. A. B., a woman, aged 20, American, a student, two days before the illness reported below, had a mild attack of enterocolitis due apparently to some irritating food she had eaten. Half an ounce of castor oil was prescribed and had the desired effect, and in twenty-four hours recovery seemed complete.

At 1 p. m., November 17, one day after recovery from this illness, I was summoned to see the patient, with the message that her former illness had returned. I found her in a state of stupor, answering questions very slowly, or indicating her answer with a grunt. She denied having taken any medicine of any kind since the dose of castor oil. The tongue was extended on request, in about half a minute, very slightly and very slowly. When I endeavored to take the temperature by mouth, she bit off the bulb in a convulsive way, but apparently was not conscious of this act. The pulse at this time was 100, full, and of good quality; the temperature, rectal, was 99.6, and the respiration, 22, of normal character. The stupor continued to grow more profound for about two hours, and then the patient gradually began to emerge from it. From time to time, during this period, she would complain of her head, but we could obtain no definite information as to the nature of the sensations. The pupils were normal at this time, and reacted to light and accommodation. Knee- and ankle-reflexes were unobtainable. The urine was clear, amber and slightly acid; specific gravity was 1.025; there was no sugar and a moderate amount of albumin, ascertained later to be 1.5 per cent. None was present three days later.

About 4 p. m. the patient began to emerge from her stuporous condition and enter an excitable stage. She tossed about and was restrained with some difficulty. She called for help, for prayer, for divine assistance, etc., and in the intervals would be comparatively quiet. The retching and vomiting continued, with short intervals, until about 2 a. m. At 5 o'clock the patient had become quiet and rational, and on further questioning at this time she stated that she had taken, at 9 o'clock that morning, a bottle of 100 2-grain quinin pills. This statement was verified by finding the empty bottle, and by the druggist's statement that he had sold them to her that morning. She gave as her reason for taking them that she was discouraged over her work, thought she was not keeping it up in a satisfactory manner, and therefore would end her life.

Her condition, from this time on, was perfectly rational. She now began to complain of ringing in her ears and fulness in her head, but these symptoms were not excessive. About 6 p. m. her sight began to be impaired and her pupils to dilate. At 9 p. m. the pupils were dilated as widely as possible, and she could not see—could not distinguish between light and dark.

When the cause of her illness was discovered, an ounce of castor oil was administered, but this was promptly evacuated. A second dose was given in half an hour, which was retained long enough to get a satisfactory result. At 9 p. m. 30 grains of sodium bromid and $\frac{1}{4}$ grain of morphin sulphate were given, but she did not sleep at all.

November 18 the patient vomited a greenish substance once. Soap-suds enema gave good result, with the evacuation of considerable gas. The eye condition remained unchanged. The patient said that she felt all right, but she was greatly worried over her eyes, and showed great remorse for her deed. Ringing and fulness in the ears had disappeared.

November 19 the patient was very alert to sounds and extremely nervous; she was quiet, but tense. The pupils were contracting a little, and she could now dimly distinguish the figure of a person standing by the bed. She had no pain in the eyes or any part of the body and no gastric irritation. During the twenty-four hours 45 grains of sodium bromid and $\frac{1}{4}$ grain of morphin sulphate were given. The patient slept three hours, from 10 p. m. to 1 a. m., and rested quietly the remainder of the night.

1. Adami: Principles of Pathology, i, 431.

2. Watkins, Thomas J.: Care of Suppurative Wounds Following Abdominal Section, Ill. Med. Jour., September, 1907.

A Golden Rule.—The first rule, then, for a good style is that the author should have something to say; nay, that is in itself almost all that is necessary.—Schopenhauer.

November 20 she slept practically all night and retained food well. She could see a little better, especially in the morning, and could distinguish lights through the window, 300 or 400 feet distant. Dilatation of the pupils remained about the same. The hearing was abnormally acute, and sounds disturbed. During the day 60 grains of sodium bromid were given, and at night 10 grains of trional.

November 24 the condition of the eyes had gradually improved, so that now she could distinguish the features of persons standing by the bed and accurately describe articles of clothing which they were wearing.

Ophthalmoscopic examination at this time showed considerable infiltration of the veins of the retina, but no choked disk. The field of vision was markedly constricted so that only objects held directly in front of the eye could be distinguished.

She now passed from under my care and went to a distant place, but I have obtained a report of her case and find that her eyes steadily improved, until at the end of six weeks after taking the quinin they seemed to have regained their normal condition.

The case seemed worth reporting because of the unusually large amount of quinin taken, and the comparative infrequency of cases of this kind.

It seems quite likely to me that some of the pills were evacuated undissolved from the stomach and bowels during the hours she was under no treatment, for she gave a history of vomiting several times.

A SIMPLE AND RELIABLE METHOD OF STAINING SPORES

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Instructor in Bacteriology, Cornell University Medical College

The remarkable resistance of the bacterial spore to the penetration of dyes and other chemical agents has long been of interest to the bacteriologist, and many methods of staining these bodies have been devised.

Most of these methods are complicated, unreliable and especially unsatisfactory in the hands of students, whose limited time does not allow for the many repetitions usually necessary to obtain definite results.

These considerations led to the search for a simple method which would stain spores consistently in the hands of unskilled workers, and as such, be available in the class-room.

Such a method, which has been successfully employed in this laboratory for two years, is here reported.

PREPARATION OF STAIN

Four gm. of acid fuchsin, Grubler, are dissolved in 50 c.c. 2 per cent. watery solution of acetic acid. Two gm. of methylene blue, Grubler, are dissolved in 50 c.c. 2 per cent. watery solution of acetic acid. The two solutions are mixed, shaken and set aside for fifteen minutes. A voluminous precipitate results. The mixture is filtered through a well moistened filter-paper, and the filtrate is employed for staining. (Eosin may be used in place of the acid fuchsin, but does not give as good results.) The reddish purple filtrate will keep for several weeks, but on the appearance of a precipitate should be refiltered.

TECHNIC OF STAINING

A rather thick smear is prepared in the usual manner, and fixed by heat.

The film is preferably made from an agar-culture; if broth is employed it is advisable to use a small amount of blood-serum or white of egg to fix the material to the slide.

The film is covered with a generous amount of the dye and steamed vigorously for one minute, stain being added if necessary to prevent drying.

When washed in water, the film appears stained a bright red.

The slide is now dipped a few times in a dilute solution of sodium carbonate (7 or 8 drops of a saturated aqueous solution in a tumblerful of water), and the moment the film turns

blue the action of the alkali must be interrupted by rinsing the preparation in water. The film is now ready to be dried, mounted and examined. The whole procedure takes less than two minutes.

On examination the spores will be found to stain a deep red, and the bodies of the bacteria bright blue, the intensity of the blue stain depending on the length of exposure to the alkali; too long an exposure may cause the spores to stain blue. Old spores, and particularly free spores, stain well, young spores faintly or not at all.

That the exposure to the acetic acid is the essential portion of the method is shown by steaming a film with a 2 per cent. watery solution of acetic acid and resteaming with a watery solution of any of the usual bacterial dyes. On examination the spores will be found to have taken up the stain, even if as weak a dye as Bismarck brown is employed.

By decolorization with alcohol for a few seconds to remove the stain from the bacterial bodies and then counter-staining with a contrast dye, any combination desired may be produced.

The general application of this method seems to be established by the successful results obtained on the following spore-bearing strains: *Bacillus subtilis*, *B. anthracis*, *B. megaterium*, *B. sporogenes*, *B. lacti morbis*, *B. putrificus*, *B. oedematis maligni*, *B. tetani*, *B. mesentericus*, *B. cereus*, and the bacillus of *symptomatic anthrax*. A failure must be recorded with the *B. mycoides*, but this strain also proved resistant to all the standard methods.

The advantages claimed for this method are its simplicity and reliability.

It may be of interest to those engaged in teaching to know that this method has been used in class-room work for the past two years and has yielded uniformly reliable results.

A number of the strains employed were obtained from the collection at the American Museum of Natural History, for which I desire to express my thanks to Prof. C. E. A. Winslow.

Boils.—Some time in the early eighties a Dr. Clay of London (in the *Lancet*, if I remember correctly), recommended the use of piperin, the active principle of black pepper, for treatment of furunculosis. Having been from early youth susceptible to this infection myself, I gave the matter unusual attention, with the result that from that time I have treated practically all of my cases with this remedy. Dr. Clay's claim for piperin was a rational one, and will be much more readily understood now than it was thirty years ago. It was that piperin as an intense capillary stimulant brought about increased skin resistance which caused an arrest of development in beginning pustules and subsequent immunization for that period of infection. His method was to administer it in quite large doses at first or until the physiologic effect manifested in an intense burning sensation over the entire body was produced, afterward giving it in smaller doses for a somewhat extended period. In many years of this treatment, I have had no failures except in the aged, or those with special complications. In younger persons it has, as a rule, proved superior to autogenous vaccines. Beginning with from 5 to 10 grains three times a day until the effect mentioned above is produced, I repeat at intervals or use it continuously, as deemed best. Small furuncles often disappear without suppuration, while others become limited in their severity. This procedure is absolutely safe, and annoying symptoms speedily subside when the doses are lessened or discontinued.

—JOHN L. DRYER, M.D., Santa Ana, Cal.

Appropriation for the Children's Bureau.—In the annual report of Julia C. Lathrop, chief of the Children's Bureau, giving a summary of the work of the first year's bureau and outlining the plan of future work, an appropriation of about \$165,000 was asked for for the year 1914. To the great disappointment of the chief of the bureau and of persons interested in child welfare, the appropriation committee of the House saw fit to recommend only \$25,000 for the work of the bureau, which seems a ridiculously inadequate sum to carry out the plans of investigation and constructive work prepared by the bureau chief.

New Instruments and Suggestions

A SAFE AND EFFECTIVE METHOD OF NASAL AND NASOPHARYNGEAL DOUCHING*

ELMER L. KENYON, A.B., M.D., CHICAGO

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Rush Medical College

The danger inherent in the commercially advertised douches is so evident as to warrant their general condemnation. The objection to them lies in the turned-back position of the head required in their use, since that position encourages entrance of infective fluids not only into the eustachian tubes but also into the sphenoidal, and to a lesser extent, into the anterior ethmoidal, frontal and antral sinuses. Not only that, but the flooding of the nasal cavity and the nasopharyngeal space by the sudden pouring in of a large amount of fluid makes the flow of some of this liquid into these sinuses almost inevitable. And even more, the influx of a large amount of fluid into the nasopharynx almost inevitably sets up a coughing and hawking and swallowing which is likely to throw the eustachian tube open just at the dangerous moment. Nasal douches requiring the tipping back of the head, especially if the amount of fluid thrown into the nose at one time be large, should be considered too dangerous for ordinary use (Fig. 1).

All rhinologists realize this danger, for all have encountered the injurious effects of this method, especially in the incitation of otitis media. Therefore many of them adhere to

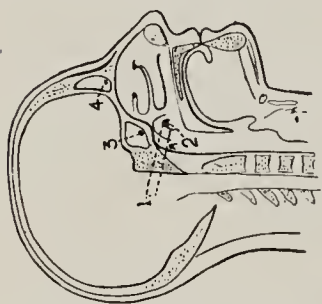


Fig. 1.—Showing the downward direction of the eustachian tube (1, 2) and of the sphenonasal duct (3) with the head turned back, in the position demanded by the commercial douches.

the ordinary hand atomizer for home douching, unless in exceptional cases; for the small amount of fluid emitted from the atomizer, while, to be sure, serving very imperfectly as a douche, yet carries with it a minimum danger of sinus or eustachian infection. The office atomizer serves well most purposes of nasal and nasopharyngeal douching. It is for home use that special methods are required. Watson Williams (A Coarse Nasal Spray to Avoid the Dangers of the Nasal Douche, *Brit. Med. Jour.*, July 19, 1913, p. 122) proposes a specially constructed coarse nasal spray for home douching. With the head held forward this would be free from danger. Its objection might lie in insufficiency of fluid and of propelling force. The following method, which I have thoroughly tested for years is simpler and more effective.

In order to douche the nose and nasopharynx effectively and at the same time safely, the following three ideas must be carried out:

1. The head must be held forward, thus preventing the flow of the fluid into the eustachian tube, and tending to prevent its flow into the sinuses of the nose.

2. The fluid must enter the nose in several sufficient streams at different forward angles, but the streams should not be



Fig. 3.—Method of using the syringe.



Fig. 2.—Nasal syringe.

large enough or the force violent enough to excite sneezing or coughing.

3. The naris should not be allowed to become filled with fluid, which might occur if the douching nozzle completely filled the external naris, thus preventing a return flow of fluid.

I use a rubber bulb, preferably with a capacity of 6 ounces, although one of 2 ounces' capacity is practicable. To this is attached a rubber hose about 18 inches long, with a nasal nozzle, or with a nasopharyngeal tube, at the end, as the case requires. The illustrations will make this clear. The tip which I employ is made of glass and is provided with a return groove, so that the fluid will not accumulate in the



Fig. 4.—Nasopharyngeal tube; to be substituted for the nasal tip when the nasopharynx requires special cleansing.

nose. The force employed is of but slight importance and can be easily regulated. If the naris is relatively free from obstruction, some of the fluid from the nasal tip will be projected against the posterior wall of the nasopharynx, but if one desires thorough cleansing of the space back of the nose, he may use the "nasopharyngeal tube." This is about 6 inches long, $\frac{3}{32}$ inch in diameter, is provided with a slightly enlarged end having fine perforations, and is slightly bent at the distal end in the direction of a ring guide at the handle. The tube is passed by the patient through the lower meatus of the nose until it touches the posterior wall of the pharynx. The slight bend in the tube helps the patient to keep the end on the floor of the nose in passing. The holes in the distal

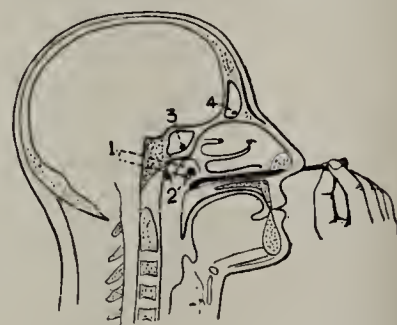


Fig. 5.—Method of passing the nasopharyngeal tube along the lower meatus of the nose into the nasopharynx.

end of the tube, pointing in various directions, cause the entire nasopharynx to be cleansed. Since the fluid in the nasopharynx cannot, owing to the downward position of the head, pass toward the larynx, and since the streams are fine and strike gently, cough is not likely to be excited. By withdrawing the tube gradually any part of the naris may also be directly cleansed.

Provided that the (usually alkaline) fluids employed are warm and weak, as they should be, the use of the nasal tip is so simple and agreeable that even young children make no objection. Indeed, it is in the persistent nasal discharges of young children that the apparatus has one of its most needful uses. The nasopharyngeal tube is more unpleasant, but is also less often needed.

The apparatus is sold with the following printed instructions to the patient:

Washing out the nose (douching) if carelessly done is attendant with danger to the ears. This apparatus avoids such danger, but the following simple directions must be adhered to:

1. Hold the head well down over a basin.
2. After completing the douching remain with the head down until all free fluid has run out the nose or mouth.
3. For ten minutes after the douching, when blowing the nose, hold the head well forward.
4. In passing the nasopharyngeal tube (see cut) through the nose, keep the tip on the floor of the nose, the ring guide at the handle pointed downward, and use no force. The tube should be passed about horizontally when the head is in the upright position. It should enter the nose for a distance of about 3 inches. When it is felt to have touched the back wall of the throat, draw it forward a quarter of an inch while the douching is being carried on. Also follow directions 1, 2 and 3.

While it has required considerable space for a clear presentation, the method is very simple, is effective, and, more than all else, safe.

104 South Michigan Avenue.

* Presented before the Chicago Laryngological and Otological Society, Oct. 6, 1913.

CYSTOSCOPIC BLADDER FORCEPS

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Urologist to Presbyterian Hospital; Genito-Urinary Surgeon to
Alexian Brothers' Hospital

The removal, under the guidance of the eye, of foreign bodies from the urinary bladder in women, is quite simple, because the short, easily dilatable urethra allows the introduction of a forceps alongside of the cystoscope.

In the male, however, this problem is a more difficult one. Heretofore, I have resorted to the use of Young's cystoscopic rongeur. Soon, however, the biting edge of this instrument

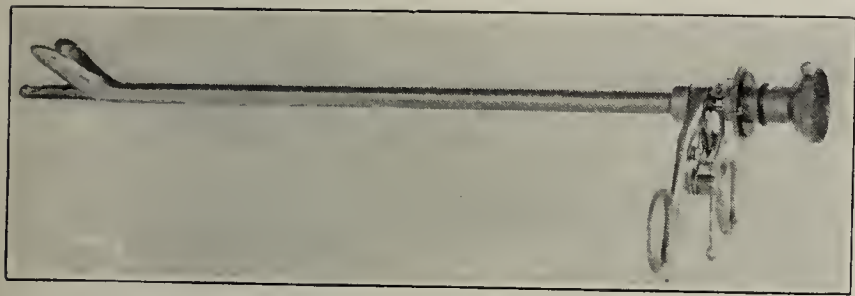


Fig. 1.—Cystoscopic bladder forceps: a modification of Young's rongeur.

becomes dull and full of nicks, and it is apparent that some modification is necessary in order to employ it for the above-mentioned purpose.

Instead of the light, thin blades with the sharp-cutting edge, I have had constructed heavy blades, with corrugated surfaces. The blades are heavy and strong, so that they are capable of holding small calculi which have passed down the ureter into the bladder. The instrument can also be used for removing small or large fragments of calculi remaining in the bladder after litholapaxy, as well as foreign bodies



Fig. 2.—Jaws of cystoscopic bladder forceps.

introduced from without. By means of the lock handle, one can grasp the foreign body so that it can be removed without danger of losing it in the urethra during its extraction from the bladder. The cystoscope furnished with the rongeur can be used with this forceps.

29 East Madison Street.

AN APPARATUS FOR THE ESTIMATION OF CHLORIDES IN THE URINE (CHLORIDROMETER)

E. BLASUCCI, M.D., NEW YORK

I think that a rapid and easy method for the accurate estimation of chlorides in the urine is timely, and, I trust, well accepted by the busy practitioner to-day, when functional diagnosis has taken so much preponderance over anatomic conception in renal diseases.

The retention of chlorides in our system (chloridemia) is often the first hint we have of, and the prelude to, a more serious morbid condition, namely, the retention of urea (azotemia, Widal). While for the latter we have a direct method of research by the estimation of urea in the blood, for the former the best element of diagnosis is still the relation between ingestion and excretion of the salt. In order to get in time an opinion on the functional capacity of the

kidney, our attention therefore must be directed first to the quantitative estimation of chlorids in the urine.

For the last few years I have been using an apparatus whereby I have reduced the technic for this examination to a very simple procedure. The chemical reaction used is that originated by Mohr; and the results which I get can be compared, in a measure, with those obtained by the most perfected laboratory methods of Salkowski and Neubauer.

A glass tube, funnel-shaped and about 30 cm. long, carries at its lower extremity a mark, "I" (indicator), for potassium chromate, and above this another mark, "R" (reactive), for silver nitrate. There are then other marks for the urine to be added in order to complete the reaction. A long pipet is used for depositing the chromate at the bottom of the tube to prevent the chemicals coming in contact beforehand on the walls of the tube. This is for the sake of accuracy.

By the union of the two solutions a red precipitate of silver chromate is readily formed on shaking. Urine is then added slowly and cautiously (shaking and reversing the tube kept closed by the thumb) in order to catch the right moment when every trace of red precipitate disappears to give place to the formation of a canary yellow due to the reintegration of the potassium chromate. This indicates the end of the reaction. At the level reached by the added urine, one reads the quantity of chlorids per thousand contained in it.

The original Mohr reaction, reversed as I have described, offers the following advantages:

1. The reintegration of the potassium chromate gives a well-defined canary yellow which is readily recognized as soon as every trace of red has disappeared, whereas by the old method it is more difficult to catch the right moment when the first trace of an orange tint (caused by the silver chromate) appears. One might be induced to judge of the change a little too late, as it generally happens. With very dark urines, especially, the superiority of this procedure over the other is evident.

2. The uric acid, the xanthic basis, the pigments and particularly the carbonates which are present in the urine, have greater affinity for silver than chrome has. If we add, according to Mohr, silver nitrate to a fixed amount of urine (chromate being present in order to obtain a red precipitate when all the chlorids are saturated), all those bodies will combine with the silver before any red tint appears. Hence, the greater quantity of silver expended for them shall be accounted for as used for chlorids, which is not so. By the new procedure, the red chromate will disappear as soon as all the silver it contains shall have been absorbed by the Chloridrometer. chlorids of the added urine, and all those bodies have no chance to combine and retard the reaction. The calculation then will be more correct.

3. By the new procedure the less the quantity of chlorids dissolved, the greater the quantity of urine required, the slower the reaction and so much easier the determination of the right moment when the changing of color takes place. If, instead, the solution of silver nitrate is added to a fixed amount of urine, the reaction will be slower when the quantity of chlorids is large, and will be more rapid when the percentage of chlorids is low, whereas it is just in this case that more precision is required.

As regards the constitution of the scale on the instrument, it must be remembered that the specific weight of the molecule of sodium chlorid (NaCl) is 58.5; that of the molecule of silver nitrate (AgNO_3) is 170. If 58.5 parts of sodium chlorid are saturated by 170 parts of silver nitrate, 1 gram of sodium chlorid will be saturated by

$$\frac{170}{58.5} = 2.9 \text{ gm.}$$

of silver nitrate; and proportionately, 0.1 gm. of sodium chlorid by 0.29 gm. of silver nitrate. If we take 5 c.c. of a solution of silver nitrate of a strength of 5.8 per cent., we shall have exactly 0.29 gm. of the salt in it, and it will be changed into silver chromate by the addition of a few drops of a saturated solution of potassium chromate. If we now add urine until the pale canary-yellow color shows us that the reintegration of potassium chromate has taken place, we shall know that all the silver contained in the red chromate



shall have been combined to the chlorids, and to them only. In that quantity x of urine is then contained exactly 0.1 gm. of sodium chlorid and in 1,000 gm. of the same urine

$\frac{0.1 \times 1,000}{x} = \frac{100}{x}$ of sodium chlorid are contained. For example: If the quantity of urine used for the reaction was 20 c.c., we shall know that in the urine are contained $\frac{100}{20}$, or 5 gm., of chlorids per thousand; and inversely, of a urine containing 5 gm. per thousand, 20 c.c. will be required (or 100:5); of a urine containing 4 gm. of chlorids per liter, 25 c.c. (100:4) will be needed in order to complete the reaction; and so on.

We can therefore easily build up a scale showing the exact quantities of urines required to determine the reaction, according to the different percentages of chlorids which they contain. The scale is given in the accompanying tabulation.

QUANTITY OF URINE REQUIRED TO DETERMINE THE REACTION

On 0.29 gm. of silver nitrate according to the various Percentages of Chlorids

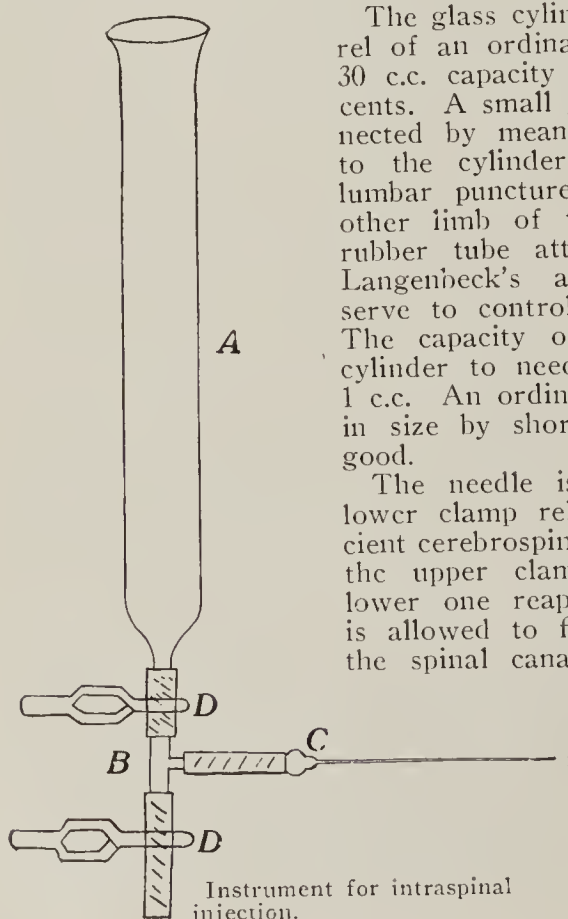
| Chlorid gm. Per Liter | Urine c.c. | Chlorid gm. Per Liter | Urine c.c. |
|--------------------------|---------------|--------------------------|---------------|
| 1 | 100.00 | 9 | 11.11 |
| 1.5 | 66.66 | 10 | 10.00 |
| 2 | 50.00 | 11 | 9.09 |
| 2.5 | 40.00 | 12 | 8.33 |
| 3 | 33.33 | 13 | 7.69 |
| 3.5 | 28.57 | 14 | 7.14 |
| 4 | 25.00 | 15 | 6.66 |
| 4.5 | 22.22 | 16 | 6.25 |
| 5 | 20.00 | 17 | 5.88 |
| 6 | 16.66 | 18 | 5.55 |
| 7 | 14.28 | 19 | 5.26 |
| 8 | 12.50 | 20 | 5.00 |

If the urine should contain more than 20 per thousand of chlorids, it may be diluted with equal parts of distilled water and the test repeated, doubling the figure obtained at the end of the reaction. If, on the other hand, the percentage of chlorids is less than 1 per thousand, one can dilute the solution of silver nitrate with 3 or even 9 parts of water, then reducing the result obtained to one-quarter or one-tenth, respectively. In this way, even the smallest percentages of chlorids in the urine can be determined with accuracy.

679 Lexington Avenue.

INSTRUMENT FOR INTRASPINAL INJECTION

CLARENCE EMERSON, M.D., PH.D., LINCOLN, NEB.
Pathologist, Nebraska State Hospital



The glass cylinder (A) is the barrel of an ordinary glass syringe of 30 c.c. capacity and cost 10 or 15 cents. A small glass T (B) is connected by means of rubber tubing to the cylinder (A), and to the lumbar puncture needle (C). The other limb of the T has a short rubber tube attached to it. Two Langenbeck's artery clamps (D) serve to control the flow of fluid. The capacity of connections from cylinder to needle should be about 1 c.c. An ordinary glass T reduced in size by shortening the limbs is good.

The needle is inserted with the lower clamp released. When sufficient cerebrospinal fluid is withdrawn the upper clamp is removed, the lower one reapplied and the fluid is allowed to flow by gravity into the spinal canal.

The instrument serves its purpose well, can be easily sterilized and is recommended by its cheapness and the ease of replacing broken parts.

Therapeutics

MEAT

It is not proposed to discuss the relative nutritive value of various meats, or the rapidity with which they are digested, but briefly to note a few practical conclusions taught by the physiology of nutrition.

1. Ordinarily, we should consider that the flesh of fish and shell-fish, except perhaps oysters and clams, and of chicken and birds is meat.

2. No marked chemical difference exists between red and white meats.

3. Meat having considerable amounts of fat deposited between its fibers, as fresh pork (sparerib), does not digest so readily as lean meat, such as beef.

4. The delicate, tender portions of porterhouse steak, roast beef, young tender lamb chops and the breast of a young chicken or bird will digest more readily and cause less gastro-intestinal disturbance in those whose digestion is imperfect than will other meats.

5. The important point is, that the final extractives of all meats are alike, and if these are not easily excreted by the kidneys, all meats should be prohibited. This is true in acute nephritis and generally true in chronic parenchymatous nephritis. All acute inflammations of the skin are better on a no-meat diet, and often patients with chronic eczema are benefited by excluding meat from their diet.

6. Any particular meat that causes indigestion would harm such a patient more than a meat that he digests readily, but this is because of the formation of by-products and not because the ultimate end-products of the several meats materially differ.

7. It is generally true that unless there is a good deal of intestinal putrefaction and high blood-pressure, meat once a day is better than no meat for a patient with chronic interstitial nephritis. Such a patient may very well have a vegetable or milk day, as the diabetic has a greens day, once a week.

8. A high blood-pressure may be more or less lowered by excluding meat from the diet.

9. In all acute rheumatic conditions the patient is better off without meat, because it produces more systemic acidity and therefore diminishes the alkaline salts of the blood.

10. Gout is neither prevented nor cured by interdicting the use of meat, but it is improved (and uric acid deposits are more or less prevented) by withholding all foods rich in nucleoproteins, such as sweetbread, liver, shad-roes, etc. Also, it has been shown that alcohol taken with a meal containing meat results in the formation or excretion of more than the normal amount of uric acid during the final metabolism of the meat.

11. The cure of tuberculosis is best aided in this climate by a moderate daily allotment of meat.

12. Because meat stimulates the thyroid, it should be withheld in all cases of thyroid hypersecretion. It should be given in thyroid hyposecretion.

13. Most neurasthenics need meat.

14. When kidney function is impaired large amounts of meat-extracts and beef-teas or broths should be withheld, as they, more readily than meat, cause retention of waste products.

15. Although meat broths, whether home-made or artificially prepared, offer little if any real nutrition,

they may stimulate not only the circulation and the nervous system, but also nutrition, and may, by stimulating the digestive secretions, aid the digestion of other foods. Hence, the kidneys being sufficient, while we should not depend on beef-tea as a food or real nutriment, it may be of marked benefit in serious illness. Also, a cup of bouillon or consommé before dinner may have a physiologic use.

DIGESTANTS

The value of gastro-intestinal digestants has long been misunderstood, and such preparations have consequently been much misused. Acids and pancreatin, soda and pepsin, and pancreatin and pepsin have been so hopelessly mixed in prescriptions and in the patient's stomach that the only saving factor has been in their harmlessness.

Those who understand the subject of digestion have realized that it is comparatively futile to expect aid in intestinal digestion from pancreatic extract administered by way of the stomach. Even if it were temporarily protected by an alkali, as sodium bicarbonate, its activity would be more or less impeded by the hydrochloric acid of the stomach before entering the alkaline intestine, though its amylolytic ferment might act in the stomach, protected by the alkali, until free hydrochloric acid was present or a certain amount of acid peptones had formed.

For predigesting such protein foods as milk, pancreatin and a sufficient amount of alkali as combined in various powders or liquids on the market may be of value, but in the stomach pancreatin is practically useless. Pepsin is rarely needed, and generally is of value only when combined with dilute hydrochloric acid. If pepsin is indicated, the dose generally given is small when the size of a meal is considered. Also, pepsin is rarely absent from the stomach. Dilute hydrochloric acid is a valuable aid in correcting the imperfect digestion in the stomach which frequently occurs. It should be remembered that when given directly after meals this acid will inhibit the starch digestion of the ptyalin, though this may often be negligible.

Because the value and action of these digestants are misunderstood, a report of experiments made in an effort to clarify this subject is welcome, and one is offered by J. H. Long and G. W. Muhleman¹ of Chicago. They state that ptyalin is so sensitive to acid that even traces of hydrochloric acid will render it inert. Consequently, any acid administered after a meal would inhibit salivary starch digestion.

They also state that the pancreatin marketed is "often not much more than fat-free ground pancreas," while, theoretically, pancreatin should be a precipitated and concentrated extract of the pancreas. Such a preparation would, of course, be much more expensive than the substance now sold as pancreatin. Long and Muhleman find that in fat-splitting power, these pancreatic powders are very deficient. They contain little of the lipase enzyme. Therefore they are valuable only as a digestant of protein and of starch.

The experiments also show that very small amounts of acid destroy the amylopsin of pancreatin; therefore, its activity is destroyed when pancreatin is administered by way of the stomach. Pepsin also seems to

delay or interfere with pancreatic starch conversion. It has not been demonstrated that pepsin alone can interfere with trypsin action; that is, with the proteolytic power of pancreatin. Moderate amounts of sodium carbonate (which perhaps is true also of sodium bicarbonate, though it is not stated) do not interfere with the action of trypsin.

These experiments seem to show that hydrochloric acid in a 0.2 per cent. solution—the normal strength of this acid in the stomach—neither destroys nor essentially retards the action of trypsin when the solution has been neutralized by an alkali. It is shown, however, that the proteolytic ferment of trypsin when subjected to the action of pepsin is partially destroyed and that it may become inert if subjected to the action of acid and pepsin during the length of time that is required in ordinary digestion. Therefore, no justification seems to exist for administering pancreatin either for its proteolytic action in the intestine or for its amylolytic action in the stomach.

These investigators examined a number of pancreatins purchased on the American market. Although these may be obtained from many firms the sources of supply are few. Some of these products showed, under proper conditions, a fair amount of amylolytic action, but their tryptic power was usually low. In the strength required by the United States Pharmacopoeia, pancreatin is of but little value, except in predigesting certain articles of food. It also commonly loses its digestive power with age. Certainly, old preparations of pancreatin should not be used even for predigesting purposes.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

SODIUM BIPHOSPHATE, Squibb.—This non-proprietary form of an accepted article has been accepted for inclusion with New and Nonofficial Remedies.

Manufactured by E. R. Squibb and Sons, New York City.

NORMAL HORSE SERUM.—(See N. N. R. 1914, p. 270.)
H. M. Alexander & Co., Marietta, Pa.

Normal Horse Serum with Chloroform as a Preservative.—Marketed in vials, each containing 50 Cc. The date of bleeding is stated on the bottle.

Normal Horse Serum without Preservatives.—Marketed in vials, each containing 50 Cc. The date of bleeding is stated on the bottle.

The Greatest Waste.—In any business, intelligent management attacks and eliminates waste. The government is a gigantic business enterprise, with an implied purpose of far greater import than dividends in money or stocks. Sickness is waste. The death-rate in the cities of this country is 15 per thousand; in rural districts 10 per thousand. This can be cut in half.—Dowling, in *Bull. Texas State Board of Health*.

1. Long, J. H., and Muhleman, G. W.: The Mutual Action of Certain Digestive Ferments, *Arch. Int. Med.*, February, 1914, p. 314.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 2, 1914

RESEARCH AND EXPERIMENT IN MEDICINE

The contribution of large and steadily increasing amounts of money from the public funds for the purposes of agricultural research, experiment, and demonstration has brought the authorities entrusted with the expenditure of these funds face to face with the problems of their administration. The nation has a right to expect that the liberal means placed in the hands of scientific men shall be devoted to the ends intended. Science and scientific men have been singularly free from the suspicion of improper practices such as wilful misuse or intentional diversion of trust funds from their proper object; and probably no group in the community better represents the highest type of unselfish devotion to its own ideals. Unfortunately, it happens sometimes that even well-intentioned persons entrusted with the guidance of research and experiment are entirely unfitted by temperament and unprepared by training to appreciate the requirements and limitations of such work. These persons, in assuming leadership, not infrequently violate the spirit of investigation and are responsible for waste of energy and unjustified expenditure of valuable resources.

A review of the situation with regard to agriculture,¹ which is in a sense the pet scientific protégé of the national government, discloses many features that find their counterpart in the field of the medical sciences and therefore are of interest to physicians. The scientific world now has a right to expect of men assigned to research a just conception of the standards and the qualities of such activity. The terminology at present used to distinguish between research and experiment means little and is loosely used. Much difference of opinion and even some confusion may exist as to the originality with which the data are used in a given piece of work and the extent to which it embodies the essential characteristic of research. The boundaries will be continually shifting, because what is original research at one stage may cease to

be such at another, and may even pass into the realm of demonstrated fact.

The *Experiment Station Record* well remarks that science, whether for itself or as applied to any particular class of phenomena, is developed through research. Observation and experiment teach facts; and in all science investigation consists in passing from the fact to the law, and in discovering the facts which may lead to the formulation of a law or conclusion. Facts and laws are not artificial or accidental—and are not made by the scientist. Man's only originality in connection with them is their discovery. Facts differ widely in their importance. This is a truth which those who claim to have an interest in medical research all too frequently fail to appreciate. It requires critical study to be sure that what we determine is actually a permanent fact and not merely the accidental result of a particular combination of circumstances.

Many of the so-called clinical investigators seem to overlook the necessity of adopting as simple conditions of experiment as possible and of controlling the limiting factors to the utmost degree. The attempt to make an experiment, conceived in haste, answer too many questions, with a result that is fatal to the whole undertaking, is perhaps one of the commonest errors of the overambitious worker. In medicine one must deal with natural phenomena of inevitable complexity and endless variety. Decisive results and safe interpretations are correspondingly difficult to secure.

Again, isolated facts in medicine, as in agriculture, do not always have the constructive value that such facts may have in pure science, because the investigator is skeptical of them knowing the liability to faulty observation. Yet some seem to believe that the mere cataloguing of isolated facts, without deducing their causes, consequences or relations, constitutes research. Accordingly we read clinical "researches" filled with the enumeration of blood-counts, temperature records, pulse-rates, urinary analyses, etc.—facts of themselves having no scope or significance, and representing only routine activity. In true research, observation and experiment should not be allowed to run wild. Merely to observe is not sufficient. "Science is built up with facts as a house is with stones. But a collection of facts is no more science than a heap of stones is a house." How much valuable space could be saved in our journals if it were more widely recognized by those who fill the pages that experiments, if they form a part of real research, are not made at random or by chance or to see what will happen, but advisedly, as a means to an end, and as the outgrowth of the working plan or of ideas suggested by previous experiments.

An acceptance of the principles of hypothesis, experiment, and generalization as fundamental guides in research promptly excludes from the category of

1. See editorial notes: Research, Experiment and Demonstration; The Essentials of Research; Lines of Demarcation between Experiment and Demonstration, *Experiment Station Rec.*, 1914, xxix, 701.

investigators a goodly number of medical workers who are conducting what we may designate as "experiments" in distinction from research. Their efforts are by no means in vain; but we must learn to distinguish verification experiments, comparative trials, attempts to determine advantageous methods of practice or relative values—results that are of more or less temporary usefulness—from those excursions into the unknown that truly deserve the designation of research. A large share of ordinary clinical study involves the attempt to get a relatively quick result, without resorting to the precision and detail of thorough-going investigation. Such procedures as, for example, the correlation of blood-pressure with certain clinical conditions or the observation of the comparative results of different ways of administering a drug, have been of great value in developing practical methods in diagnosis and therapy. Experimental work of this sort properly constitutes a large share of the effort of clinical men; but like research, it should be progressive, recognizing that advancement depends on building on the things that have become known. In the field of clinical medicine almost endless numbers of combinations of experiences may arise. Most of them give few new results of value. It is the duty of the laboratory worker and the clinician alike to realize that after a certain number of experiments have been made on a given condition one must consider whether or not it is worth while to continue them.

Experimental work at present is expensive. The individual using public funds and private endowments or directing their use, in either research or less pretentious experiment, should be careful to conserve the interests at stake and not to extend his attempts beyond what is actually needed. Our great research foundations have begun to realize this far better than have the hospital laboratories and university clinics. We must now regard certain facts as practically established, in so far as it is possible to establish them by the methods employed, and direct our efforts to other lines of inquiry, rather than "move in circles."

IRRATIONAL SCHOOLCHILDREN

It is not often realized that irrational individuals who reach insane asylums in early adult life have probably shown during their school years indications that they were either distinctly lacking in intelligence or were of perverted minds. This constitutes one of the most important problems of modern school life. Those familiar with educational systems know that usually most of the difficulty in managing a class, particularly of boys, is caused by one or two pupils who are not amenable to ordinary discipline. Commonly these pupils are a little older than the average of the class because they have been left behind in several

examinations, and their added age and superiority of strength gives them an unfortunate influence over other pupils. Often neither teachers nor principals can govern them. They have all the cunning of the insane and sometimes boast that no one can manage them and no one dare touch them. In fact, the mothers of many such boys admit that they have always been uncontrollable.

In some places, particularly the larger cities, special schools are provided for these deficient children, but very often this class of pupils either keep out of such schools, or they are deliberately kept out because they exert an unfortunate influence on other children of low-grade intelligence, often take advantage of them and cruelly abuse them. One or two unmanageable children who consume the teacher's energy without purpose and set a bad example to the other pupils may create lamentable disciplinary conditions in the whole school; and many schools in this country are being conducted under such conditions. Many school-teachers can tell of being frightened or even of being threatened with weapons by such children; not a few have preferred to have nothing to do with such pupils and have allowed them to go their own way rather than suffer the worry or run the risks involved in the attempt to control or discipline such pupils. Yet the public has not been aroused to the dangers involved in the failure to recognize and segregate deficient children, as adult lunatics are segregated, for the sake of society.

This subject has been placed in the limelight by the murder of a schoolteacher in western New York. She had, as many teachers have, special sympathy with this class of pupil and was going to visit the father of one such in order to secure a mutual understanding between home and school. The conditions of the murder seem to make it clear that it was more of an irrational than a criminal deed.

The solution of this problem requires expert medical assistance. Indeed, in some places such expert aid is already used in the care of these pupils. A crime such as that recently reported should make plain the imperative necessity of dealing adequately with this problem wherever it exists.

DISEASE DANGERS OF MEXICAN INVASION

The possibility of war with Mexico has been before our people for some time; if a general war occurs it means invasion of Mexican territory. The question naturally arises, What are the disease dangers which will confront American soldiers in Mexico? It has long since passed into a truism that in war, disease kills more than bullets. Will this prove true in a Mexican war? The increased knowledge of preventive medicine since the Spanish-American War has encouraged the belief that the mortality from disease

will be materially lessened. To what extent is this belief justified, and what are the diseases from which our troops may suffer in a tropical country and from which they should be protected?

Aside from the ordinary diseases which might prevail among any body of two or three hundred thousand men, there are certain diseases to which soldiers in camp and in the field are particularly exposed. These are especially small-pox, typhoid fever and dysentery. Small-pox may be disregarded, as any troops sent into Mexico will be immune from this disease through vaccination. Typhoid fever, in the past, has been the awful scourge of military camps. The appalling experience of the Spanish-American War has not been forgotten by our people; the record of twenty thousand cases of typhoid in the Army in six months produced an impression which can never be obliterated. But since then progress in preventive medicine has been made, and vaccination against typhoid is a result. Antityphoid inoculation has been subject to rigorous tests on a large scale in the Army during the past two years, with the result that in 1913, out of ninety thousand men at home and abroad, there was only a single case of typhoid fever among the inoculated, a record that can well be regarded as a triumph for preventive medicine. It is believed that the army surgeon now has a weapon against typhoid that will make the next war unique in this regard. Every officer and man now in the United States Army and Navy is practically safe against this disease, and each recruit will be inoculated at the time he is sworn into the service. The next campaign in which the United States Army will participate will be a practical test of typhoid prophylaxis on a large scale. That it will prove the value of inoculation and will relieve warfare of one of its most horrible accompaniments there is little doubt.

The dysenteries can be divided into those due to bacterial invasion and those caused by ptomaines in foods. While the water and food of the soldiers will be more carefully guarded than ever before, a certain amount of intestinal disorder will be inevitable. It can safely be predicted, however, that the nation will be spared a repetition of the "embalmed-beef" scandals of 1898. The work of the general staff of the Army, the development of departmental officers of high efficiency and the enormous amount of publicity on pure food that has taken place in the last decade, ought to insure the American soldiers a wholesome food-supply. After the experience and warning of the past, the American people will hold to a strict accountability any one responsible for supplying the Army with food materials which are not in every way up to the standard.

Of the diseases peculiar to tropical and semicivilized countries, yellow fever, malaria, bubonic plague, cholera and typhus must be considered. The brilliant

work of the last fifteen years in demonstrating the transmission of malaria and yellow fever by the mosquito has put our Army and Navy surgeons and sanitarians in possession of all the knowledge needed to control these diseases. The convincing demonstration of the practicability of their control given by General Gorgas in the Canal Zone has proved that malaria and yellow fever can be controlled completely in settled communities. Where men are living in fixed habitations which can be screened and where all possible breeding-places of mosquitoes for a necessary distance can be destroyed, the complete eradication of these two diseases is possible. It remains to be seen, however, what methods can be developed for preventing mosquito infection among soldiers in the field. Mosquito-nets can, of course, be carried, and patients in the field and hospitals can be protected as well as troops in barracks or permanent quarters. But how about troops in the field, scouting parties, pickets and outposts? Undoubtedly American ingenuity will devise methods to meet the needs, and the dangers of these two diseases will be greatly diminished, although occasional cases may be unavoidable. Epidemics, however, will be practically impossible.

Cholera, being borne through water, milk, flies or human carriers, can be prevented only through cleanliness and by maintaining the purity of water-supplies. It is not to-day a particularly dangerous possibility, as it can enter Mexico only by way of the seaports, most of which, in case of a campaign, would soon be in the hands of the Navy and under quarantine regulations. Regarding typhus fever, it is a strange coincidence that the work of Ricketts, by which he demonstrated, at the loss of his own life, that the body-louse is the carrier of this disease, was done at Mexico City, where he went to carry on his investigations on account of the prevalence of typhus among the lower-class Mexicans. This disease, which in past centuries caused enormous loss of life in camps and on shipboard, is limited in its danger and can easily be prevented by avoiding dirty dwellings and contact with dirty individuals. There is as yet no known method of prevention except the avoidance of infection. It is probable that among any large number of soldiers in Mexico, a few cases of this disease will develop.

Bubonic plague is endemic in many of the near-by South American ports. It would probably be a constant danger in the Mexican seaports. Fortunately, it would be confined largely to the seaports and large towns. An army in the field, living in tents on the bare ground, would be practically safe from it. Probably one of the first measures inaugurated by our medical officers on taking possession of a Mexican seaport would be a campaign of rat extermination, as this animal has been shown to be responsible for plague propagation.

These are the principal dangers to American soldiers in Mexico. Our equipment for the control of these diseases is not yet entirely complete; but the enormous increase in scientific knowledge and the equally marked development of practical methods for fighting diseases in the last fifteen years justify the assurance to the American people that the horrors of epidemic disease in past wars will be impossible in our next military experience. The United States possesses to-day in the medical officers of the Army, Navy and Public Health Service a body of trained and expert sanitarians equal to any in the world. Whatever human knowledge and skill can do to protect our soldiers from diseases will be done, and it can safely be said that any army that we may send into foreign territory will be better protected against disease than has ever before been the case in our history.

TYPHOID DISAPPEARS IN THE ARMY

During 1913 typhoid fever has practically been eliminated from the United States Army. What this means can be appreciated only by those who know the varied conditions under which these men live. About ninety thousand soldiers are scattered over the Philippine Islands, Oahu in the Hawaiian group, Northern China, Panama, Alaska and the United States proper. About twelve thousand have been living under canvas in camps in Texas since February, 1913. Five thousand are native Filipinos living in the Islands.

In another column¹ Major Russell of the Army Medical Corps gives an account of the disappearance of typhoid in the Army. One case of typhoid fever in an inoculated soldier was diagnosed in the battalion at Tientsin, China. Two cases in this country occurred in recruits of four and five days' service, respectively, who had not been inoculated at the time they were taken sick. All usual laboratory methods are used in determining the disease, and all cases of continued fever are so examined.

The United States Census for 1900 gives the average typhoid death-rate as 46.5 per hundred thousand inhabitants. Rosenau states that in this country "there are comparatively few communities of 1,000 inhabitants or more, which, during any period of twelve consecutive months within the last decade, have been entirely free from typhoid fever. In 1908, the death-toll from typhoid fever was no less than 35,000 in the United States. In other words, one person in 200 contracted typhoid fever that year." This would mean at the 1908 rate, 450 cases in the Army at its present strength.

The disappearance of the disease is due to inoculation of all recruits as they enter the service. The

general sanitary condition of the posts for the past few years is maintained at the same level, but it must be recalled that soldiers on entering the Army by no means lose touch with civil life. They participate in all features of civilian life, just as any other travelers or visitors, and so are exposed to the same chances of infection that civilians incur. The fact that a population of ninety thousand at a most susceptible age has practically no typhoid can be accounted for only by the immunity conferred by the prophylactic inoculation. The extension of this measure to certain phases of civil life is definitely indicated for adolescents who have not had the fever, in the presence of an epidemic, or for those leaving their homes for travel or for life in the country. Is there no value in this procedure to railroads and other industrial concerns that employ armies of skilled labor, as well as to the individual on farms and railroads whose family is dependent on his manual labor for livelihood? The way has been shown for reducing greatly the three hundred thousand cases per annum in this country by a procedure causing less inconvenience than vaccination.

ALBUMOSURIA

When proteoses (albumoses) find their way directly into the blood-stream they behave like foreign substances and are promptly excreted, in good measure by the kidneys. This fact, long since ascertained through a large number of trustworthy experiments, has in the past furnished the basis for the interpretation of the excretion of proteoses in the various instances which are classed clinically under the term "albumosuria." The urinary elimination of proteoses (a general term preferable to the more specific name "albumoses") might, therefore, be expected whenever any considerable autolysis of pathologic tissue or exudate with absorption of its products of self-digestion is taking place. Consonant with this was the asserted finding of "albumosuria" in all cases of suppuration, in the resolution of pneumonia, involution of the puerperal uterus, carcinoma and other malignant growths, febrile conditions with tissue destruction, severe liver affections, absorption of simple and inflammatory exudates, etc.

A decade or two ago, when the early chemical researches on the proteoses as primary products of digestion were at their height, the subject of albumosuria was prominently considered in medical literature. The subsequent careful consideration and critical revision of the work reported at that period has led to the conclusion that the appearance of proteoses in the urine is in no sense a constant symptom of any circumscribed group of pathologic manifestations; nor do the cruder methods of analysis then in use and the lack of appreciation of the numerous sources of error

1. Russell, Frederick F.: Antityphoid Vaccination in the Army During 1913, p. 1371, this issue.

permit the earlier records to be regarded as always trustworthy. After a lapse of a number of years, during which the clinical occurrence of albumosuria has received scant attention, the question of its incidence and possible significance is again being considered. The methods of the past have been fortified not only by searching for what might be called a spontaneous excretion of proteoses, but also by testing individual tolerance to large quantities of preformed proteoses administered in a single dose by mouth to a fasting stomach. The amount thus given has been about 35 gm. of a commercial product introduced in the form of a palatable soup. The investigations of Dr. Leo Pollak in Vienna have given a new significance to what may be called alimentary or enterogenous albumosuria diagnosed by the means here described.¹ It was this type of albumosuria, associated with the abnormal penetration of undigested proteoses through the alimentary barrier, which was long ago supposed to be characteristic of conditions involving pathologic alterations of the gastro-intestinal mucosa. This might occur, for example, in carcinoma of the intestine or in typhoid fever attended with intestinal lesions. Pollak has shown, however, that the detection of alimentary albumosuria cannot by any means always be interpreted as diagnostic of ulcerative changes in the enteric tract; for in some cases the real cause of the reappearance of the proteose lies in diseased kidneys, as indicated by the simultaneous employment of one of the current tests for renal function. It is therefore permissible to speak of renal albumosuria. This is rarely observed to occur spontaneously, that is, as the result of the immediate disintegration of the kidneys.

In addition to the alimentary and renal types of albumosuria, Pollak maintains also the possibility of a histogenic form, the most conspicuous examples of which are observed in pneumonia. Like others already mentioned, these cases may owe the production of the proteose to a parenteral disintegration of proteins, for the possibility of which the now well-known appearance of blood or tissue proteolytic enzymes may be made responsible. The study of the significance of albumosuria has at length received a new impetus.

Current Comment

PLASMODIUM TENUE, A NEW MALARIAL PARASITE OF MAN

Sir Ronald Ross has just communicated to the Royal Society of London the discovery, by Dr. J. W. W. Stephens, professor of tropical medicine at the University of Liverpool, of what he believes to be a hitherto undescribed malarial parasite of man.² It

was first noticed in a blood-slide from a native child in the Central Provinces of India. A striking peculiarity of the Indian parasite is its decided irregularity of form as compared with the regular, almost monotonous contour of the "rings" of the malignant tertian parasite (*Plasmodium falciparum*). The new species, to which the name *Plasmodium tenue* has been given, is extremely ameboid, judging from the stained specimens. Thin processes often extend across the cell or occur as long tails to more or less ring-shaped bodies. There may be several of these processes, and they may give the parasite most fantastic, irregular, web-like shapes. The cytoplasm is very scanty. The nuclear chromatin is out of proportion to the volume of the parasite; and the abundance of the chromatin masses, as well as the marked irregularity in their distribution, seems to be characteristic of the parasite. Its difference from the malignant tertian parasite has been noted above. From the simple tertian parasite it is said to be distinguished by its smaller bulk, more delicate ameboid processes and the arrangement of the chromatin. Typical rings are absent or exceedingly rare. Lastly, its ameboid activity and its tenuity easily differentiate the new species from the quartan parasite. The distinguishing characteristics thus far announced are all of a morphologic nature.

THE GOVERNMENT MEDICAL SERVICES READY

With the possibility of a foreign campaign before our Army, what is the present condition of preparedness of the Army medical service, especially as compared with its condition at the outbreak of the Spanish-American War in 1898? The contrast gives cause for gratification. In the last fifteen years the Army has been practically reorganized. The development of the general staff and the training of experts for various duties have affected the medical department as well as the other branches of service. The enormous increase in scientific knowledge of disease and its prevention has been utilized by the medical officers. Our Army medical corps is to-day a body of trained military sanitarians unsurpassed in any country. In experience, organization, equipment and training, there is no comparison between the present situation and that in 1898. Experience has been gained in the campaigns in Cuba and the Philippines, in the military expeditions in China and Cuba, and in the maneuver camps in 1911 and 1913, so that the Army to-day possesses a corps of specialists trained in camp sanitation. For over a year, military camps have been maintained on the Texas border, containing from ten to twelve thousand men in a well-nigh perfect state of health. The material equipment of the department is incomparably better than it was fifteen years ago. The present system of field hospital organization was almost unknown in 1898. The organization of mobile sanitary units, namely, the ambulance company and the field hospital, will prove a great advantage. While only four field hospitals are actually in existence, on account of Congressional parsimony, the medical department has on hand ample supplies for a com-

1. Pollak, L.: Beiträge zur Klinik der Albumosurie (Renale Albumosurie), Ztschr. f. d. ges. exper. Med., 1914, ii, 314.
2. Stephens, J. W. W.: A New Malarial Parasite of Man, Proc. Roy. Soc. London (B), 1914, lxxxvii, 375.

plete system of field hospitals for three hundred thousand men. These supplies are now in storage, packed for shipment and ready to be put on trains or ship-board at a moment's notice. By way of contrast, at the breaking out of the Spanish-American War, the War Department telegraphed the governors of the various states that it would be necessary for each state to send with its troops sufficient medical supplies to last for six weeks, as the government was unable to furnish them. In a word, the medical department of the Army — and the same may be said of the Navy — has shared largely in the general progress which has been made in the last fifteen years. The present medical and hospital corps are as effectually organized, trained and equipped to fight disease as is the rest of the Army to fight the enemy. Complete prevention of disease among large bodies of men under the unavoidable conditions of military life in actual warfare is impossible. The maintenance of sanitary camps and well-equipped and efficient hospitals, as well as prevention of all avoidable diseases among our troops, can be reasonably expected.

THE MEDICAL RESERVE CORPS

While the Medical Reserve Corps was created for a broader purpose than that of having available a list of trained men on whom to call in time of war, at the same time this was one of the important reasons for its organization. There are over twelve hundred officers on the Medical Reserve Corps (inactive list), and those who are willing to serve will undoubtedly be sufficient for any situation that may develop at the present time or in the near future. The Surgeon-General of the Army has sent a circular to each of the officers of the Corps, in which he submits five questions, to which the officers are asked to answer "yes" or "no." The questions are:

1. Are you ready to accept active duty in your home city or its immediate vicinity should occasion require?
2. Are you ready to accept active duty at camps of mobilization, where recruits will be examined?
3. Are you ready to accept active duty in Army hospitals in the United States or elsewhere?
4. Are you ready to accept active duty with troops in the field?
5. How soon after receiving notice that your services are desired can you leave your home?

It will be noticed that an opportunity to do other effective work is here given those who, while willing to do their part, for some reason or other are not able to go to the front. Many of the officers are men who have organizing ability, who have been connected with hospitals, and who, for this reason, would be of great assistance in administrative work. Some now belonging to the Medical Reserve Corps are men beyond the age-limit for entering as volunteer surgeons for military service or, in fact, for active work in the field. In time of war, however, there is much to be done besides following the troops: recruits must be examined, hospitals equipped, hospital supplies of all sorts selected, inspected, purchased and distributed, base hospitals maintained, and wounded and incapacitated men transported.

All of these duties can be performed by men who, though they have not had actual military training or experience, are able to relieve the regular military officers whose services can be utilized where they will be most valuable.

THE FRIEDMANN REMEDY AGAIN

When Friedmann came to this country to exploit his "cure" for consumption, the question was raised: Why does he not remain in his own country to prove or disprove, by careful investigation, whether his remedy has value? For a long time, no unbiased investigation of the Friedmann treatment had been, or could have been, made in Germany, for the product was not available to German physicians until after gullible America had been "worked" to the limit. After Friedmann returned to Germany, he arranged to sell the remedy to German physicians, and we are now beginning to receive the results of its unbiased use in the land of its origin. In our Berlin Letter¹ this week an abstract is given of several recent German articles on the Friedmann remedy. These reports appear to be uniformly unfavorable. They add to the testimony already given in this country that Friedmann's remedy is not only inefficient but also may be dangerous. The investigations of Dr. Brauer of Hamburg are especially noteworthy, as they were made under circumstances that might have been expected to be highly favorable to the remedy, the majority of the injections having been made by Friedmann himself. Moreover, Brauer and his assistants attended the Friedmann Institute to learn the exact technic. The reports add emphasis to the results reported by Professor Rabinowitsch, namely, that the material is likely to be contaminated, sometimes with virulent bacteria, and the remedy itself may prove injurious, if not actually fatal. More than seven months ago, *THE JOURNAL* expressed its opinion of the Friedmann remedy and the method of exploitation in this country in these words: "Once more it should be stated that the so-called Friedmann cure for tuberculosis is utterly discredited. All reliable reports regarding the treatment of patients by Friedmann's method seem to show either that it is actually injurious or else that it is less efficient than other well-known and less dangerous means of treatment."

A BRITISH OPINION OF AMERICAN PHYSICIANS

During the early part of this year there appeared in various London publications advertisements of a popular encyclopedia containing signed articles by leaders in the medical profession.² This encyclopedia, immediately on its publication, was advertised with all the accompaniments of modern publicity methods; namely, full-page newspaper advertising, "sandwich-men," etc., the use of the names of the medical contributors forming a conspicuous portion of the advertising. The

1. Page 1415, this issue.

2. London Letter, p. 1414, this issue.

physicians involved at once wrote letters to various medical and lay publications declaring that the use of their names was entirely unauthorized and disavowing any connection with the encyclopedia beyond the reading of a few proof-sheets at the request of the editor. The encyclopedia is of that type familiar in this country as a "family guide." It boasts that it contains two thousand prescriptions for the use of the public. Apropos of this, the *Medical Press and Circular*¹ remarks that "there could hardly be anything more fraught with danger to himself and his friends than the misguided individual who reads up a medical book and thinks he is qualified to treat maladies of various kinds." This type of person was once cautioned to be careful lest he die of a misprint. So much for the encyclopedia. The British journal in question, however, proceeds under the title of "Americanizing the Profession" to criticize "the fever of self-advertisement which appears to have invaded the American profession from tip to toe." It says: "In America, frank advertising by medical men is the general rule, and the most successful man is often he who can best attract the reporters to his doorstep. It almost looks as if the Americanizing of a certain section of our newspapers were to be followed by the Americanizing of our medical profession." It would be interesting to know where the *Medical Press and Circular* secured the information on which to base the amazing statement that in America frank advertising by medical men is the general rule. Such sweeping general statements, without any knowledge of facts to support them, are not often found in America in reputable scientific journals. We expect to find them only in "yellow journals." The *Medical Press and Circular* would do well to secure an American correspondent whose statements can be relied on, and to avoid the methods of the yellow journal in discussing sensationalism and its results. We must refer the *Medical Press and Circular* to the statements made in a previous editorial: "An honorable physician could not conscientiously advertise for personal business, for the same reason that the honorable minister and lawyer would not advertise. A professional man has no commodity to sell; his only assets are his scientific knowledge and his personal ability; and he who claims to possess greater knowledge or greater skill than his professional associates—whether physicians, preachers or lawyers—is an egotist, or worse, and forfeits the respect of both his professional brethren and his fellow citizens."

A SKIN REACTION INDICATIVE OF TYPHOID IMMUNITY

Gay and Force² have found that a preparation of the typhoid bacillus made in the same way as Koch's old tuberculin when applied to the skin by the von Pirquet method produces a clean-cut reaction in 95 per cent. of persons who have had typhoid fever.

In two instances the attacks occurred forty-one and thirty-three years, respectively, before the test. The reaction failed to occur in 85 per cent. of persons without any history of typhoid, the persons reacting positively probably having had mild and unrecognized attacks. These investigators found further that of fifteen persons vaccinated by the United States Army method from four and three-quarters years to eight months previously, nine showed the reaction, and that twenty-five persons inoculated with a sensitized vaccine from one to eight months previously all reacted positively. The preparation of typhoid bacilli used in these tests consisted of a five-day culture in 5 per cent. glycerin-broth evaporated over acetone to one-tenth its original volume. In view of its simplicity, this test may prove to have practical value in determining whether persons who have had typhoid or who have been inoculated against typhoid are protected against the disease. Eventually it may be concluded that, in the inoculated, a negative skin-test is an indication for reinoculation. It is also possible that the test may prove of service in the study of the efficacy of different methods of protective inoculation. Extended observations will be necessary before the full significance of the reaction can be ascertained.

COLD WEATHER AS A FACTOR IN THE SPREADING OF DIPHTHERIA

By exposing plates of suitable mediums before the mouths of diphtheria patients while coughing or talking and then determining the number of colonies of diphtheria bacilli that develop on the plates, an idea may be obtained as to the extent to which bacilli are disseminated under these circumstances. In experiments of this kind Teague¹ found that most of the patients observed while coughing and talking emitted diphtheric bacilli in what would seem to be small numbers. It has been observed in experiments on the dissemination of prodigious bacilli in sputum droplets (the bacilli, which are harmless, are introduced into mouth and throat on swabs or in gargles) that low temperature markedly prolongs the life of the expelled bacilli, which, according to Hutchison, may be carried over comparatively considerable distances up to 600 meters (almost 2,000 feet). As the diphtheric bacillus is more resistant to drying than the prodigious bacillus, it is quite probable that the danger of droplet infection is greater in inadequately heated rooms than in rooms properly warmed, and that we have here an additional factor to account for the increased prevalence of diphtheria in the colder season. In this connection it may be recalled that the effect of low temperature in prolonging the life of bacilli in expelled sputum droplets is regarded as having played an important part in the epidemic of pneumonic plague in Manchuria in the winter of 1910-1911.

1. Teague: Jour. Infect. Dis., 1913, xii, 398.

1. The Family Encyclopaedia, Med. Press and Circular, 1913, xcvi, 271.

2. Gay, Frederick P., and Force, John N.: A Skin Reaction Indicative of Immunity against Typhoid Fever, Arch. Int. Med., March, 1914, p. 471.

Life.—Life is not mere living but the enjoyment of health.
—Martial.

Medical News

ALABAMA

Hospital Annex.—An annex to the Hillman Hospital, Birmingham, has been completed and other improvements to the institution have been made.

Meningitis at Bessemer.—Twenty-seven cases of meningitis were reported from Bessemer under date of April 15. Bessemer is a town of 20,000 and the disease is not regarded as epidemic.

Health Bulletins.—Dr. R. M. Cunningham, city health officer of Birmingham, announces that he intends to issue a series of weekly health talks, to show the people what they must do and must not do in order to keep down disease and pestilence.

ARKANSAS

New Officers.—Tenth Consular District Medical Society at Fort Smith, March 17: president, Dr. James A. Fergus, Rogers; secretary, Dr. Arthur F. Hoge, Fort Smith.

Hospital Service.—The St. Louis, Iron Mountain and Southern Railway has arranged to open an emergency hospital at Gurdon for the use of employees of the road.

Hospital Notes.—At the annual meeting of the Sparks Memorial Hospital Association, Fort Smith, Drs. George W. Moss, W. H. Johnson and T. J. Wright were elected directors. The erection of a home for nurses and families of patients at a cost of \$10,000 was discussed.

CALIFORNIA

State Society Meeting.—The forty-fourth annual meeting of the Medical Society of the State of California was held in Santa Barbara, April 14-16, under the presidency of Dr. Fitch E. Mattison, Pasadena, and the following officers were elected: president, Dr. Harry M. Sherman, San Francisco; vice-presidents, Drs. George A. Hare, Fresno, and Rexwald Brown, Santa Barbara; secretary, Dr. Phillip Mills Jones, San Francisco (reelected). San Francisco was selected as the meeting place for 1915. Dr. Robert A. Peers, Colfax, president of the State Association for the Prevention and Cure of Tuberculosis, presented a draft of a proposed legislative bill to appropriate \$1,000,000 for the crusade against tuberculosis, \$50,000 of which was to be available in July, 1915; \$450,000 in July, 1916, and \$500,000 in July, 1917. The association endorsed a movement for the establishment of a federal hospital in the Southwest for the study and treatment of tuberculosis.

COLORADO

Personal.—Dr. Walter H. Wood, Greeley, fell 20 feet down an elevator shaft in the Greeley Hospital, April 12, fracturing his left arm and injuring his right arm and hip. —Dr. Edward F. Lake, Denver, was operated on in Baltimore for carcinoma of the tongue, April 9.

New Clinic at Denver.—The new municipal clinic at Denver opened last month has been meeting with great success, and has handled more than one hundred patients a day. Dr. Asa Z. Hall, secretary and supervisor of the institution, is assisted in his work by the following staff: general medicine, Drs. Lorenz W. Frank and Asa Z. Hall; gynecology and surgery, Drs. Henry R. McGraw and Howard A. McKnight; laboratory, Dr. Benjamin H. Matthews and Paul S. Nice; pediatrics, Dr. George M. Blickendorfer; tuberculosis and diseases of the nose and throat, Drs. Orville D. Wescott, Louis H. Schultz and Johanna Gelien; and consulting staff, Drs. James M. Perkins and Oscar Hayes.

GEORGIA

Addition to Grady Hospital.—The medical board of Grady Hospital has adopted resolutions asking an additional new building to be used as a municipal hospital, and to contain accommodations for pay patients. The question of an appropriation of \$750,000 for the establishment of this hospital is to be voted on by the people of Atlanta.

Medical Society's New Quarters Open.—Medical Hall, the new home of the Georgia Medical Society, Savannah, was opened with formal ceremonies, March 31. The building is located on Drayton Street, overlooking Forsythe Park, and is a four-story brick structure. The first and second floors only, will be used by the society at present. Dr. Thomas J. Charlton, chairman of the house committee, presented the

keys of the building to Dr. Justin L. Jackson, president of the society, who formally accepted them, after which Dr. J. Ewing Mears, Philadelphia, an honorary member of the society, spoke on "The Significance of the Construction and Opening of the Medical Hall of This Society."

State Association Meeting.—The sixty-fifth annual meeting of the Medical Association of Georgia was held in Atlanta, April 15-17, under the presidency of Dr. Ralston Lattimore, Savannah. Resolutions were adopted endorsing the public health bill and vital statistics bill to be brought before the legislature at its next session. The following officers were elected: president, Dr. William B. Hardman, Commerce; vice-presidents, Drs. Howard J. Williams, Macon, and Frederick D. Patterson, Cuthbert; secretary-treasurer, Dr. William C. Lyle, Augusta (reelected), and delegate to the American Medical Association, Dr. Edward C. Davis, Atlanta. The association was the guest of the Fulton County Medical Society at a banquet at Hotel Ansley, April 17.

ILLINOIS

Personal.—Dr. Ernest W. Pothoff, Oak Park, sailed for Europe, May 2.—Dr. David C. Harmison, Havana, is reported to be seriously ill at his home.—Dr. John C. Griffith has succeeded Dr. George S. Duntly as local surgeon of the Toledo, Peoria and Western Railroad at Bushnell.

New Officers.—Rock Island County Medical Society at Rock Island, April 14: president, Dr. John W. Seids, Moline; secretary, Dr. William D. Chapman, Silvis.—Hancock County Medical Society at Carthage, April 9: president, Dr. William Blonder; secretary, Dr. Samuel M. Parr, both of Carthage.—Gallatin County Medical Society at Equality, April 8: president, Dr. J. W. Bowling; secretary, Dr. A. B. Capel, both of Shawneetown.—Franklin County Medical Society at Benton, April 14: president, Dr. William H. Smith; secretary-treasurer, Dr. Edgar Austin, both of Benton.—Clark County Medical Society at Marshall, April 9: president, Dr. Lyman A. Burnside, West Union; secretary-treasurer, Dr. Levi J. Weir, Marshall.

Chicago

Personal.—Dr. Cassius Clay Rogers has resigned from the faculty of the Chicago College of Medicine and Surgery.—Dr. B. Barker Beeson has sailed for Europe.

Advocates Detention of Tuberculosis Patients.—The forcible detention and treatment of ignorant victims of tuberculosis was advocated at the public conference held April 16 at the City Club, under the auspices of the Chicago Tuberculosis Institute.

Crime Laboratory Opened.—The municipal psychopathologic laboratory of Chicago was opened May 1, on the eleventh floor of the City Hall. Dr. William J. Hickson, Vineland, N. J., is head of the work, and Miss Mary M. Campbell has accepted the position of assistant director.

Mortality and Morbidity Figures for First Quarter.—The total number of deaths from all causes in Chicago during the first quarter of 1914 was 9,756, which is 277 fewer than for the corresponding period of 1913. This gives a per annum rate of 16.5 per 1,000 as against 17.4 for 1913. The figures as compared with those of 1913 show reductions as follows: scarlet fever, 353; diphtheria, 112; measles, 113; pneumonia, 225. The increases are as follows: diarrheal diseases, 107 under 2 years of age; congenital defects and accidents, 91; whooping-cough, 23; tuberculosis, 10. There was an increase of 209 deaths under 1 year of age, but a decrease of 371 between the ages of 1 and 5. Reductions over the period of 1913 in the number of cases of infectious diseases for the quarter were as follows: measles, 7,773; scarlet fever, 3,815; diphtheria, 926; small-pox, 26. Increases were as follows: whooping-cough, 1,423; chicken-pox, 259; mumps, 251; typhoid fever, 51. The above figures are from the Bulletin of the Chicago School of Sanitary Instruction. Attention is called to the fact that for the first time in the history of the city the number of cases of pneumonia reported exceeded the number of deaths from that disease during the quarter, the figures being 2,662 cases reported and 1,831 deaths. This is a gratifying improvement in the reporting of notifiable diseases.

IOWA

State Society Meeting.—The sixty-third annual meeting of the Iowa State Medical Society will be held in Sioux City, May 13-15, under the presidency of Dr. Lec Wallace Dean, Iowa City.

New Sanatorium.—Scott County is erecting a county tuberculosis hospital near Davenport, at a cost of \$71,000, which will be ready for occupancy June 1. The building is 138 by 80 feet, the grounds comprise twelve acres, and the institution will accommodate forty patients.

Personal.—Dr. George McC. Middleton has succeeded Dr. William A. Stocks as city physician of Davenport.—Dr. John L. Klein has been elected health officer of Muscatine.—Dr. Thomas J. Williams, Hiteman, has gone abroad.—Dr. Eugene C. McMeel has been appointed postmaster of Delmar.

KANSAS

New Hospital.—Halstead is to have a new three-story, fire-proof hospital, to cost \$15,000.

Pellagra in Kansas.—The fourth case of pellagra in Kansas during the past year has been discovered at Atchison. Diagnosis was determined by the physicians of the Atchison County Medical Society. The patient came to Atchison from Winthrop a year ago.

LOUISIANA

Course on Educational Hygiene.—During April a course of lectures on educational hygiene was delivered at the New Orleans Normal School. The first lecture was by Dr. Charles C. Bass, on "Malaria," the second by Dr. Otto Joachim, on "Hygiene of the Ear," the third and fourth by Miss Mary Realey, on "Social Phases of Hygiene," and the fifth by Dr. William W. Butterworth, on "Nutrition and Education."

New Medical Society Organized.—At a meeting at the Hotel Monte-Leone, New Orleans, April 15, the Pan-American Medical and Surgical Organization was organized. The following officers were elected: president, Dr. Stephen W. Stafford, New Orleans; vice-presidents, Drs. Joseph A. Estopinal, Arabi, and Everard W. Mahler, Charles V. Unsworth and C. Grenes Cole, New Orleans; secretary, Dr. Joseph J. Wymer, New Orleans, and treasurer, Dr. William T. Patton, New Orleans.

Conference of State Health Officers.—The State Health Officers of Louisiana held a conference in New Orleans, April 20, pursuant to the call of Dr. Oscar Dowling, president of the State Board of Health. As mayors of cities and towns and presidents or police juries (the community legislative body) in Louisiana are fiscal agents of health appropriations, they were invited. The number in attendance was large, every section of the state being represented. Two phases of local work were emphasized; the application of the law, and practical means of improving local service. Dr. William C. Woodward, health officer of Washington, D. C., and Surg. B. S. Warren, U. S. P. H. S., were present. Dr. Woodward discussed "The Functions of Legislation in the Conservation of Public Health," and Dr. Warren "The Effects of Industrial Conditions in the Protection of Diseases." Dr. Oscar Dowling presided.

Conference on Betterment of Hygiene Among Negroes.—Betterment of negro health was the subject of a conference of Southern Health and Educational Officers, held in New Orleans, April 24. The meeting was called by Dr. Oscar Dowling of the Louisiana State Board of Health. Five states and the District of Columbia sent delegates. Eight of the leading negroes of the South were present. To agree in practical measures for ultimate and immediate betterment was the purpose of the conference. Speakers and visitors were unanimous that the call was timely and that the need for concerted action is imperative. After lengthy discussion of many important topics resolutions embodying the sense of the convention as to pertinent and practicable measures were adopted as follows:

That the responsibility of instituting and executing measures to improve sanitary conditions among the negroes is largely that of the white man; that the active cooperation of the more intelligent negroes should be asked and their services utilized as far as possible in executing the plans adopted; that one point of attack should be on prevailing insanitary housing conditions, the disposal of night soil and other wastes, provision of a wholesome and adequate water supply, ventilation, and light that each state and municipality obtain exact information as to the prevalence of tuberculosis, venereal and other diseases among negroes; that practical preventive measures applicable to local conditions be instituted; that the data gathered be transmitted to the local and state health officers; that instruction, definite and persistent, in the primary principles of health be given, especially by a program on health topics in every negro school in the state and sermons and talks on sanitation in every negro church at frequent intervals; that teachers be asked to emphasize the element of self control; that visiting district nurses be employed; that each state and city board of health be requested to take action to carry these recommendations into effect; that the American Medical Association, the American Public Health

Association, the Southern Medical Association, the Southern Sociological Congress, the Southern Commercial Congress, the National Educational Association of America, the National Housing Association, the Federation of Women's Clubs, and other health and educational organizations, be requested to establish standing committees on the health of the negro.

The resolution committee consisted of Wm. C. Woodward, Washington, D. C.; James A. Hayne, S. C.; C. W. Garrison, Ark.; T. F. Abercrombie, Georgia; John C. Bell, Memphis; Herman Occhsner, Thos. A. Roy, La.; S. R. Mallory Kennedy, Florida; Oscar Dowling, La.

MARYLAND

Room Dedicated to Dr. Towler.—A room in St. Luke's Hospital, Baltimore, was dedicated with appropriate ceremonies to Dr. Philip B. Towler, April 13.

Fresh Air Society.—At the annual meeting of the Fresh Air Society in Baltimore, April 14, the officers were reelected, and Dr. Armfield F. Van Bibber, Bel Air, made member of the board of directors.

Presentment against Navy Surgeon.—A presentment against Asst.-Surg. Ralph W. McDowell, of the Navy, on the charge of assaulting with intent to kill Frank Green, Jr., of Annapolis, was returned to-day by the Anne Arundel County grand jury. Surgeon McDowell promptly appeared before court and renewed bail for \$1,000.

Personal.—Dr. Eugene McE. Van Ness, who was operated on about a month ago for appendicitis at the Union Protestant Infirmary, has recovered.—Dr. Van Den Berg, one of the European delegates to the International Surgical Congress in New York City, is reported to be seriously ill with pneumonia at the Hotel Belvedere, Baltimore.

Dr. Henkel Asks for Investigation.—Dr. Louis B. Henkel, Jr., of Annapolis, a former member of the State Board of Medical Examiners, who has been mentioned in affidavits bearing on the sale of advance questions for two medical examinations, has forwarded a communication to Dr. Herbert Harlan, Baltimore, president of the board, demanding an investigation. A thorough inquiry will be made and the board will take up the entire subject at its next meeting.

Health Report.—According to the weekly bulletin issued by the Department of Health last week, 238 persons died in Baltimore during the week. During the corresponding period of last year, 187 persons died, 245 in 1912 and 233 in 1911. Tuberculosis was the cause of more deaths than any other disease. There were six suicides and seven died as the result of accidents. There were forty-five deaths from pneumonia. The births reported were, total 256: white, 189, colored, 67; males, 116; females, 140.

Stamping Out Typhoid.—Health Commissioner Nathan R. Gorter has sent out a bulletin to all physicians in Baltimore calling their attention to the marked improvement in the number of typhoid cases and the lessened number of deaths from that disease since last December. Accompanying the explanation was a table which was prepared by both Dr. Gorter and his assistant, Dr. C. Hampson Jones, showing the number of typhoid cases and deaths for each month, beginning with the year 1909 and ending with March, 1914. The physicians are asked to help the department in the study of the disease.

Campaign for Mercy Hospital.—The campaign committee of Mercy Hospital recently held an enthusiastic meeting in the board rooms and took up the details of the "whirlwind" started April 22, which will be continued until May 5, when it is hoped the last of the \$320,000 desired will be raised. Since the formal announcement preparations have been made for the sending out of more than 100,000 letters which will tell in detail the reasons why the management needs the \$320,000; banners will be swung over the streets; there will be three electrically illuminated thermometers which will daily register the amount of money collected, and motorcyclists also will assist in the campaign by carrying streamers on their machines on Sunday.

MASSACHUSETTS

Personal.—Dr. G. V. N. Dearborn has been appointed consulting physiologist to the Forsythe Dental Infirmary, and not consulting physician, as erroneously stated two weeks ago.

Health Talks.—The first of a series of booklets issued by Harvard University under the subject-head of "Health Talks," is by Dr. John Lovett Morse, Boston, "The Care and Feeding of Children." The second volume, by Dr. Otto Folin, on "Preservatives for Food, Their Use and Abuse," is now on the press. Additions to this series will follow in a short time.

Hospital Staff.—Announcement is made of the personnel of the staff of the new St. Elizabeth's Hospital, Brighton, which is rapidly nearing completion: supervisor and physician in chief, Dr. John R. Slattery; associate physician in chief, Dr. Thomas F. Harrington; physician, Dr. Michael J. Cronin; surgeon in chief, Dr. John W. Lane, vice Dr. William A. Brooks, resigned; surgeon, Dr. Edward A. Supple; chief of urologic department, Dr. Arthur L. Chute; orthopedic surgeon, Dr. Thomas F. Broderick, Jr.; obstetrician, Dr. Thomas F. Greene; roentgenologist, Dr. Patrick F. Butler; director of laboratory serum diagnosis, Dr. Andrew F. Dowing, and consulting obstetrician, Dr. Henry S. Rowen.

MICHIGAN

Personal.—Dr. Rudolph J. E. Oden, Cadillac, sails for Europe, May 16.—Dr. Wilfrid Haughey, Battle Creek, read a paper before the Detroit Oto-Laryngological Society, April 21.—Dr. Otto T. Freer addressed the Detroit Oto-Laryngological Society, April 21, on "The Intranasal Operation for Chronic Empyema of the Frontal Sinus."

Sanatorium Annex at Detroit.—Building operations on the new unit of the Detroit Tuberculosis Sanatorium, for which \$50,000 was collected in the recent campaign in Detroit, will be begun as soon as the contracts can be let.

Measles at Kalamazoo.—More than five hundred cases of measles were reported to the Health Department since February 1. For the week ended April 20, 112 cases were reported and there were 300 cases in the city at that time.

Work on Receiving Hospital.—Joseph A. Marks, president of the Detroit Poor Commission, turned the first sod at the site of the new receiving hospital at Detroit, March 25. The building will cost about \$200,000, and is expected to be completed November 1.

New Isolation Hospital for Ann Arbor.—The New Isolation Hospital, for which Ann Arbor issued municipal bonds for \$25,000 a year ago, is nearly completed. It is constructed on the bungalow type, is 103 by 40 feet, and will accommodate twenty-four patients.

The April Bulletin.—*Public Health*, the bulletin of the Michigan State Board of Health, for April departs somewhat from the usual program of papers on medical, hygienic and sanitary subjects and contains twelve papers of a sociologic nature, dealing chiefly with the family, the relation of parents and children, schools and school hygiene, sex teaching, etc. The papers are highly interesting and valuable and should prove of great popular interest. The bulletin contains in addition editorial matter, statistical tables, laboratory reports, etc., portraits, cartoons and information concerning the traveling exhibit of the board.

MINNESOTA

Personal.—Dr. John H. Crowe has been elected health officer of Virginia.—Dr. Conrad A. Neumann, Lewiston, who has been ill with septicemia at Rochester, Minn., has returned home convalescent.—Dr. John S. Johnson, St. Paul, has started for Norway, taking with him the exhibits prepared by the Minnesota commission for display at the Norwegian Centenary Exposition, Christiania.—Dr. Oliver H. McMichael, Vernon Center, announces his retirement from practice. He expects to move to Minneapolis.

Reorganization of State Board of Health.—A reorganization of the laboratory, epidemiology and sanitary engineering divisions of the State Board of Health was perfected at a meeting held April 14. Hereafter there will be but two divisions, infectious diseases and sanitation, the work of the laboratory division being divided. Dr. Albert J. Chesley will retain his position as head of the division of infectious diseases, and in addition will take over the laboratory work having to do with diagnosis of diseases. Dr. Hugh H. Miller, in charge of the present laboratory division, will retire to devote their entire time to their teaching work in the University of Minnesota. The new sanitary division will be under the direction of H. A. Whittaker, assistant director and chief chemist of the laboratory division.

MISSISSIPPI

New County Society Publication.—The Clarksdale and Six Counties Medical Society, comprising the counties in the northern part of the state, began in April the publication of a bulletin giving the news of the activities of the society and providing the members with information as to past and coming meetings. It is called the *Six Counties* and is to

be published monthly. At present it consists of a four-page folder which contains a list of the members in 1914 with their addresses, a report of the March meeting, a number of announcements, editorial comment, etc., and is altogether a bright and snappy bulletin. It was established to supply a need for some means of communication between the officers and the members of the society other than the semi-annual meeting. It is edited by Dr. Thomas M. Dye of Clarksdale, secretary of the society.

MISSOURI

State Association Meeting.—The annual meeting of the Missouri State Medical Association will be held in Joplin, May 12 to 14, under the presidency of Dr. Enoch H. Miller, Liberty.

Hospital Association Organized.—The Kansas City Hospital Improvement Association has been organized to discuss matters of interest to those intrusted with the care of the hospitals of Kansas City and to devise a better system of cooperation between the various hospitals. The members of the association at present are: Mr. A. C. Stowell, St. Luke's Hospital, president; Drs. R. E. Castelow, superintendent of the General Hospital, secretary; Fred L. Woodell, superintendent of the German Hospital; J. Archie Robinson of Wesley Hospital; S. C. Fox, Missouri Pacific Hospital; Rev. A. W. Linquist, superintendent of Swedish Hospital; Noad Adams of the Baptist Hospital and J. W. Perkins of the University Hospital.

NEW JERSEY

Hospital News.—A three-story brick and terra cotta structure is to be erected at Glen Ridge, opposite the present Mountainside Hospital. The building will accommodate 100 patients. The Board of Health of Paterson has decided to erect a tuberculosis pavilion at a cost of \$15,000, to accommodate fifteen patients. A bungalow is also to be erected for the accommodation of the nurses.

Hospital Staff Selected.—Dr. J. Alexander Browne, executive officer of the Paterson Isolation Hospital, has selected the following staff for that institution: Consultants—Drs. Henry Parke, J. William Atkinson, Emanuel L. Henion; dermatologist—Dr. Charles R. Mitchell; pathologist—Dr. William F. Gutherson; visiting staff—Drs. Henry E. Briody, Joseph V. Bergin, William J. Whalen, William H. Jacob, Theodore Bender, George J. Koch, Paul E. Rauschenbach and Orville R. Hagen.

NEW YORK

Personal.—Dr. Frederick M. Meader has resigned as city bacteriologist of Syracuse, and has been succeeded by Dr. Oliver W. H. Mitchell, assistant professor of bacteriology and preventive medicine in the University of the State of Missouri, Columbia. Dr. Mitchell also succeeds Dr. Leverett D. Bristol as assistant professor of bacteriology.—Dr. Leverett D. Bristol, Syracuse, has resigned from the faculty of Syracuse University to take charge of the North Dakota State laboratory.—Dr. Horace M. Hicks, health officer of Amsterdam, was operated on for hernia at the General Memorial Hospital, New York City, April 16.—Dr. Edmund C. Boddy, for fourteen years city physician of Rochester, has resigned.

Legislation at Albany.—Governor Glynn has signed a bill appropriating \$50,000 as an emergency fund for the Health Officer of the Port.—The Christian Science bill which proposed to allow Christian Science healers to practice under the Medical Practice Act of the State has been vetoed by Governor Glynn. In the veto he said, in part, that the bill would have opened the gates to all kinds of medical pretenders, who, as a matter of fact, treat the sick without the use of any drug or material remedy, and who, if this bill were approved, would swarm across our borders and pretend to practice medicine on our citizens.—Governor Glynn has signed the Walter's bill relieving pharmacists, apothecaries and druggists from some of the restrictions of the labor law so that the sick will not be compelled to rely on Sundays on the exclusive services of the proprietor for the whole twenty-four hours.—A bill designed to simplify the procedure necessary for the detention of weak-minded persons in state institutions has also been signed by Governor Glynn. This bill authorizes any judge of a court of record to determine the mental condition of a suspected person on the application of a relative, friend, parole, or school officer. The application to be accompanied by a certificate signed by two physicians. The governor at the same time approved

the bill appropriating \$4,000 for the expenses of a commission to investigate the care, custody, treatment, and training of the mentally defectives to recommend remedial legislation next year.

New York City

Fraudulent Advertising Punishable.—A bill has recently been passed by the board of aldermen which provides that any one guilty of publishing an advertisement containing assertions, representations, or statements which are untrue, deceptive, or misleading, shall be subject to a fine of not less than \$25. Steps are being taken by the Department of Health to make the same use of this law that has proved so effective in Chicago in a campaign directed against venereal quack advertising.

NORTH CAROLINA

New Sanatorium.—Dr. Charles S. Minor and William L. Dunn, Asheville, have purchased 60 acres of land on the south slope of Mt. Pleasant, on which they will erect a sanatorium for tuberculosis, at an expense of about \$250,000.

OHIO

Physical Examination of Employees Required.—A system of physical examination of all employees of the Republic Iron and Steel Company, Youngstown, has been organized, and an examination will be made of employees, both in the mills and offices.

State Association Meeting.—The sixty-ninth annual meeting of the Ohio State Medical Association will be held at Columbus, May 5, under the presidency of Dr. George A. Fackler, Cincinnati. The oration on surgery will be delivered by Dr. Robert Abbe, New York City, and that on medicine by Dr. David L. Edsall, of Harvard Medical School.

Personal.—Dr. Sherman Leach, Columbus, is reported to be seriously ill at his home with pneumonia, following an attack of rheumatic arthritis.—Dr. Charles C. Dreyer has succeeded Dr. George L. Chapman as chief of staff of the district physicians of Toledo.—Dr. Jesse W. Hull has been appointed workhouse physician of Toledo.—Dr. Don C. Hughes, Findlay, who underwent an operation at the Holman Hospital, April 16, is reported to be making satisfactory progress.—Dr. Rufus C. Pennywitt, Dayton, assumed his duties as registrar of vital statistics of the Health Department, April 17.—Dr. George T. Haverfield, Uhrichsville, was seriously burned in a fire in his office, April 17, while attempting to save his negro attendant.—Dr. William C. Martin, Cleveland, has succeeded Dr. John Claypool, resigned, as physician of the Ohio State Sanatorium, Mount Vernon.—Dr. William S. Reed, Stockton, fractured both clavicles and three ribs in an automobile accident, April 11.

OKLAHOMA

New Building for State Hospital.—The new building of the State Hospital, Vinita, will be completed July 1, and will accommodate three hundred patients.

New Officers.—Pawnee County Medical Society, organized at Hallett, March 31: president, Dr. Harman D. McFarland, Cleveland; secretary-treasurer, Dr. James C. Hawkins.

Personal.—Dr. Kelley D. Gossom, Custer, is recovering from an attack of appendicitis.—Dr. Alexander X. Campbell, Grandfield, has succeeded Dr. Hugh Scott, Dustin, as receiver for the United States Land Office, Guthrie.—Dr. Luther W. Troutt, Afton, was thrown from his automobile and seriously injured in a collision with a bridge rail, recently.—Dr. Luther Mathis, Fairview, was seriously injured by the overturning of his automobile near Guthrie, March 17.—Dr. and Mrs. Robert M. Howard, and Dr. and Mrs. Antonio D. Young, Oklahoma City, sailed from Boston for Europe, April 25.—Dr. Thomas S. Williams, Stilwell, who has been ill with small-pox, has recovered.

PENNSYLVANIA

New Buildings for State Institution.—New buildings are to be erected at the state institution for the Feeble-Minded and Epileptics, near Spring City.

Personal.—Friends of Dr. Joseph T. Rothrock, West Chester, state forestry expert, will tender to him a testimonial luncheon in Harrisburg, May 4.—Dr. Ellis M. Harvey, Media, has been elected president of the Media Borough Council.

Medical Institutions.—During May the Elkins Memorial Hospital of Abington, Old York Road, will open for service,

a substantial addition to the medical facilities of Philadelphia suburbs. The staff will include: Surgical—Drs. Duncan L. Despard, J. Dean Elliot and Damon B. Pfeiffer; consultants, Drs. Richard H. Harte and William B. Van Lennep; orthopedic—Dr. Arthur B. Gill; medical—Drs. Sumner Cross, Francois L. Hughes and Thomas Reading; consultants, Drs. Alfred Stengel and Clarence Bartlett; gynecologist, Dr. Floyd E. Keene; consultant, Dr. John G. Clark; obstetrician, Dr. Milton K. Neiffer; pediatrics—Dr. J. P. Crozer Griffith; laryngologist, Dr. J. Frederick Knauss; ophthalmologist, Dr. J. Frederick Herbert, and consultant, Dr. William C. Posey.

Philadelphia

Fraternity Banquet.—The annual Interchapter banquet of the Phi Chi Medical Fraternity was held April 16, at the Hotel Walton. The chapters represented were those of the Jefferson Medical College, Medico-Chirurgical College, University of Pennsylvania and Temple University. The toastmaster was Dr. Theodore H. Wiesenburg. The guest of honor was Dr. Richard C. Cabot of Harvard University, and other speakers were Dr. William W. Babcock and Dr. George E. Price.

Clean-Up Week.—The final results of clean-up week have not yet been published, but fully 15,000 cubic yards of waste was taken from the districts where the warfare against disease-breeding dirt and fire-breeding rubbish was waged, on the second day, April 21. This amount was half as much again as that gathered on the first day. The normal force of rubbish collectors was augmented from 86 to 131 men. The teams and vehicles numbered 160. So great was the accumulation of trash that the Waste Reduction Company was swamped, and much of the material had to be taken to the city dumps instead of being utilized for its by-products.

For and against Vivisection.—A public meeting of the Philadelphia Pediatric Society will be held in the College of Physicians Building, Twenty-Second Street, above Chestnut, on Tuesday evening, May 5, 1914. The program will be devoted to "The Value of Animal Experimentation in the Diagnosis and Treatment of Disease in Children." "Its Value in Diagnosis" will be shown by Dr. Alfred Hand, Jr., of Philadelphia, and "Its Value in Treatment" by Dr. Henry Dwight Chapin, professor of diseases of children in the New York Post-Graduate Medical School. The purpose of the meeting is to give the Philadelphia public an opportunity to learn something of the value of animal experimentation to the life and health of its children.

At a meeting of the Board of managers of the American Anti-Vivisection Society, John R. K. Scott was retained as counsel and authorized to institute proceedings against all practitioners of vivisection whom he believes to be guilty under an opinion handed down recently by Judge Bregy.

In reply to a letter from the provost of the University of Pennsylvania, questioning the legality of certain experimental work now being carried on at the university, in the light of Judge Bregy's ruling, that operations which inflict pain on animals may be legally performed only with the object of benefiting the animals themselves, Samuel Dickson, chairman of the Committee on Law and Legal Relations of the Board of Trustees of the University of Pennsylvania, sent a letter disagreeing with the opinion of Judge Bregy. (See page 1423, this issue.)

April 22, at the meeting of the Philadelphia County Medical Society, representing 1,700 of the physicians of this city and vicinity, resolutions were adopted, affirming the full confidence of the society in the physicians being prosecuted by the Philadelphia Society for the Prevention of Cruelty to Animals.

TEXAS

State Association Meeting.—The annual meeting of the State Medical Association of Texas will be held in Houston May 12-14, under the presidency of Dr. Marvin L. Graves, Galveston.

Quarantine Edict.—The annual quarantine proclamation by the governor was issued March 27, declaring that quarantine be established along the Gulf Coast and Rio Grand border April 1, and continue until the edict is revoked.

Green Crosses for Physicians.—Because of the objection of the American Red Cross to the use of its insignia by others, an ordinance has been introduced before the San Antonio city council providing that physicians whose automobiles bear a green cross will be given right of way by traffic policemen.

Societies Consolidate.—The proposal of consolidation of the Fifth and Sixth District Medical Societies of Texas was accepted by the former organization at its semi-annual convention at San Antonio. The summer convention of the merged societies will be held at Corpus Christi, and the winter session at San Antonio.

Hospital Notes.—The Howard County Hospital Association has been organized at Big Springs with the object of building a modern and well-equipped hospital.—A fund of \$20,000 has been set aside for the erection of a hospital at the Masonic Home, near Fort Worth.—Ground has been broken for the erection of the Industrial Bay Home, Houston.—The new Denison City Hospital was thrown open to the public for inspection, April 12.—The building committee in charge of the erection of the Fort Worth City-County Hospital has inspected and approved the completed building. It was formally opened last week.—The new Amason-Hargrave Hospital at Wichita Falls was formally opened March 24.

Personal.—Dr. William R. Talbot has been appointed Health Officer of Galveston, vice Dr. Frank N. Danforth, Texas City, resigned.—Dr. William I. Swangem suffered a loss of \$5,000 by the burning of his building at Terrell, April 6.—Dr. John C. Silliman, Palestine, has started for Vancouver, Wash., en route to China and Japan.—Dr. Sidney M. Lister has been elected president of the Board of Health, Houston.—Dr. Frank M. Mullins, Fort Worth, is said to be seriously ill as a result of a hemorrhage, March 28.—The office of Dr. George W. Creswell, Crosbyton, was destroyed by fire, March 26.—Dr. Quincy B. Lee has resigned as city bacteriologist of San Antonio.—Dr. Lamartine O. Dudgeon, Sweet Water, sustained a fracture of three ribs and concussion of the brain by the overturning of his automobile near Roscoe, March 26.

WISCONSIN

Dr. Vaughan Entertained.—April 22 Dr. Victor C. Vaughan, Ann Arbor, Mich., was entertained at dinner by members of the medical profession of Milwaukee.

New Officers.—Washington County Medical Association at West Bend: president, Dr. Willibald J. Wehle; secretary-treasurer, Dr. S. Driesel, both of West Bend, both reelected.

New Buildings for Sanatorium.—The contract has been awarded for the construction of three dormitories and a warehouse at the State Tuberculosis Sanatorium, Wales, to cost \$25,200.

Personal.—Dr. George C. Ruhland, city bacteriologist of Milwaukee, has been appointed health commissioner, vice Dr. Frederick A. Kraft.—Dr. Kraft expects to spend several months in Europe.

Ravenel to Go to Missouri.—Dr. Mazyck P. Ravenel, professor of medical bacteriology in the University of Wisconsin, and director of the public health laboratory, has been appointed to a similar position at the University of Missouri, Columbia.

Wisconsin Surgeons Hold Meeting.—The Wisconsin Surgical Association held its first annual meeting at Milwaukee, April 22 and 24, under the presidency of Dr. Alfred H. Levings. The days of the meeting were taken up with clinics at the various hospitals, and in the evenings various papers were read and subjects of surgical interest discussed.

GENERAL NEWS

Students of Epilepsy.—The annual meeting of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics will be held at the Hotel Belvedere, Baltimore, May 25, under the presidency of Mr. William C. Graves, Chicago.

Death of Colonel Appel.—News has just been received of the sudden death of Col. Daniel M. Appel, M. C., U. S. Army, chief surgeon of the Department of Hawaii at Honolulu, April 22. As a result of Colonel Appel's death, Lieut.-Col. Jefferson R. Kean is promoted to colonel; Major Charles Lynch to lieutenant-colonel, and Capt. John L. Sheppard to major.

Bequests and Donations.—The following bequests and donations have recently been announced:

College of Medicine of the University of Cincinnati, a medical endowment fund of \$31,400, to be known as the Thomas Gibson fund, being the residue of will of Mrs. Frances W. Gibson.
Milford, Mass., Hospital, a permanent fund of \$100,000, by the will of Gov. Eben S. Draper.

Typhus Fever.—According to *Public Health Reports*, April 7, since Nov. 19, 1913, nineteen cases of typhus fever have

been discovered in immigrants arriving at Atlantic ports from Europe. Seven of the cases arrived at Providence from Marseilles and Naples and twelve at the New York quarantine, mainly from Southern European ports. Typhus became epidemic in Tokyo, Japan, and from March 20 to April 5, 1,750 cases were notified. The mortality has been about 12 per cent. The officers of the United States Public Health Service stationed at Tokyo immediately put into operation the United States quarantine regulations for ships and passengers clearing for the United States.

Conference on Tuberculosis.—The Mississippi Valley Conference on Tuberculosis, called by A. E. Kepford, state lecturer of the Department of Tuberculosis of the Iowa State Board of Control, and James Minnick, secretary of the Illinois State Association for the Prevention of Tuberculosis, will be held at Memphis, Tenn., at the time of the National Congress of Charities and Correction. The conference is called to bring together on a common platform all who are interested in the tuberculosis movement in the Mississippi Valley, and to discuss certain aspects of the problem; first, to bring about a better understanding and agreement in regard to other philanthropic work, especially in the relief of individuals and families who have become dependent because of tuberculosis; second, to arouse interest in extending tuberculosis propaganda in the rural districts of the Mississippi Valley, and third, to plan a tuberculosis law best adapted to the needs of this section of the country.

FOREIGN NEWS

Plague at Santiago.—Under date of April 20, a fatal case of bubonic plague was reported to the State Department, from Santiago, Chile. Active measures were being taken to prevent the spreading of the disease.

Plague in Havana.—April 23 two new cases of bubonic plague were reported at Havana, one from Artesima, a small town a few miles from Havana. Up to date the cases number twelve and the deaths two. April 25 an American passenger on a boat from Mobile to New York was reported as held at Havana as a plague suspect under the direction of Surg. R. H. Crell of the U. S. P. H. S.

CANADA

Mining Accidents in Ontario.—In the year 1912 there were 13,108 persons employed in the producing mines of Ontario, and 2,000 in non-producing mines. Of these 43 were killed, of which number 32 deaths were due to the fault or neglect of the workmen, or the managers of the works, and were preventable accidents. The total number of serious accidents was 238. The fatalities are classified as follows: To danger inherent in the work, 10, or 23.3 per cent.; defects in the mine workings, 8, or 18.6 per cent.; faults of fellow-workmen, 1, or 2.3 per cent.; fault of injured persons, 23, or 53.5 per cent.; unclassifiable, 1, or 2.3 per cent.

Cancer in Ontario.—Cancer continues to take a high toll of life in the province of Ontario. In 1912 there were 176 more deaths from this cause than in 1911. The deaths in the last ten years ran as follows: 1903, 1,156; 1904, 1,253; 1905, 1,224; 1906, 1,411; 1907, 1,329; 1908, 1,348; 1909, 1,597; 1910, 1,587; 1911, 1,602; 1912, 1,778. Cancer is the third most active cause of death in that province, organic heart disease being the first and tuberculosis second. As the total mortality in Ontario in 1912 was 32,150, the percentage of cancer deaths was 5.53 of the total deaths. There were 150 deaths from cancer of the buccal cavity; 570 from cancer of the stomach; 258 from cancer of peritoneum, intestines and rectum; 159 from cancer of the female genital organs; 116 from cancer of the breast; 11 from cancer of the skin, and 514 from cancer of other organs not specified.

Personal.—Dr. John Ferguson, Toronto, editor of *The Canada Lancet*, has been elected president of the Canadian Fraternal Congress; Dr. William S. Harrison, Toronto, vice-president, and Dr. Thomas Millman, Toronto, chairman of the medical section.—Prof. J. George Adami, McGill University, Montreal, has been reelected president of the City Improvement League.—The Hon. Dr. Albert R. Pyne, Minister of Education for Ontario, was recently presented with a solid silver tea service by his colleagues in the legislature for his professional attention to the Prime Minister, Sir James Whitney, during his recent severe illness.—Dr. Bruce L. Riordan, Toronto, has been elected president of The Aesculapian Club; Dr. George A. Bingham, vice-president; Dr. Edmund E. King, treasurer, reelected; Dr. George Elliott, secretary, reelected.—Dr. Alexander Primrose,

Toronto, has resigned from the professorship of medicine and surgery in the Royal College of Dental Surgeons, Toronto. —Dr. William Goldie, Toronto, has been appointed director of the medical clinic of the out-door department of the Toronto General Hospital. —Dr. Harvey Clare, assistant medical superintendent of the Toronto Hospital for the Insane, has been appointed demonstrator in psychiatry in the medical faculty of the University of Toronto.

CANAL ZONE

No Plague on Board the "Aysen."—An examination of a reported case of bubonic plague on board the steamship *Aysen*, held in quarantine at the Culebra Island station, was conducted April 10 by Dr. Samuel T. Darling, chief of Ancon Hospital laboratory and member of the board for the diagnosis of infectious diseases, with negative results. The chief health officer and the chief quarantine officer were present during the examination. Bacteriologic examinations of material obtained at the time of examination were also negative for plague.

LONDON LETTER

LONDON, April 17, 1914.

Royal Commission on Venereal Diseases

At the twenty-sixth meeting of the Royal Commission on Venereal Diseases Dr. Douglas White submitted an estimate of the prevalence of venereal diseases in the United Kingdom. No direct statistical basis is available, but from a consideration of the existing statistics regarding venereal diseases in this country, and a careful comparison (in which an attempt was made to allow for difference in conditions) with the estimate which has been made as a result of a statistical inquiry in Prussia, Dr. White arrived at the conclusion that there were every year 122,500 new cases of venereal disease in London and 800,000 new cases in the United Kingdom. He computed that of the 800,000 new cases 114,000 would be syphilis and the remaining 686,000 gonorrhea and chancroid. From these figures he deduced that there must be in the United Kingdom about 3,000,000 syphilitics. As regards syphilis Dr. White compared these results with the estimate obtained by assuming that a certain percentage of cases of syphilis find a conclusion in general paralysis or locomotor ataxia. The figures obtained from the results of notification in Denmark led to the conclusion that in that country rather less than 2.5 per cent. of syphilitics died from general paralysis. In the United Kingdom there are about 2,600 deaths annually from general paralysis and about 700 deaths from locomotor ataxia. If it may be assumed that 3 per cent. of cases of syphilis result in deaths from these diseases, the conclusion is reached that there are about 111,000 syphilitic infections annually. This figure Dr. White compared with the 114,000 fresh infections estimated by the indirect method already mentioned. Passing to the means of combating venereal diseases, Dr. White said that prevention would depend on two elements, facilities for treatment and education. He regarded ignorance of the public as the root factor in the spread of venereal disease. Adolescents of both sexes should be instructed in sex hygiene. At schools a course of lectures might be given by physicians, and a similar course with special reference to disease and the need for early treatment might be arranged. In addition the government should employ physicians and possibly some specially instructed laymen to give lectures to employees at large factories; for girls, women lecturers should be employed.

"The Family Encyclopaedia of Medicine"

The profession has been aghast at the issue to the public of a work entitled "The Family Encyclopaedia of Medicine" with the names attached to it of thirty of the most eminent consultants of the day, which have been published as a display advertisement in the daily press and even on boards carried by "sandwich-men." According to the advertisement "the work thus bears the stamp of the highest authority and those who consult it may do so with full confidence that they will find in its pages a reflection of the best medical opinion of the day. The fortnightly parts will cover the whole field of Medicine, Surgery, Diseases of the Skin, Diseases of Women and Children, Diseases of the Nose, Throat and Eye, and will give also much valuable information on Diet, Exercise, Sanitation and other kindred subjects. No household should be without a work of such permanent value, and no household need be without a work which costs so little as sevenpence a part." The work has been extensively

reviewed by the lay press and in some cases the public has been informed that the eminent author of a certain section is just the person to consult for the particular malady. Naturally the question was asked, "If a humble physician is subject to penalties for advertising what is to be done in the case of these eminent persons?" The explanation then was given. Some enterprising publishers, well known for supplying blatant but popular journals, engaged a physician to write the encyclopaedia. Desiring the assistance of authorities on the various branches of medicine, he submitted to them the proofs for revision. It appears that they gave their assistance merely to oblige him without fee or reward and did not authorize the use of their names. While the physician in question was ill and absent from London, the names were published with the first part of the work. By their request the publishers have undertaken not to issue their names with the subsequent parts. Such is the explanation given of this "accident." But if accident it be it seems to have been a very profitable one for some of the persons concerned.

PARIS LETTER

PARIS, April 10, 1914.

The Fourth Centenary of Vesalius

April 2, at the Sorbonne, Dr. Tricot-Royer called a conference under the auspices of the Société des Amis de l'Université de Paris to consider the subject of the fourth centenary of Andreas Vesalius, the great anatomist, who was born in Brussels in 1514. At the time when other children dream of toys, nothing attracted Vesalius but butcher-shops. He dedicated his modest savings to the purchase of the bodies of animals, which he examined with curiosity. Later it was human anatomy that he desired to comprehend. In the face of every risk, he stole the bodies of executed criminals. For dissecting a woman in lethargy, the Inquisition condemned the great anatomist to make a pilgrimage to Jerusalem. On his return from the Holy Land, he was shipwrecked and cast on the island of Zante, where he died in 1564. The intention is to raise a monument to the memory of Vesalius on this very island, next August, under the auspices of the Belgian government.

Death of Dr. Conor

Dr. Alfred Conor, assistant director of the Institut Pasteur de Tunis, has just died as the result of a slight wound which he received in the course of an experiment on a guinea-pig, which brought on a sickness of long duration, the nature of which could not be determined. March 22 as a result of a special decree, he received the cross of the Legion of Honor on his death-bed. A collaborator of Dr. Charles Nicolle, Dr. Conor took a very active part in the work of the former in the vaccine therapy of whooping-cough (*THE JOURNAL*, July 19, 1913, p. 209), and in the intravenous inoculation of man by means of dead or living typhoid bacilli, etc.

The Retirement of Dr. Jules Boeckel

At the meeting of March 25, the Société de chirurgie de Paris elected as honorary member, without his having been a candidate, Dr. Jules Boeckel of Strassburg, on the occasion of his retirement from the hospital. Remaining in Strassburg after the war of 1870-1871, Dr. Boeckel, as surgeon of the municipal hospital, had an exceedingly active career. Since 1895, as corresponding member of the Académie de médecine de Paris, he presented the major part of his scientific work before the French scientific societies. For forty years he directed the *Gazette médicale de Strasbourg*, and during the twenty-eight years from 1870 to 1898 it was the only journal in the annexed provinces, which was printed in the French language.

The desire expressed by Dr. Boeckel to give his services free to the municipal hospital of Strassburg for four years so that he might celebrate his fiftieth year there, was refused. Among the Alsaciens much indignation was manifested at this refusal, which was explained as the tendency of the authorities to extirpate everything which would serve to recall the French traditions; therefore, the news of his election as an honorary member of the Société de chirurgie de Paris was received as a consolation.

Compulsory Antityphoid Vaccination in the Army

The *Journal officiel* has just published the law making the antityphoid vaccination of the soldiers of the standing army compulsory. In response to the request of a deputy, D

Doizy, the application of the law was defined so as to leave the army physicians free to use their judgment in vaccinating or not vaccinating, according to the suitability of the case.

Personal Mention

March 29, at the Beaujon Hospital, the friends and fellow-workers of Dr. G. Bardet, director of the general hydrology laboratory of the Collège de France, presented him with a medal, struck in his honor. The twenty-fifth anniversary of Dr. Bardet's general secretaryship of the Société de thérapeutique was also celebrated.

The death is reported of Dr. C. Vanlair, former professor of internal pathology at the Faculté de médecine de Liège, and former member of the Académie de médecine de Paris.

BERLIN LETTER

BERLIN, April 16, 1914.

Friedmann's Tuberculosis Remedy

In the current issue of the *Deutsche medizinische Wochenschrift* appear several articles on the Friedmann remedy.

EXPERIENCES OF BRAUER IN DETAIL

The first is from the pen of the director of the Hamburg Hospital, Professor Brauer. It contains a thorough description of the experiences of which Brauer gave an account in a few words at the congress of balneology, as reported in a previous letter (*THE JOURNAL*, April 18, 1914, p. 1268). From the present extensive publication it appears that in the Eppendorf Hospital since September, 1913, eighteen patients in all were treated according to the Friedmann method, the patients being in the two wards for internal medicine and in the children's section. In addition, facts are stated which have been obtained from Dr. Treplin, the head physician of the Hamburg Marine Hospital at Salenbourg near Cuxhaven. It is quite noteworthy and important that the injections for the most part were made by Friedmann himself, so that the favorite objection that technical mistakes are responsible for the unfavorable results does not apply. Moreover, Brauer himself as well as his coadjutors have received personal instruction in Friedmann's institute in Berlin. The results of the observations are summarized as follows: Very severe reactions were repeatedly observed following the intravenous injection. In three cases, very threatening conditions resulted. Focal reactions at the site of the tuberculous process were not observed with certainty. In one patient who had been treated by another physician, Brauer punctured the tender point of injection and cultivated staphylococci from the tissue fluid. In none of the cases treated did the bacilli disappear from the sputum. The temperature and body-weight were not influenced in any notable way by the treatment. In two patients, fresh febrile attacks in the lungs were observed from six to seven weeks after the injection. In one female patient a rapid aggravation of the condition followed this attack, and the patient died from numerous hemorrhages. Three children with surgical tuberculous glands and five children with tuberculosis of the lung, bone and joints were not affected. Brauer comes to the conclusion that these trials have led to a result thoroughly unfavorable to the Friedmann remedy, and that they confirm the adverse judgment which was passed on the remedy by capable American physicians.

RESULTS IN ORTHOPEDIC CASES

Sanitary Councilor (Sanitätsrath) Gaugele reports thirty-two cases of children treated orthopedically at his home for cripples at Zwickau. In twenty-one cases there occurred marked abscess formation which in part produced enormous quantities of pus. In many cases the suppuration began many weeks after the injection. One child died from miliary tuberculosis, but it is questionable whether this unfavorable result can be referred to the remedy itself. In another case, Gaugele has no doubt that the child was brought to the brink of the grave by the injection. The remedy has hitherto not freed the body from the tuberculous poison. All the children treated gave a strong positive reaction by von Pirquet's test. So far no change in the condition of the bone or the joints can be seen in the Roentgen pictures. The treatment was first begun in the middle of December.

TREATMENT OF LUPUS

The dermatologist, Dr. Brauer of Danzig, reports his results with the treatment of lupus. In all cases he was able to demonstrate a local reaction which was less marked in the circumscribed lupus infiltrations and was never observed in the lupus nodules imbedded in the firm cicatricial tissue.

Moreover, the improvement which in some cases was very striking and began on the third day after the injection, ceased soon after. In many cases the improvement continued only from ten to fourteen days and in no case longer than three weeks. The improvement was always followed after a few weeks of apparent inactivity by a renewed aggravation. In no case could the therapeutic result obtained six weeks after the injection compare with those which could be secured by local treatment in the same time.

BACTERIOLOGIC CONTAMINATION

The assistant, Dr. Biermann, from the first medical clinic of the Charité, reports that he found bacteriologic contamination in one ampule of the remedy but that the staphylococci did not prove to be pathogenic. But he also emphasizes the fact that the Friedman remedy is not at all free from objection, for the first demand to be made of a preparation that is to be used for the treatment of the sick by injection must be that it is free from bacterial contamination.

GENERAL OPINION OF REMEDY IN GERMANY

If one adds to these statements the unfavorable opinions which various orthopedists have expressed regarding the Friedmann remedy at the congress of German orthopedists now sitting in Berlin, he certainly cannot be suspected of ill will if he draws the conclusion that a very unfavorable impression has been made by the articles hitherto published in Germany, and while Friedmann in his answer to the articles of Vulpius and Laubenheimer asserted that 35,000 patients had been treated already with this preparation, it is likely that from now on the number will grow very slowly. There can scarcely be a doubt that in the near future other unfavorable experiences will be published.

Meeting of the German Tropical Medicine Society

At the meeting held in Berlin, April 7-9, the following lectures were of general importance:

Staff-Surgeon Rodenwaldt discussed the etiology of bacillary dysentery. According to him, two varieties must be sharply separated: first, the Kruse-Shiga bacillus, which shows a lively molecular movement, is Gram-negative and diffuses in the culture the odor of semen, and in carbohydrate mediums shows certain peculiarities, and second, the groups of the bacillus of Flexner, the Y bacillus or the bacillus of Strong. In the dysentery caused by the first group of bacilli there is a mortality of 50 per cent., while in that caused by the second group, it is only 5 per cent. Bacillary and amebic dysentery may occur together. In the outer world, dysentery bacilli are perishable. The bacilli carriers but not the water-sources are dangerous. Rodenwaldt estimates the rôle of the fly in spreading the bacilli as small.

According to the experience of Ruge, the Kruse serum is active in new cases but fails in older ones. In amebic dysentery the emetin method (from $\frac{2}{3}$ grain to 2 grains) is especially advantageous.

In the discussion of the emetin method, opinions were divided. Plehn recommended calomel, if necessary, together with bismuth; Ziemann, Carlsbad salt, if necessary, with bismuth. Schilling of Berlin reported the success which he had had with immunizing against trypanosome infection and prefers to immunize with killed trypanosomes. Ziemann has instituted experiments in cultivating *Trypanosoma gambiense*. Frosch and Knuth believe that in the artificial trypanosomiasis of horses a combination therapy of salvarsan, sodium salicylate and ethylhydrocuprein promises successful results. Kuhn made a report on the sleeping-sickness in the western part of Africa.

Personal

Bethe, professor of physiology at Kiel, has accepted a call of a similar nature to Frankfurt-on-the-Main.

Privat-Dozent Dr. Reiter of Königsberg, has been called to Berlin to take the place of division manager at the Hygienic Institute.

Prize Offer for an Essay on the Climate of German Southwest Africa

The committee for the sending of consumptives to German Southwest Africa has offered a prize for the best essay on the subject, "What Significance Has the Climate of German Southwest Africa for Tuberculosis?" A prize of \$720 (3,000 marks) has been assigned. Only those applicants can compete who were or are in practice in German Southwest Africa. The judges are Professor Gaffky in Hanover, Surgeon-General Professor Steudel of the Imperial Colonial Commission and Ministerial Director Kirchner of Berlin.

The Work of One Berlin Insurance Company During 1913

Over 60,000 insured persons or their dependents were cared for during the year 1913 by the Landesversicherungsanstalt Berlin. In order to diminish the dangers of infection with tuberculosis, about 17,000 workmen's families in Berlin are under observation by one of the tuberculosis stations established for this purpose. Here fully 25,000 medical examinations were made; 350 families received assistance in paying their rent, amounting to about \$5,000 (20,000 marks) and, in addition, there were provided 235 hospital beds for adults and 22 for children. Over 37,000 visits in the families of consumptives were made by the twelve visiting nurses. In addition to this prophylactic activity, the treatment of the insured sick was vigorously carried out during the year. Altogether, this company has cared for more than 12,000 men and women, fully 2 per cent. of the entire working population of Berlin. Of these fully half were consumptives. For continuing this work on a still larger scale, the company has appropriated nearly \$1,000,000 (4,000,000 marks) for 1914.

VIENNA LETTER

VIENNA, April 7, 1914.

Suggestions to Diminish the Number of Medical Students

As has been mentioned, the constant increase of students taking up the medical curriculum has caused much anxiety, both in the profession as a whole and in the teaching institutes of the Vienna University. The former see a severe menace to the profitable outlook of medicine, if the increase continues. The medical faculty is unable to cope with the number of applicants and all the scientific institutes are crowded so that the students can hardly follow up their studies. For instance, in the last year, there were only 116 dead bodies at the disposal of the two anatomic institutes. Over 700 first-year students, apart from those who were more advanced in the studies, were awaiting their turn in the dissecting-halls to dissect all the organs. Various attempts have been made to decrease the influx of students to the medical occupation. Warnings addressed to the head teachers and instructors in the schools were published in the daily papers. The financial outlook was discussed in the daily and weekly papers, showing how unsatisfactory it is. But, on the other hand, political parties opposed the idea of decreasing the number of students, as for special reasons they wanted intelligent men.

Therefore, the Vienna Medical Society nominated a special committee to suggest means for obtaining the desired effect. This committee has just published its opinion. It is based on the idea that out of the odd 12,000 practitioners in Austria alone 500 fall out yearly, either from death or by retiring, but surely the actual loss is smaller by from 300 to 350. To keep up the present percentage of doctors to the population, about 500 promotions yearly to the degree of M.D. would be sufficient. In 1909-1910 this limit was reached, and in 1912-1913 it was 636. As the number of first-year students has increased by more than 50 per cent. since 1908, the number of yearly promotions will increase to 1,200 in the course of three or four years.

The committee has suggested that the present very low costs of the medical course be increased to double the present rate which is about 50 cents per weekly hour and thus bring it to the level of the rates in Germany. Furthermore, with the exception of the native Viennese and those from upper and lower Austria, only those students should obtain admission to the Vienna University who come from countries which have no universities. None of these suggestions apply to postgraduate work or to students from non-European countries. A suggestion made by Professor Hochenegg is worthy of consideration. He suggests that all future students of medicine should have a preliminary year's work in biology, chemistry and physical science. An examination would follow which would decide whether or not they were fit to take up the medical curriculum. Only a limited number of scholarships would be open, and students coming from certain countries could be rejected, if they have a university in their own country. By these means the number of students would rapidly diminish, at least in Vienna, and we would also obtain selected material for taking up the medical career, much to the benefit of the profession and its scientific standard. For the winter term of 1914 the committee suggests that permission should be granted to fix the number of entries until a working method has been devised. These suggestions are now offered for public discussion to those whom it may concern, so as to determine what would be the best plan of action.

An Interesting Decision of a Law-Court on a Wrong Diagnosis

In the hearing of a case for alleged malpractice the judge made an interesting statement which is worthy of recording. A patient injured his limb by a fall from a scaffold and was brought to a public hospital. He was examined and pronounced to be suffering from a distortion of the ankle-joint, and treatment was given accordingly, including cold, wet compresses to the painful parts. Roentgenoscopy revealed nothing serious. The patient's condition, however, was not much improved, and he left the hospital of his own accord. He continued at the outpatient's department, and also interviewed another surgeon without much benefit. Then he went to another hospital, where his condition was diagnosed as a fracture of the lower portion of the tibia and fibula, as was visible in the roentgenogram. But he was told that, owing to the lapse of time, nothing could be done for him without an operation, to which he did not consent. He then sued the first hospital and the first surgeon for damages, because he had received the wrong treatment, owing to a false diagnosis. In the course of the hearing, evidence from medical experts was given to the effect that during the first few days after receiving such an injury, it might be impossible to ascertain the exact nature of the existing pathologic conditions. After repeated adjournments and appeals, the High Court of Justice took the matter over. The judge gave a verdict for the defendants and said that "if a doctor examines a patient with all care, diligence and knowledge at his disposal, he is free from blame, even though he arrives at a very wrong diagnosis." By this decision it is hoped that the frequent claims for damages arising out of alleged wrong diagnoses will become less customary.

The New Income-Tax and the Medical Profession

A few weeks ago, a new law was passed which regulates—this means increases—the income-tax of our country. Severe fines are to be imposed in the future for all knowingly false declarations of incomes. The officials ascertained means to control nearly every class of tax-payers in this respect. Lately, the private hospitals and sanatoriums, in which it is customary with us to operate on the better class of patients, have been forced by the law to disclose to the officials the names of the surgeons who have used the operating-rooms of the institute, the number of operations performed by them, the fees they charged for the work, and all other items useful for obtaining a fair insight into the financial connections between the institute and the surgeons. The sanatoriums now fear that the surgeons will do more operations in their private surgeries and less in the institutes. In another respect, however, the law has been liberal with the profession. It permits larger deductions, about 25 per cent. of the total income, but the percentage of the rates has been increased by about 3 per cent. Another disadvantage of the new system is threatening, as the officials may demand the right to inspect the business-books, which category also includes the day-books and entries of the doctors. This involves a breach of professional secrecy, and action is now being taken by representative bodies of the medical profession against such a possibility.

Large Grants for Medical Purposes by Lay Philanthropists

"The law of the series" has been verified recently by the fact that within a few days of one another, three men gave large sums of money for charitable purposes, an unusual way of spending money, with us at least. A Mr. Mendel gave \$60,000 (300,000 kronen) for the enlargement and extension of the institute for the care of mothers and babies; Mr. Silberer gave large areas in a favorable health resort, now worth over a million kronen, and sure to be worth much more very soon, to be sold in favor of nine charitable institutions in Vienna (the ambulance corps, children's hospitals, cancer hospital and others), and now a Mr. Frankel has given a large country seat, together with a sum of \$600,000 (3,000,000 kronen), to the Wilhelminen Hospital to enable poor children, requiring fresh air after disease, such as measles, scarlet fever, diphtheria and the like, to be kept there long enough to be cured. This gift will be most welcome to the Children's Hospital, which received it, as it will end the necessity of dismissing the children to their poorly ventilated homes, where they are liable to become infected with tuberculosis. Now light, pure air and good food are at the disposal of the patients, thanks to a generous tailor, who himself was never a father.

Marriages

CHAUNCEY WYCKOFF HOWELL, M.D., Littleton, Ill., to Miss Mary Augusta Griswold of Princeton, Ill., April 29.

LAWRENCE BRADLEY RARIDAN, M.D., Brookston, Ind., to Miss Hazel Monger of Greenfield, Ind., April 8.

P. A. SURG. MATTHEW H. AMES, U. S. N., to Miss Harriett Rebecca Caulkins of Berkeley, Cal., April 22.

EDWARD FRANCIS WASHBURN BARTOL, M.D., Milton, Mass., to Miss Ethel Chandler of Boston, April 15.

NEIL MACKAY GUNN, M.D., Chicago, to Miss Helen Davis of Minneapolis, Minn., April 18.

Deaths

Chesley Daniel, M.D. Tulane University, New Orleans, 1872; a member of the Mississippi State Medical Association; and Tri-State Medical Association of Mississippi, Arkansas and Texas; for nearly forty years a practitioner of Holly Springs, Miss.; at one time a member of the State Board of Health, and Health Officer of Marshall County; local surgeon of the Frisco System; who fell in February, fracturing his hip, died at his home in Holly Springs, March 2, from heart disease, aged 64.

James Sykes Ely, M.D. Medical College of Ohio, Cincinnati, 1862; a pioneer practitioner of Belmont County, Ohio; assistant surgeon and surgeon of the One Hundred and Twenty-Sixth Ohio Volunteer Infantry during the Civil War; one of the organizers and president of the National Bank of Barnesville, and one of the founders of the Barnesville Gas Company; who fractured his hip a short time ago, died at his home in Barnesville, Ohio, April 10, from senile debility, aged 81.

Frederick Llewellyn Hovey Willis, M.D. New York Homeopathic Medical College, New York City, 1865; for many years a Unitarian minister in Michigan; one of the founders of the altruistic colony, Brook Farm, Fruitlands, Mass., and said to have been the original of the character of "Laurie" in Louisa M. Alcott's "Little Women;" died at the home of his daughter in Rochester, N. Y., April 12, aged 85.

James Scott Todd, M.D. Jefferson Medical College, 1869; a member and once president of the Medical Association of Georgia; emeritus professor of materia medica and therapeutics in Atlanta Medical College; a Confederate veteran; first assistant surgeon-general of the United Confederate Veterans; physician to Wesley Hospital, Atlanta; died at the home of his daughter in Atlanta, April 10, aged 66.

J. Y. Hitt, M.D. University of Louisville, Ky., 1852; the oldest practitioner of Greensburg, Ind.; surgeon of the Seventeenth Indiana Volunteer Infantry, and later of Wilder's Brigade during the Civil War; for thirty years local surgeon of the Big Four System in Greensburg, Ind.; died in his apartments in that city, April 14, aged 82.

William Carden Cousens, M.D. McGill University, Montreal, 1882; F.R.C.P., F.R.C.S., Edinburgh, 1882; one of the best-loved physicians of Ottawa, Ont.; well-known also as a sportsman, musician and philanthropist; one of the founders of and chief physician to St. Luke's Hospital, Ottawa; died at his home, April 12, aged 59.

James Burton McFatrigh, M.D. Bennett Medical College, Chicago, 1884; Hahnemann Medical College, Chicago, 1885; who held various public offices and who is said to have amassed a fortune in the manufacture of the patent medicine, Murine; died at his home in Chicago, April 26, from heart disease, aged 52.

Allan Foster Barnes, M.D. Harvard Medical School, 1902; a Fellow of the American Medical Association; city bacteriologist of Cambridge, Mass.; visiting surgeon to the Cambridge Hospital; died in the Massachusetts General Hospital, Boston, March 12, from the effects of an abscess of the throat, aged 38.

Ferdinand J. S. Gorgas, M.D. University of Maryland, Baltimore, 1863; formerly dean of the dental department of the University of Maryland; died at his home in Baltimore, April 8, aged 80.

James Robert Reitzel, M.D. University of Tennessee, Nashville, 1892; a Fellow of the American Medical Association, and a highly esteemed practitioner of High Point, N. C.; was instantly killed, April 17, by the overturning of his automobile, while en route to Greensburg, N. C., aged 48.

Warren H. Outland, M.D. Eclectic Medical Institute, Cincinnati, 1873; Hahnemann Medical College, Chicago, 1882; Pulte Medical College, Cincinnati, 1884; formerly mayor, councilman, township clerk and village clerk of Bellefontaine, Ohio; died at his home, January 24, aged 72.

George Rite Kinne, M.D. Syracuse, N. Y., University, 1876; a member of the Medical Society of the State of New York; coroner of Onondaga County since 1910; who was operated on at the Hospital of the Good Shepherd, Syracuse, March 13; died at his home in Syracuse, April 15, aged 60.

Howard Lewis Pratt, M.D. Rush Medical College, 1878; a member of the Illinois State Medical Society and Fox River Valley Medical Association; a member of the staff of the Sherman and St. Joseph's hospitals, Elgin, Ill.; died at his home in that city, April 13, aged 64.

Ernest August Sellhausen, M.D. George Washington University, Washington, D. C., 1874; a Fellow of the American Medical Association; for six years surgeon to the Austrian Embassy in Washington; died at the home of his sister in that city, April 14, aged 61.

Benjamin W. Kimball, M.D. Medical School of Maine, Brunswick, 1857; a resident of Minneapolis since 1869; a specialist on diseases of the eye and ear; died at his home, April 11, aged 85.

George Wallace Dodge, M.D. Northwestern University Medical School, Chicago, 1873; a veteran of the Civil War; died at his home in Menasha, Wis., April 6, from pneumonia, aged 72.

Magnus L. Julihn, M.D. University of Georgetown, D. C., 1866; a practitioner of Washington, D. C., until 1911, died at the home of his daughter in Alameda, Cal., April 4, aged 76.

William K. Armstrong (license, Indiana, 1897), a practitioner of Miami County, Ind., since 1881; died at his home in Peru, Ind., March 30, from cerebral hemorrhage, aged 60.

Henry H. Carpenter, M.D. Albany, N. Y., Medical College, 1859; surgeon of volunteers during the Civil War; died at his home in Lawrenceville, N. Y., March 30, aged 77.

John B. Hoyer, M.D. University of Buffalo, N. Y., 1881; at one time president of the village of Middleport, N. Y.; died at his home in that place, April 3, from nephritis.

Franklin J. Gilson, Jr., M.D. University of Texas, Galveston, 1904; of Brackettville, Tex.; died at the home of his father in Calvert, Tex., April 5, aged 32.

Ransom Dunn Melvin, M.D. Rush Medical College, 1884; for twenty-three years a practitioner of Parker, S. D.; died at his home in that place, April 4.

Isaiah M. Maxwell, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1889; died at his home in Excelsior Springs, Mo., March 16, aged 45.

Phillip A. Dent, M.D. University of Louisville, Ky., 1858; and a practitioner of Maysville, Mo., since that time; died at his home, April 7, aged 78.

John David Stookey, M.D. Washington University, St. Louis, 1910; died at his home in Smithton, Ill., April 8, from malignant disease, aged 26.

Abel Brown Applegate, M.D. University of Louisville, Ky., 1870; died at his home near Kosmosdale, Ky., April 1, from locomotor ataxia, aged 63.

Leonidas V. Winston, M.D. Bellevue Hospital Medical College, 1866; died at his home in Knightstown, Ind., April 1, from pneumonia, aged 69.

Walter Everett Scott Preston, M.D. Dartmouth Medical School, Hanover, N. H., 1888; died at his home in Newfield, Me., March 15, aged 53.

Hiram E. Johnson, M.D. Castleton (Vt.) Medical College, 1857; founder of Weston, Ill.; died at his home in Fairbury, Ill., April 6, aged 79.

James A. Harrison (license, Indiana, 1897), postmaster of Spurgeon for about ten years; died at his home in that place, April 5.

Michael Downes, M.D. Missouri Medical College, St. Louis, 1891; died at his home in St. Louis, March 10, aged 48.

Timotheus Taminosian, M.D. Jefferson Medical College, 1895; died at his home in Boston, March 13, aged 52.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

LOWER'S GERMEN PRESCRIPTION

Another Fraudulent Consumption Cure

Marion, Ohio, has the unenviable distinction of being the home of one of the latest of the many cruel frauds that capitalize the credulity and the hopefulness of the consumptive. This is Lower's Germen Prescription, prepared by Lower's Pharmacy. The nostrum is said to be the "discovery" of C. A. Lower, one of the proprietors of the Lower Pharmacy, who emphasizes the fact in the newspaper adver-

OUR MARION BEST DRUG EMPLOYMENT, OFFICE IN MARION, ILL.

PAGE SEVEN

GERMEN PRESCRIPTION Will be sent to any address, Postage Prepaid. If you have friends or relatives elsewhere suffering from Tuberculosis — urge a trial of this wonderful remedy.

TUBERCULOSIS

AND PNEUMONIA

THE TWO GREAT WHITE MESSENGERS OF DEATH

NEGLECTED WINTER COLDS AND COUGHS

Pave The Way For These TWO DEADLY DISEASES

Facts That Should Prompt Everyone to Overcome Colds Quickly

MANY a medical orator has given the press eloquent written articles on how to stamp out Tuberculosis—but they fail to give warning regarding the seriousness of a neglected cold. If the public fully realized and considered the great number of Tuberculosis cases that originated from slight colds, they would be more careful to seek prompt relief. Colds, then a hacking cough, Bronchitis or Pneumonia, are all the forerunners of lung affection. Though, often not considered serious at the time, a little later when loss of flesh is noticed, when appetite and sleep are impaired, when friends begin to whisper, and the Wise Old Family Doctor Suspicions Tuberculosis — then neglect of a cold causes real anxiety. Hundreds of death certificates that read, "Tuberculosis," are but the result of not promptly eradicating the effects of Coughs and Colds.

ONE OF THE SUREST, QUICKEST WAYS OF ERADICATING COUGHS AND COLDS IS TO USE GERMEN PRESCRIPTION. HUNDREDS OF PEOPLE RIGHT HERE IN MARION KNOW OF ITS SAVING POWER.

ECHOES FROM THE GRAVE

THESE TWO PERSONS WERE SENTENCED TO CONSUMPTIVE GRAVES BY PHYSICIANS—NOW OWN THEIR LIVES TO GERMEN PRESCRIPTION.

MR. LANE, the man who was hopelessly doomed to an early grave says: "I wish every one knew about Germe Prescription. It really saved my life."

SAMUEL ELM, of Law street, says: "My doctor, aged 60 years, says I am not a day older than I was when I had this wonderful remedy, washed me from the grave."

JACK ORGAS, Employed at the Marion Union Station, says: "I had tuberculosis in my lungs that I had feared and was told I had to die."

WILLIAM LAY, who had consumption, says: "I was cured by Germe Prescription."

MRS. HOOD, of North Main street, says: "I wish every woman should know about Germe Prescription."

E. O. SHAFER, of Arkansas Avenue says: "I had been for years for Germe Prescription. I believe I should not have died."

There are but a few of the hundreds of people who "personally" know for Germe Prescription. Ask your neighbors, interview the many prominent citizens of Marion and surrounding towns, who know of its cures.

FOR THE SHORT TIME THAT GERME PRESCRIPTION HAS BEEN ON THE MARKET—ITS PERCENTAGE OF CURES HAS BEEN PHENOMENAL.

SPECIAL INFORMATION

To the Public and Users of Germe Prescription.

Since medicine has been introduced, hundreds of people have recovered from tuberculosis.

We request all people who use this medicine for tuberculosis to write us, so we can place such patients in communication with people who have used Germe Prescription and have recovered, or the disease is different from case on bottle; varying from one teaspoonful to one tablespoonful, according to the nature of the individual.

Stomach disturbance and nausea follow constant use of this medicine, which is necessary to carry the poison of some poisons from organs. These symptoms leave or come on tubercular poisoning is removed.

It takes 15 to 30 large bottles of Germe Prescription to remove the tubercular poison, about eight large bottles for catarrh of throat, lungs, bronchitis or stomach; about seven large bottles for asthma and bronchitis—some cases require 10 large bottles.

It is sometimes necessary, for best results, that tubercular patients start on this medicine for two or three days before using bottles, so that the system may rest before starting its new fight with the disease that follows the dose of Germe Prescription.

Patients using this for acute Tuberculosis, Asthma or Catarrh, should use the medicine lightly for one year after they feel cured so as to avoid a relapse.

Accept no medicine for Germe Prescription unless it bears the following name:

C. A. LOWER, CHEMIST.

GERMEN PRESCRIPTION SHOULD BE IN EVERY HOME NOW FOR ADULTS & CHILDREN.

Do not get the mistaken idea that this remedy is only for Tuberculosis patients. C. A. Lower, Chemist and Founder says—that the old adage of an "Ounce of Prevention is Worth a Pound of Cure" is an active back of this page announcement. Take Germe Prescription for Colds! By taking a large spoonful before going to bed at night, many have fought these colds, broken-up by morning. It's now pleasant to take, but it is harmless.

GERMEN PRESCRIPTION FOR CHILDREN AND INFANTS. WHOOPING COUGH RELIEF

For infants from 6 to 8 months old, two drops in a little milk, from 6 months to 12 months old, 4 drops in milk 3 or 4 times a day should be given. One year to 3 years old children, 10 to 20 drops in the dose—and can use as many because it contains no opiate or morphine.

Mothers have reported that for Whooping Cough it has given more relief than anything ever tried.

IF YOUR DOCTOR DOES NOT SUCCEED IN OVERCOMING YOUR COLD, GET THIS MEDICINE PROMPTLY.

Insist upon **GERMEN PRESCRIPTION** at your Druggist's—and refuse to accept something else claimed to be "just as good." All of Marion's best Drug Stores sell and recommend it. Sold in 50c, \$1.00 and \$2.00 bottles. Sent postage prepaid, anywhere.

THE LOWER PHARMACY

212 WEST SECOND STREET
MARION, ILL.
EST. 1890

These excerpts from newspaper advertisements, which the Federal law does not control, make plain just how far Mr. Lower would go on the labels of his nostrum were they not subject to the healthy restraint of the federal law. Of course there are testimonials. The absolute worthlessness of such testimony is exceeded only by the ease with which it may be obtained, as has been demonstrated time and again. Usually THE JOURNAL waits for a year or two before publishing an article about a fraudulent consumption cure so that it may present to its readers the death certificates of the individuals whose testimonials have been used. As German Prescription has been on the market but a comparatively short time, the inevitable has not yet occurred in those cases of true tuberculosis in which patients are relying on Lower's fraudulent nostrum for their recovery. In due time, however, photographic reproductions of the testimonials side by side with the death certificates of those giving them will be forthcoming.

According to Lower "it takes from 15 to 30 large bottles of German Prescription to remove the tuberculosis poison." The "large" bottles cost the unfortunate victim \$2 each. This probably explains why Mr. Lower can carry full-page newspaper advertisements.

A sealed original package of Lower's German Prescription was obtained for analytical purposes and subjected to examination in the Association's laboratory. The label on the bottle, in addition to declaring the presence of 5 per cent. alcohol, gives what purports to be the composition of this nostrum in bastard Latin, thus:

"Herb Menthae peperitae.
 "Herb Marrubium Vulgarae
 "Ex Balsanum Tolutonum
 "Herb Hydrastis Canadensis
 "Scillae Maratinia, Mentholis
 "Ex Virginiana Prunus
 "Ex Capsici Fastigatum"

This formula reduced to English would read:

Peppermint
Horchound
Extract of Balsam of Tolu
Golden Seal
Squills.
Menthol
Extract of wild cherry
Cayenne pepper.

The quantities of the various constituents are not given, of course, except in the case of alcohol, which the Food and Drugs Act requires. The Association's chemists analyzed the preparation and reported:

LABORATORY REPORT

“Qualitative tests of Lower’s German Prescription indicated the presence of sugar, menthol, capsicum and traces of alkaloids, probably hydrastin and berberin. Quantitative determinations indicated the presence of 2.93 per cent. of alcohol by volume, 1.83 gm. of menthol and about 0.01 gm. of alkaloidal substance in each 100 c.c. Since the alcoholic content is but 2.93 per cent. appreciable quantities of the balsam of tolu can not be present. Since the recognition of small amounts of horehound, squills and wild cherry in complex mixtures is very difficult no attempt was made to determine the presence of these substances other than by odor and taste. According to Herder (*Arch. Pharm.*, 1906, ccxliv, 120) and to Astolfoni (*Bull. Chim. Farm.*, 1904, xliii, 117) the alkaloids of hydrastis are found only in the rhizome and roots of the plant. According to this the preparation should not contain any alkaloids from hydrastis since the herb of this plant only is claimed to be present. The traces of alkaloid found appear to be a mixture of hydrastin and berberin, thus indicating that the rhizome and roots of hydrastin, rather than the herb, had probably been employed. Whether or not such drugs as horehound, balsam of tolu and wild cherry are present matters little since they are of so little therapeutic value. It is evident that whatever therapeutic value the preparation may possess is due largely to the menthol.”

Evidently, therefore, this peppermint-horehound-cayenne pepper-menthol mixture has but one drug present in sufficient quantities to have any therapeutic effect—menthol. It hardly requires medical knowledge to recognize the absolute fraudulence of claiming that this mixture will "cure" consumption. About the only effect that the continued use of Germen Prescription will have, is that of deranging the digestion of the person taking it. This in itself shows the viciousness of the preparation, for it has been well said that the consump-

One of the many full-page newspaper advertisements of Lower's fraudulent "consumption cure."

tisements that he is a "chemist." While as a pharmacist Lower disgraces an honorable profession, he utilizes the knowledge there learned to avoid technical violation of the federal Food and Drugs Act in putting out his swindling nostrum. The "pure food law" effectually prevents fakers of the Lower type from lying on the labels, but unfortunately its operations do not extend to the newspaper advertisements. As a result Lower can, and does, allow full play to his mendacity when describing his "consumption cure" in the newspapers. Of the many falsehoods told in describing this stuff we quote a few:

"The most Deadly Foe to the Great White Plague—TUBERCULOSIS—
Science Has Yet Produced."

"Its record is perfect."

"Germen Prescription is a Permanent Cure."

"A Genuine Cure for Tuberculosis."

"Its Record of Cures of Tuberculosis is Higher Than Any Other Known Remedy."

tive gets well on his stomach. The ability of the tuberculous sufferer to digest food is a necessity if he would successfully combat the inroads of the bacilli.

Summed up then, it may be said that Lower's German Prescription will shorten the life of every consumptive who depends on it for his recovery. The only beneficiaries of the sale of this worthless and harmful mixture are the Lower Pharmacy and those newspapers that are willing to share the blood money thus obtained. Of all tainted dollars few are quite so dirty as those wrung by deceit and fraud from the unfortunate but ever-hopeful consumptive.

VALENTINE'S MEAT JUICE

Report of the Council on Pharmacy and Chemistry

Some time ago¹ the Council authorized publication of a report dealing with the composition and claims made for a number of the more generally advertised meat and beef juices. Among these was Valentine's Meat Juice. This it was shown was sold under an incorrect name, the claims for its composition were not truthfully stated and its exploiters made false and misleading claims in regard to its food value. As Valentine's Meat Juice is still widely advertised the referee in charge of this class of products deemed a reexamination of the product advisable. This was made and on it was based the following report which has been submitted to the Council, adopted, and its publication authorized.

W. A. PUCKNER, Secretary.

Your referee has had examined recently purchased specimens of Valentine's Meat Juice. The examination shows that it has virtually the same composition as that given in the report of the Council "Meat and Beef Juices" published in THE JOURNAL, Nov. 20, 1909. It contains practically no coagulable protein material, one of the products characteristic of a meat juice. It is essentially a diluted meat extract.

The following statement found in former circulars now seems to have been eliminated:

"The two-ounce oval bottle, adopted for the Meat Juice contains the concentrated juice of four pounds of the best beef, exclusive of fat; or the condensed essence of one and a half pints of pure liquid juice which is obtained from the flesh of beef."

An endeavor is still made, however, to convey the idea that the product contains coagulable protein, as shown by the following:

"Boiling water changes the character of the preparation."

"The use of boiling water with the Meat-Juice changes the character of the Preparation."

The proprietors undoubtedly know that the product does not contain any coagulable material and that the statements just quoted are plain misrepresentations.

The advertising circular contains a large number of "Testimonials of the Medical Profession." As all are undated, one cannot tell how old these testimonials are. One physician recommends it highly for hypodermic use; another says, "I have kept cases on it and it alone for days, without attempting to give any other food, and the results have been entirely satisfactory." According to another, it is "most invaluable in typhoid fever and also in diphtheria."

Valentine's Meat Juice conflicts with the following rules of the Council:

Rule 1, in that its composition is not correctly given;

Rule 6, in that unwarranted therapeutic claims are made, the profession being led to believe that the product is highly nutritious and is valuable in the treatment of pneumonia, diphtheria and typhoid fever;

Rule 8, in that the name is objectionable, for while sold as a meat juice, in reality it has the character of a meat extract.

Valentine's Meat Juice is a fraud on the public, and in view of its continued exploitation under false claims, the referee recommends that the Council reiterate its former condemnation and authorize the publication of this report.

EDITOR'S NOTE.—The difference between meat extracts and meat juices was fully discussed in the previous report of the Council. Meat "juices" are made by the cold expression of meat with subsequent evaporation, in such a way that the

nutritious coagulable proteins remain in solution. In making meat "extracts," heat is used which almost completely removes the coagulable proteins and thus renders it practically devoid of nutrient qualities.

A list of some of the medical journals that carry advertisements of Valentine's Meat Juice, follows:

Pediatrics

Old Dominion Journal of Medicine

& Surgery

Medical World

Virginia Medical Semi-Monthly

Medical Times

American Medicine

Correspondence

"Radiologic Signs" versus Morphologic Defects

To the Editor:—The signs described by Dr. Carman in his article on the "Radiologic Signs of Duodenal Ulcer," (THE JOURNAL, March 28, 1914, p. 980), constitute merely a symptom-complex. In the author's own words, they are "signs" or symptoms, and not *direct evidence* of the lesion itself. Radiologic signs and symptom-complexes for duodenal ulcer are as numerous and varied as the observers who describe them. Compare Dr. Carman's "radiologic signs" with the symptom-complexes described by Holzknecht, Strauss and Kreuzfuchs, and if you think that they agree as to the significance of the various phenomena, read Holzknecht's and Haudek's latest article in the *Fortschritte auf dem Gebiete der Roentgenstrahlen* (xxi, 633).

Dr. Carman's three "major signs" are trifling compared with the direct evidence which he relegates to the third place under "minor signs." All of the cases illustrating his article present definite *direct evidence* of the irregularities characteristic of ulcer of the cap; and it seems like carrying coals to Newcastle to depend on associated functional disturbances of the gastric motor phenomena, when there is such direct roentgenologic evidence of the organic lesion itself.

Included in the title and at the head of the list of signs stands hyperperistalsis. Yet three of the four roentgenograms illustrating the article fail to show more active peristalsis than is observed during the stage of systole in 50 per cent. of normal cases. Therefore as a cardinal point on which to base the roentgenologic diagnosis of duodenal ulcer, hyperperistalsis is an unreliable corner-stone. The case illustrated in Figure 1, which does demonstrate real hyperperistalsis, presented sufficient pyloric obstruction to cause a six-hour gastric retention of three-quarters of the bismuth meal; but there is nothing in Dr. Carman's argument to indicate that the obstruction was caused by a duodenal ulcer rather than by some other organic obstruction. As a case of pyloric obstruction the diagnosis is perfectly obvious.

Residue in the stomach at six hours is frequently present in cases exhibiting no organic lesion of the stomach or duodenum, and *per se* is the least significant finding that I know of.

The appearance illustrated in Figures 5 and 6, termed "residue in the duodenum," may be seen during some stage of the gastric cycle in nearly all cases, especially when the patient is examined in the erect posture. It is similar to Hemmeter's sign, which has led to many erroneous diagnoses of gastric and duodenal ulcer.

The diagnostic value of hypermotility, the first of Dr. Carman's minor signs, is as negligible as that of hyperperistalsis. It is a functional phenomenon that is as characteristic of any one of the long list of lesions referred to by Dr. Carman, as it is of duodenal ulcer. Of what use is it, therefore, as a sign of duodenal ulcer?

In dealing with "a diverticulum of perforating ulcer," Dr. Carman's terminology is ambiguous. If he means an accumulation in the punched-out crater of an ulcer, the finding is of great significance when present, but it is relatively rare. An accumulation in the uninvolved portion of the cap is also a noteworthy finding, but must be differentiated from the chyme in a normal cap at the end of gastric digestion.

1. THE JOURNAL A. M. A., Nov. 20, 1909.

The fallacy of depending on the pressure-tender point, which is Holzknecht's chief diagnostic symptom, has been referred to by Dr. Carman previously. It is recalled that in a former communication he defined the locus of the tender point as 3 or 4 inches from the site of the ulcer.

Considering the method which Dr. Carman employs, his percentage of successful diagnoses is remarkable, namely, 135 out of 198. These statistics, however, hardly agree with those of another member of the staff of St. Mary's Hospital, who remarked within a year that 85 per cent. of the Roentgen-ray reports offered no confirmation or disproof of a gastric or duodenal lesion. Moreover, according to Mayo, the Roentgen-ray has given diagnostic aid in only 65 per cent. of their cases of gastric carcinoma. This would seem to leave much that might be attained by the use of serial roentgenography, the remarkable accuracy of which, as a diagnostic method, is fully demonstrated in an article now at press, although I have never claimed 100 per cent. correct diagnoses by this means.

The tremendous amount of work required by Dr. Carman would necessarily prevent his adopting the use of serial roentgenography, but why criticize the method without trying it? His tirade against the negative and positive diagnosis of surgical lesions of the cap is simply a case of history repeating itself. In the early days there was the same opposition to a definite Roentgen diagnosis of fractures and urinary calculi. Where is the surgeon to-day who will treat either of these conditions without the aid of the Roentgen ray? In my experience the patient, the physician and the surgeon want as definite an opinion concerning the presence or absence of a surgical lesion of the stomach and cap as they want in cases of suspected fractures or urinary calculi.

LEWIS GREGORY COLE, M.D., New York.

Holmes, Not Semmelweis

To the Editor:—Your comments on the banquet in honor of Semmelweis (*THE JOURNAL*, April 11, 1914, p. 1177) are timely. To the disregard of the memories of men who have shed luster on our calling and contributed to the removal of sorrow and pain and death may be traced much of the lack of appreciation now meted out to medical men by the public as manifested in the passage by their representatives of unfairly discriminating laws that humble us and render our calling a thankless one. If we do not honor our own colleagues, if we do not hold up as examples their devotion to humanity at the risk of their comfort, health and life, how can we expect the public to know of their achievements? You will say that "it is a commendable custom thus to keep alive the memory of a physician who has helped by a great discovery to preserve the lives of countless women in the performance of their highest service to the world." It is possible that "Dollinger assumes that Semmelweis was the originator of the theory of the contagiousness of puerperal fever," but the following incidents would render such an assumption highly improbable: In the Section on History of Medicine at the Congress in Carlsbad in 1902 I presented a paper on "Some American Contributions to the History of Modern Therapy" in which I dwelt with pride on the notable discovery of our own Holmes, and said courteously: "Far be it from me to take aught from the man who introduced the idea successfully in Europe. To the unfortunate Semmelweis is given the credit of being the pioneer in urging the importance of prophylaxis in this terrible scourge. When it is remembered that his mind was wrecked by the criticisms he encountered, even the most truth-loving historian must pause ere he would snatch one leaf from the laurel-crowned brow of this self-sacrificing man. Nevertheless, historical justice demands that the claim of an American physician be recognized, whose views antedate those of Semmelweis by five years, as can be established by irrefutable evidence." The latter was presented from the *New England Medical Journal* and compared with the first note in *Hebra's Journal*, which reported the discovery five years later. I was astonished and

gratified that not one of the forty-odd teachers of history of medicine who were present questioned this statement, though some others were unsuccessfully attacked. After the session had adjourned I was approached by Dr. Györy, docent of history in Budapest, and Dr. Neuburger, docent, now professor of the history of medicine in Vienna, with the request to permit them to look over my data. On the following day they returned my manuscript with thanks. In November and December, 1902, my essay was published in German in *Janus*, a journal devoted to medical history, and in February, 1903, in English in the *Therapeutic Gazette*. Two polemic contradictory articles criticizing my data appeared in *Janus* in which Docent von Györy himself brought out the fact that Semmelweis had not published his discovery until 1861, which made the priority of Holmes over Semmelweis ten years. My last reply to this polemic writer quoted the following from Siebold and Dorn's "History of Midwifery": "Holmes discovered the prophylaxis of puerperal fever when Semmelweis was still a student of medicine," and I closed it by stating that if this work had appeared before my essay was written I should not have deemed it necessary to present the true history of Holmes' achievement before an assemblage of experts in medical history.

A fact never mentioned hitherto is that Semmelweis discovered the value of the nail-brush in what is now called asepsis, and Holmes was the pioneer of the more important discovery.

The interest of *THE JOURNAL* in this cause may serve to contradict the old saw, "A prophet is not without honor save in his own country." SIMON BARUCH, M.D., New York.

Painless Parturition

To the Editor:—Dr. R. C. Colburn's recommendation of nitrous oxid as the anesthetic of choice in parturition (*THE JOURNAL*, April 11, 1914, p. 1189) might be worthy of some consideration if the woman alone were to be thought of. This, however, is not the case. The life of the child is of more importance than the comfort of the mother (I do not say her safety), and as the baby born by a mother anesthetized by nitrous oxid requires usually very active resuscitation, and as a much larger number of these babies will fail to respond to the attempt than would ordinarily occur, this anesthetic is contra-indicated in parturition. It is the custom in many hospitals in which nitrous oxid is given preliminary to ether anesthesia to omit the nitrous oxid when operating on women late in pregnancy or in labor.

C. D. DANIELS, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PITUITARY EXTRACT AND THE PHYLACOGENS

To the Editor:—In view of the unsettled opinion of the profession on the following questions, I should like to hear from *THE JOURNAL*.

1. What is the expressed attitude of the eminent obstetricians of this country as to the use of any oxytocic, particularly pituitary extract, in anything like a routine way?
2. Have any bad results on either mother or child been reported from pituitary extract?
3. What is the opinion of the majority of the profession regarding the use of Phylacogen?

R. C. HOLGATE, M.D., Manhattan, Mont.

ANSWER. 1. Obstetricians, "eminent" and otherwise, generally regard the use of an oxytocic as legitimate when indicated. The use of pituitary extract as an oxytocic must be regarded as in the experimental stage.

Yes. Stern,¹ Bagger-Jørgensen² and Spaeth³ report cases of atony of the uterus. Nagy,⁴ Spaeth⁵, Malinowsky⁶ and Lieven⁷ report cases of impairment and slowing of the heart-tones and asphyxia of the fetus. Schneider-Sievers,⁸ Calman⁹ and Voigts¹⁰ report cases of collapse, ringing in the ears and

dizziness. Nagy,¹¹ Schneider-Sievers¹² and Toepfer¹³ report cases of eclampsia. Mackenrodt,¹⁴ Patek,¹⁵ Rieck,¹⁶ Hamm¹⁷ and Heil¹⁸ report cases of contraction of the dilated uterus. Hamm,¹⁹ Voigts,²⁰ Mackenrodt²¹ and Malinowsky²² report cases of tetany of the uterus, and Voigts²³ reports cases of premature expulsion of the placenta. Rieck²⁴ reports a case of tetany of the uterus following the use of a pituitary extract and concludes that it is not to be recommended as an oxytocic in the home. E. Herz²⁵ reports a case of rupture of the uterus under Pituitrin. Grumann²⁶ reports complications following the injection of Pituitrin consisting of a rectocervical fistula produced by prolonged pressure of the head (for two hours). The mother survived. The child died of sepsis. H. B. Sheffield²⁷ reports a case of toxic convulsions in the child shortly after birth, in which pituitary extract was used, which disappeared on taking the infant from the breast. He attributes this trouble to pituitary extract which had been secreted in the mother's milk.

Following are the references to the authors quoted:

1. Stern: *Zentralbl. f. Gynäk.*, 1911, No. 31.
2. Bagger-Jørgensen: *Zentralbl. f. Gynäk.*, 1911, No. 37.
3. Spaeth: *Zentralbl. f. Gynäk.*, 1911, No. 37.
4. Nagy: *Zentralbl. f. Gynäk.*, 1912, No. 10.
5. Spaeth: *Zentralbl. f. Gynäk.*, 1911, No. 5.
6. Malinowsky: *Zentralbl. f. Gynäk.*, 1912, No. 43.
7. Lieven: *Zentralbl. f. Gynäk.*, 1913, No. 10.
8. Schneider-Sievers: *Sitzungsber. d. Geburtsh. Gesellsch.*, 1912, No. 1.
9. Calman: *Sitzungsber. d. Geburtsh. Gesellsch.*, 1912, No. 1.
10. Voigts: *München. med. Wchnschr.*, 1912, No. 49.
11. Nagy: *Zentralbl. f. Gynäk.*, 1912, No. 10.
12. Schneider-Sievers: *Sitzungsber. d. Geburtsh. Gesellsch.*, 1912, No. 1.
13. Toepfer: *Sitzungsber. d. Geburtsh. Gesellsch.*, 1912, No. 1.
14. Mackenrodt: *Sitzungsber. d. Gesellsch. f. Geburtsh. u. Gynäk.*, 1911, No. 24.
15. Patek: *Zentralbl. f. Gynäk.*, 1912, No. 33.
16. Rieck: *München. med. Wchnschr.*, 1912, No. 2.
17. Hamm: *München. med. Wchnschr.*, 1912, No. 2.
18. Heil: *Zentralbl. f. Gynäk.*, 1912, No. 42.
19. Hamm: *München. med. Wchnschr.*, 1912, No. 2.
20. Voigts: *München. med. Wchnschr.*, 1912, No. 49.
21. Mackenrodt: *Sitzungsber. d. Gesellsch. f. Geburtsh. u. Gynäk.*, 1911, No. 24.
22. Malinowsky: *Zentralbl. f. Gynäk.*, 1912, No. 43.
23. Voigts: *München. med. Wchnschr.*, 1912, No. 49.
24. Rieck: *München. med. Wchnschr.*, April 9, 1912.
25. Herz, E.: *Zentralbl. f. Gynäk.*, May 17, 1913; abstr., *THE JOURNAL A. M. A.*, June 28, 1913, p. 2072.
26. Grumann: *München. med. Wchnschr.*, July 1, 1913; abstr., *THE JOURNAL A. M. A.*, Aug. 9, 1913, p. 444.
27. Sheffield, H. B.: *Am. Jour. Obst.*; abstr., February, 1914.

3. We are unable to state the opinion of the majority of the profession regarding Phylacogens, as no vote has been taken. Their use has been generally condemned by conservative clinicians. For the opinion of *THE JOURNAL*, see the following:

"Rheumatism Phylacogen," *Queries and Minor Notes, THE JOURNAL*, Aug. 10, 1912, p. 464.
Editorial note on McLean, Franklin G.: *Death Following the Administration of Phylacogen (Schafer), THE JOURNAL*, Feb. 22, 1913, p. 588.

LEVULOSE AND CANE-SUGAR

To the Editor:—The editorial on "The Behavior of Levulose in the Body" (*THE JOURNAL*, April 18, 1914, p. 1258), states in regard to levulose that "it is a component of one of the commonest of foodstuffs—cane-sugar." While this statement would suggest that levulose is a common impurity of cane-sugar, Puckner says (*THE JOURNAL*, Sept. 28, 1912, p. 1156) that ordinary cane-sugar, the so-called granulated sugar, almost without exception approaches absolute purity. Or was the phrase referred to intended to suggest that levulose is readily produced from cane-sugar by hydrolysis? If so, I am afraid that the statement will mislead readers.

M. F.

ANSWER.—Our correspondent is quite correct in pointing out that levulose is not a common adulterant of, or impurity in, the cane-sugar which is consumed at the present time in the dietary of man. We intended to imply that cane-sugar—and the same is true of beet-sugar, sorghum-sugar or maple-sugar—is readily converted into levulose and dextrose (invert sugar) as the result of the digestive changes which it almost inevitably undergoes in the alimentary tract. This inversion, as it is technically called, of cane-sugar into the two hexose sugars mentioned, may begin in the stomach, owing to the hydrolytic action of any "free" hydrochloric acid present; and it is further easily accomplished by the secretions of the small intestine. There is every reason to believe that cane-sugar is not absorbed, as such, from the alimentary tract, but rather in the form of its derivatives; levulose and dextrose. Strictly speaking, therefore, levulose is a component of cane-sugar only in this potential sense. The inadvertent misstatement in our editorial should therefore be interpreted in the correct sense, as it evidently has been by our correspondent.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

- ARKANSAS: Little Rock, May 12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bk. Bldg., Pine Bluff. Homeopathic: Little Rock, May 12. Sec., Dr. I. J. Brooks, 219 East 10th St., Little Rock. Eclectic: Little Rock, May 12. Sec., Dr. C. E. Laws, Ft. Smith.
- GEORGIA: Atlanta and Augusta, June 3. Sec., Dr. C. T. Nolan, Marietta.
- ILLINOIS: Coliseum Annex, Chicago, May 12-14. Sec., Mr. Amos Sawyer, Springfield.
- IOWA: Iowa City, June 11-13. Sec., Dr. Guilford H. Sumner, State House, Des Moines.
- KANSAS: Kansas City, June 9-12. Sec., Dr. H. A. Dykes, Lebanon.
- KENTUCKY: Louisville, June 3-5. Sec., Dr. A. T. McCormack, Bowling Green.
- LOUISIANA: New Orleans, June 4-6. Sec., Dr. E. L. Leckert, Macheca Bldg., New Orleans. Homeopathic Board: New Orleans, May 4. Sec., Dr. Edward Harper, 702 Macheca Bldg., New Orleans.
- MASSACHUSETTS: Boston, May 12-14. Sec., Dr. Walter P. Bowers, Room 159, State House, Boston.
- MICHIGAN: Ann Arbor, June 9. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
- NEBRASKA: Lincoln, May 27. Sec., Dr. H. B. Cummins, Seward.
- NEVADA: Carson City, May 4. Sec., Dr. Simeon L. Lee, Carson.
- NEW YORK: May 19-22. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.
- NORTH CAROLINA: Raleigh, June 9. Sec., Dr. Benj. K. Hays, Oxford.
- OHIO: Columbus, June 2-5. Sec., Dr. George H. Matson, State House, Columbus.
- PENNSYLVANIA: Philadelphia, June 1-3. Sec., Mr. Nathan C. Schacffer, Harrisburg.
- SOUTH CAROLINA: Columbia, June 9. Sec., Dr. A. Earle Boozer, 1802 Hampton Ave., Columbia.
- TENNESSEE: Memphis, Nashville and Knoxville, first week in May. Sec., Dr. A. B. DeLoach, Memphis.

Nebraska February Report

Dr. H. B. Cummins, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, Feb. 11, 1914. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75: The number of candidates examined was 7, all of whom passed. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|--------|------------|-----------|
| Chicago College of Medicine and Surgery | (1912) | | 80.4 |
| Rush Medical College | (1893) | | 84.4 |
| Keokuk Medical College | (1906) | | 77 |
| Cotner Medical College | (1913) | | 80.5 |
| John A. Creighton Medical College | (1913) | | 76.5 |
| Omaha Medical College | (1902) | | 94.6 |
| Bellevue Hospital Medical College | (1892) | | 86.1 |

Arizona January Report

Dr. John Wix Thomas, secretary of the State Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, Jan. 6-7, 1914. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 17, including 3 osteopaths, of whom 10 passed, including 2 osteopaths, and 7 failed, including 1 osteopath. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|--|--------|------------|-----------|
| University of Colorado | (1912) | | 79.8 |
| George Washington University | (1910) | | 79.2 |
| Howard University | (1905) | | 81.7 |
| Northwestern University Medical School | (1909) | | 81.4 |
| Maryland Medical College | (1904) | | † |
| Marion Sims Beaumont Medical College | (1902) | | 86.3 |
| Washington University | (1904) | | 77 |
| Vanderbilt University | (1908) | | 84 |

| College | FAILED | Year Grad. | Per Cent. |
|---|--------|------------|-----------|
| University of Illinois | (1912) | | 71.7 |
| Indiana Medical College | (1906) | | 73.1 |
| College of Physicians and Surgeons, Kansas City, Kan. | (1897) | | 75* |
| St. Louis College of Physicians and Surgeons | (1905) | | 69.5 |
| University of the City of New York | (1886) | | 69.5 |
| Medico-Chirurgical College of Philadelphia | (1913) | | 75.7* |

* Fell below 60 in certain subjects.

† No grade given.

The Quick and the Dead.—There is a dead medical literature, and there is a live one. The dead is not all ancient, the live is not all modern.—Oliver Wendell Holmes.

Book Notices

SCIATICA. A Fresh Study, with Notes of Nearly Seven Hundred Cases. By William Bruce, M.A., LL.D., M.D. Cloth. Price, \$1.75 net. Pp. 175, with 18 illustrations. New York: William Wood & Co., 1913.

This is perhaps the most original contribution relating to sciatica which has appeared for some time. The thesis sustained by the author is the rather startling one that sciatica is not a disease of the sciatic nerve at all, but in all cases an arthritis of the hip-joint. The author first quotes extensively from Gowers and Lawson and less fully from more recent writers for the purpose of giving a summary of present opinion concerning sciatica. He then presents his own conception of the disease and quotes very fully from the classic work of Hilton in order to explain why trouble in the hip-joint can cause pain in the knee, down the back of the leg, and in the heel, foot, etc. In other words, he shows that the pain of sciatica is a referred or reflected pain, and he calls to his aid Calder and Reid for the purpose of indicating the routes of irritation. His opinion is based on personal observation of 676 cases, certainly ample material on which to found an opinion, but judging from the notes of these cases, one may say that most of the observations were very incomplete. In 80 per cent. of 125 specially studied cases there were present one or more of the following signs which the author considers indicate involvement of the hip-joint: gout or rheumatism, lumbago, pain on flexion, pain on external rotation, pain on internal rotation, wasting of glutei, incomplete natal folds, and tenderness over the capsule. Bruce further details his method of examination, which in nearly all cases showed involvement of the hip.

For many years it has been maintained by Dr. H. T. Patrick that many cases supposed to be sciatica were really cases of arthritis, and he has found that the most useful maneuver in detecting arthritis is to have the patient lie flat on the back with one leg extended and the ankle of the other side placed just above the knee of the extended leg. With the ankle in this position the knee is then depressed toward the bed or couch. That is, the thigh is abducted, externally rotated and extended at the same time. In arthritis this will nearly always cause pain and there will be found to be restriction of this movement. Bruce does not include this in his various tests. In the book are also descriptions of joint-changes as found by the Roentgen ray (with illustrations), an anatomic appendix and one giving the brief notes of 691 cases. Under the head of treatment, assuming that the trouble is an arthritis, Bruce offers nothing new. The essential parts of the work can be read in half an hour and will richly repay the reader.

FROM THE LETTER-FILES OF S. W. JOHNSON, Professor of Agricultural Chemistry in Yale University, 1856-1896, Director of the Connecticut Agricultural Experiment Station, 1877-1900. Edited by His Daughter, Elizabeth A. Osborne. Cloth. Price, \$2.50 net. Pp. 292, with illustrations. New Haven: Yale University Press, 1913.

Medical men often mention with envy the abundant support which agricultural science receives from public funds, contrasting it with the almost total neglect that medical science has struggled under for so long. This envy, of course, does not belittle the value of agricultural science or begrudge its support, but only asks that medicine also receive some aid which it is able so abundantly to repay. The development of agricultural science in America owes more to the prophetic vision and convincing advocacy of one man, Samuel W. Johnson, than to any and perhaps to all other forces. After many years of effort, both by developing the science of agricultural chemistry in his own laboratory and by a persistent campaign of public education, he secured the organization of the first agricultural experiment station in Connecticut in 1877.

In the story of this campaign and in the early struggles to secure recognition of the claims of science from "practical" men, one finds many incidents that strikingly duplicate the experiences of those who are now working for the advancement of the position of medical science in the community at large. His experiences in showing to the public the dis-

crepancies between the advertiser's statements as to the composition of the fertilizers on the market, and the results of actual analyses of these products, recall vividly the work of our own Council on Pharmacy and Chemistry. Also, his reply to the advocates of "experience" as opposed to what they suppose science to be, should become a classic:

"Science is but another and the true name for all that is good in the experience of all men; and bears the same relation to ordinary experience that the clean grain does to the crop in the field, where there is chaff, straw, stubble, roots and weeds. Common experience is the native, rank, but wild growth of knowledge. Science is its trained and cultivated development. Common experience is swaying to and fro with every kind of doctrine, unsettled, unreliable; here asserting a thing, there denying it, now believing, now skeptical. But scientific experience is that whereon one may most surely rest, for it reveals the changeless and perfect laws, in whose obedience Nature glorifies her Author."

Johnson's views are so comprehensive, his insight into his public so keen, and his expression and elucidation so clear, that medical men will undoubtedly find quite as much pleasure and profit in this well-presented compilation of his letters and experiences as will the agricultural chemists. After reading it through, indeed, we wonder if the slow progress of medical science into the public support and service may not be largely because a man has not yet appeared who has been able to do for medicine what Johnson did for the development of scientific agriculture. He had the advantage, however, of touching his public more directly in its most vulnerable and sensitive spot, the pocketbook.

DIE UNTERSUCHUNG DER LUFTWEGE. Ein Vortrag zur Einführung in die Moderne Rhino-Laryngologie für Aerzte und Studierende. Von Dr. P. H. Gerber, A.O. Professor und Direktor der königlichen Universitäts-Poliklinik für Hals. Paper. Price, 2 marks. Pp. 45, with illustrations. Würzburg: Curt Kabitzsch, 1913.

This monograph is devoted to a description and demonstration of modern diagnostic technic as bearing on the upper air-passages. The author finds warrant for such a monograph in the recent important additions made to such diagnostic procedures. This technic is becoming more and more highly specialized, and is demanding much study and experience. Naturally the subjects of greatest interest are those of direct laryngoscopy, bronchoscopy and esophagoscopy. Various methods and instruments employed in these procedures are not only described, but also excellently illustrated. The monograph constitutes a clearly presented and well-illustrated brief account of all diagnostic procedures relating to the upper air-passages.

PHYSIOLOGICAL HISTOLOGY OF MAN AND MAMMALIAN ANIMALS ILLUSTRATED BY MICROSCOPIC PREPARATIONS WITH EXPLANATORY TEXT AND DRAWINGS. By Professor Dr. Sigmund. English Edition by C. Lovatt Evans, University College, London. Part 1: The Skin and Cutaneous Organs and Their Development. Price, \$4. Rochester, N. Y.: Ward's Natural Science Establishment, 1913.

Under this pretentious title the authors issue a brief text explanatory of the illustrations, accompanied by a series of microscopic preparations as a supplement. The physiology in this text is rather elementary, and the work would not be seriously impaired in value if the text were wholly omitted, and only the slide and illustrative figures used. The microscopic preparations are really excellent, the material well chosen, and the technical manipulation above criticism.

GERICHTSÄRZTLICHE UNTERSUCHUNGEN. Ein Leitfaden für Mediziner und Juristen. Von Dr. Otto Leers, Königlicher Gerichtsarzt. Paper. Price, 4 marks. Pp. 162. Berlin: Julius Springer, 1913.

This is a clear and concise presentation of the subject of examination of the human body and its tissues and fluids for medicolegal purposes. The work is the result of the author's practical experience extending over many years, and his object in thus formulating his ideas is that they may be of use to others, not only to students of medicine, but also to judges and officers of criminal courts who may have to deal with this class of cases. The latter particularly will here find not only the proper questions to ask the medicolegal expert, but also the answers that may be expected under given conditions.

Miscellany

Pennsylvania Antivivisection Case

THE JOURNAL last week (Medical News, April 25, 1914, p. 1341) contained an account of the trial of Dr. Sweet of the University of Pennsylvania, and commented editorially (Prosecution of Research Workers, p. 1331) on this remarkable opinion of Judge Bregy:

"I charge you that the law of Pennsylvania does not allow pain and suffering to be inflicted on dogs for any purpose except for the relief of the suffering of the dog itself. They have no right to torture the dog for the purpose of obtaining scientific information."

OPINION OF COUNSEL FOR THE UNIVERSITY

An opinion prepared by the counsel for the university which takes issue with Judge Bregy's consideration of the law, and advises the provost of the university that the work being done is not illegal, has been received. He says:

"The castration of the domestic animals, the playing with game fish on the hook for hours by the fisherman, the trapping of birds and animals for their feathers or furs, or their wounding by sportsmen, and the killing of animals for food by the butcher, are all instances of common customs which have long been in existence and which involve the infliction of pain which could not by any construction be said to be 'for the relief of the suffering of the animal itself.'

"The Act of the Assembly of Pennsylvania of 1855 made it a misdemeanor for a person 'wantonly or cruelly' to maltreat, beat or otherwise abuse any animal or animals belonging either to himself or others. This act was restricted to Philadelphia, but no indictments, it seems, were ever found under it. The act of 1869 provided that 'any one who should, within this Commonwealth, wantonly or cruelly ill-treat, overload, beat or otherwise abuse any animal, shall be deemed guilty of a misdemeanor.' Under this act prosecution was brought in a case in which the defendant had shot at pigeons liberated from a trap, killing one and wounding another. The supreme court held that the defendant could not be guilty of cruelty merely because he had wounded the pigeon instead of killing it, though in this case there was nothing more important at stake than the pleasure of the marksman. In his opinion Chief Justice Paxson said:

"It is doubtless true that much pain and suffering are often caused to different kinds of game by the unskillfulness of sportsmen. A squirrel, badly wounded, may yet crawl to its hole, and suffer for many hours or days, and die. So with birds. They are often badly wounded, and yet manage to get away only to suffer. It was not pretended that the act applied to such cases.'

"In regard to the wounding or killing of birds by sportsmen, either in the woods or in the traps, it is said by the chief justice that 'they were placed here by the Almighty for the use of man. They were not given to him to be needlessly and cruelly tortured, and were there anything in the finding of the jury to show that the object of this association was to torture pigeons, we would not hesitate to sustain the judgment of the court below. But no such purpose appears, nor is there any finding that the defendant was guilty of needless and wanton cruelty.'

AN ACT GOVERNING VIVISECTION

"If anything further were needed to clinch the view of the chief justice that there is no violation of the law when the pain is inflicted for a lawful purpose, it would seem to be found in the Pennsylvania act of June 3, 1911, authorizing the search of any building in which it is believed that an act of cruelty to animals is being perpetrated, wherein it is said:

"Provided that no search warrant shall be issued under the provision of this Act which shall authorize any officer, policeman, constable, agent of a society, or other person, to enter upon or search premises where scientific research work is being conducted by or under the supervision of graduates of reputable scientific schools, or where biological products are being produced for the cure or prevention of disease.'"

The opinion of counsel says further that this legislation is believed to be in consonance with the common understanding of the people in regard to the treatment of animals and

as to their having been "placed here by the Almighty," as said by the chief justice, "for the use of man." It seems to be a direct authorization, or at least a recognition of the lawfulness, of the proper use of animals for scientific purposes. Counsel further says that it is difficult to see how a scientific man, who does not cause pain wantonly or cruelly, not for the mere sake of causing suffering, or with the wicked intent to inflict injury, which would seem to be the true meaning of the word "wantonly" in this connection, but who carefully avoids causing pain by rendering the animal insensible through anesthesia, and who does it in the investigation of diseases and their remedies, could be regarded as coming within the meaning and intent of the acts quoted above.

From his opinion it can only be concluded that Judge Bregy's statement of what he believed to be the law is in conflict not only with what has been the common understanding of the people of Pennsylvania, but also with the implications, if not the express language, of the act of the assembly of Pennsylvania on this subject, and with a decision of the supreme court of the state.

INTERPRETATION OF DECISION

"In delivering this statement of the law," say the attorneys, "Judge Bregy had not the advantage of argument of counsel, and the opinion of the Pennsylvania lawyers seems to be practically unanimous that it cannot be sustained by the higher courts. The disagreement of the jury will make it impossible for it to be taken to the superior court until after Dr. Sweet is retried. In case the decision stands, however, it would have the most vital effect not only on the advance of medicine in Pennsylvania but on many other activities. If pain can be inflicted on an animal only to relieve the animal's suffering, how is the hunter justified in wounding his quarry; how is the farmer justified in operating on calves, chickens, turkeys or colts to make them better for food or more tractable?

"The most serious consequence, however, would be to check effectively the advance of medical science. In the manufacture and testing of antitoxins and vaccines, the infliction of a certain amount of pain on the lower animals is absolutely necessary. Many diseases such as diphtheria and tuberculosis can be detected in obscure cases only by a test of the secretions of the patient, which includes the use of guinea-pigs. Many valuable drugs such as ergot, which is used to prevent post-partum hemorrhage, can be relied on only in case a sample of each lot manufactured be tested on a living animal.

"It is practically the unanimous opinion of the entire medical profession that without animal experimentation, by far the greater part of the recent advance in medicine, surgery or bacteriology would have been impossible."

APPLICABILITY OF COMMENT TO PRESENT CASE

This, in abstract, is the opinion of the attorneys on this astonishing opinion of Judge Bregy on an important case.

Much of the foregoing comment should not be necessary in this specific instance, since the case as presented by the Anti-Vivisection Society and the prosecuting attorney did not challenge the legality of animal experimentation under the law of Pennsylvania. The accusation against Dr. Sweet was not that he had violated the law in performing operations causing pain to animals in order to obtain scientific information, but simply that, as superintendent of the animal-house, he had not seen to it that the dogs, after operation, received proper quarters, food and medical attention. Judge Bregy, however, not only did not limit the testimony of the prosecution to the specific charges, but went far out of his way to include, apparently, the whole question of vivisection in his astounding statement of what he believed to be the law.

What is Insanity?—What is vaguely called insanity—a term which physicians would gladly leave to the lawyer if he can use it—is really a wide range of greatly differing conditions and diseases all playing havoc with our organ and functions of conduct and behavior. Many too long neglected lines of research enter into it.—Adolph Meyer: The Purpose of the Psychiatric Clinic.

Medicolegal

Antisnuff Act Constitutional—Things of Which Judicial Notice May Be Taken—Tobacco Under the Ban

(*State vs. Olson (N. Dak.)*, 144 N. W. R. 661)

The Supreme Court of North Dakota holds constitutional the antisnuff act of that state of 1913, which makes it unlawful to import, manufacture, distribute, or give away any snuff or substitute therefor, under whatever name called, and as defined in this act, which defines snuff as any tobacco that has been fermented, or dried, or flavored, or pulverized, or cut, or scented, or otherwise treated, or any substitute therefor or imitation thereof, intended to be taken by the mouth or nose. The court says the courts can certainly take judicial notice that the use of tobacco in any form is uncleanly, and that its excessive use is injurious. They can take judicial notice of the fact that its use by the young is especially so. Tobacco, in short, is under the ban. This court realizes, of course, that the Supreme Court of the United States refused, in the case of *Austin vs. Tennessee*, 179 U. S. 343, to hold that tobacco was so much a nuisance as not to be a legitimate subject of interstate commerce. In that case, however, it fully upheld the Supreme Court of Tennessee in holding that it was within the power of the state absolutely to prohibit the sale of cigarettes within its borders when once the original package had been broken, even though the federal Supreme Court refused to take judicial notice that tobacco in the form of cigarettes was more noxious than in any other form.

The courts may take judicial cognizance of the fact that snuff in North Dakota is generally used by holding it between the lip and the gum without mastication, or by plastering it on the gums, and that it is absorbed rather than chewed. Is not the very fact that snuff is generally used by holding it between the lip and the gum without mastication, or by plastering it on the gums, a valid reason for the legislature condemning it, while leaving ordinary chewing tobacco alone? The court believes that it can take judicial notice of the fact that many contend that the use of snuff between the lip and the gum has a tendency to paralyze the nerves of that portion of the face. The court certainly can take cognizance of the fact that the schoolboy can secretly use tobacco in the form of snuff, when he would be liable to be detected in any other form of use. One of the strongest arguments, indeed, in favor of the crusade against the cigarette, is that cigarettes are easily and cheaply obtained, and that the boy is liable to be tempted by that fact, and that the use of tobacco will thus be increased. The same argument is applicable in the case of snuff which is used, not in the nose, but on the gums or between the lip and the gum. So, too, the court cannot be blind to the general fear that drugs and opium are, and certainly can be, easily mingled with snuff, and perhaps are less readily detected in it than in other forms of tobacco.

The modern trend of authority is in favor of the proposition that police laws need not necessarily be omnibus in their character, and that it is permissible to legislate against one form of evil even though many other and similar evils have not been condemned. A beginning must be made somewhere.

Liability for Removal of Sesamoid Bone Without Authority

(*Rolater vs. Strain (Okla.)*, 137 Pac. R. 96)

The Supreme Court of Oklahoma affirms, on the appeal of defendant Rolater, a judgment for \$1,000 damages for an alleged trespass to the person of the plaintiff Strain by removing a sesamoid bone without authority. The court says that the plaintiff stepped on a nail which penetrated the great toe of her right foot. Inflammation set in, and, the wound not having healed, some sixty days after the injury, her employer caused the defendant to make an examination of the foot. The defendant advised that an operation was necessary to effect a cure, and that the operation should be made by making an incision in the foot or toe so as to drain the joint and remove any foreign matter that might be found therein. In performing the operation, a sesamoid bone was

removed. The cause of action was the removal of that bone. It was not claimed that the operation was unskillfully performed, but that the defendant had agreed before the operation that he would not remove any bones from the foot, and that the removal of the sesamoid bone was without the authority or consent of the plaintiff and constituted a trespass to her person and a technical assault and battery. The defendant answered, among other things, that, before reaching the joint so as to drain it, he found it covered with a sesamoid bone which rendered it impossible to drain the joint without the removal of such bone, which was in an unusual place and its presence could not be ascertained by an examination.

In a civil action by a patient against a surgeon for assault and battery, it is not necessary to show that the surgeon intended, by the act complained of, to injure the patient. It is sufficient if it appears that the act was wrongful and unlawful. Consent of the patient, either express or implied, is necessary to authorize a surgeon to perform a surgical operation on the body of the patient. An operation without such consent is wrongful and unlawful, and renders the surgeon liable in damages. Consent, however, may be implied from circumstances. If the contract claimed was made between the patient and the surgeon, the former had the right to insist on a strict performance of it; the removal of the sesamoid bone by the surgeon was without the consent of the patient and was therefore unlawful and wrongful, and constituted a trespass on her person. The defendant had no authority to remove a sesamoid bone from the plaintiff's foot without her consent, either express or implied; she did not expressly consent, and whether or not her consent was implied from the circumstances was a question for the jury to determine under all the evidence.

The court cannot say, as a matter of law, that the sesamoid bone was not within the contemplation of the parties at the time the consent was given to the operation. That question was properly submitted to the jury for determination. Nor will the court hold, under the evidence, as a matter of law, that there was such an emergency existing as authorized the surgeon to proceed in this operation, after the discovery of this bone in an unusual and unexpected place, and to authorize him to remove it without the consent of the patient. Whether or not such an emergency existed was a question of fact under the evidence for the jury. The amount of the plaintiff's recovery, if she was entitled to recover at all, must depend on the character and extent of the injury inflicted on her, in determining which, the nature of the malady to be healed and the beneficial nature of the operation should be taken into consideration, as well as the defendant's good faith.

Township Liability for Emergency Services Rendered to Poor Persons

(*Newcomer et al. vs. Jefferson Township (Ind.)*, 103 N. E. R. 843)

The Supreme Court of Indiana reverses a judgment for the defendant, sued by a firm of physicians who in October, 1906, rendered emergency services to a boy resident in the township who fell off a freight train on which he was riding without right, his right leg below the knee and a portion of his left foot being crushed with a consequent copious hemorrhage. The court says that it was the contention of the defendant that townships are not liable for relief to poor or necessitous persons outside of public institutions for surgical or medical aid, however necessitous, irrespective of the circumstances or conditions, unless it is directed by the overseer of the poor; that he is the sole and conclusive judge of the necessity, as to whom he will or will not employ to render aid, and whether or not aid shall be rendered.

It may be conceded, as a general rule, that a claim against a county or township can be founded only on a contract with the proper officer acting under authority of a statute. The Act of 1901 covers the subject of temporary aid. By Section 9746 the overseer is required to see that the poor are properly relieved and taken care of. It then provides for cases of necessity, and for prompt provision of medical and surgical attendance and medicines for all poor in his township outside of public institutions. The law is just as mandatory that the relief shall be given at the expense of the township, as it

is that the overseer shall provide it. It is therefore the law's mandate in such an emergency as was here shown, which raises an implied liability to one who renders such necessary and prompt service as was here shown, for the reasonable value of the service. It is not a voluntary service, but an obligation imposed by law. When there is an opportunity to communicate with the overseer, or when he can have an opportunity to examine into conditions, then he should be called on.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

American Academy of Medicine, Atlantic City, June 19-21.
Am. Assn. of Genito-Urinary Surgs., Stockbridge, Mass., May 15-16.
American Climatological Association, Atlantic City, June 19-20.
American Dermatological Association, Chicago, May 14-16.
American Gastro-Enterological Association, Atlantic City, June 22-23.
American Gynecological Society, Boston, May 19-21.
American Laryngological Association, Atlantic City, May 25-27.
American Laryn., Rhin., and Otol. Society, Atlantic City, June 19-20.
American Medico-Psychological Association, Baltimore, May 26-29.
American Neurological Association, Albany, May 7-9.
American Ophthalmological Society, Hot Springs, Va., May 12-13.
American Orthopedic Association, Philadelphia, June 18-20.
American Otological Association, Atlantic City, May 27-28.
American Pediatric Society, New London, Conn., May 26.
American Proctologic Society, Atlantic City, June 22-23.
American Society of Tropical Medicine, Boston, May 29-30.
American Therapeutic Society, Albany, May 29-30.
American Urological Association, Philadelphia, June 18-20.
Arkansas Medical Society, Eldorado, May 19-22.
Association of American Physicians, Atlantic City, May 12-13.
Conf. of State and Prov. Boards of N. America, Washington, June 19-20.
Connecticut State Medical Society, New Haven, May 20.
Florida Medical Association, Orlando, May 13-15.
Illinois State Medical Society, Decatur, May 19-21.
Iowa State Medical Society, Sioux City, May 13-15.
Kansas Medical Society, Wichita, May 6-7.
Maine Medical Association, Portland, June 10-11.
Massachusetts Medical Society, Boston, June 9-10.
Medical Society of the State of North Carolina, Raleigh, June 16.
Missouri State Medical Association, Joplin, May 12-14.
Nat. Assn. for Study and Prev. of Tuberculosis, Washington, May 7-9.
National Association for the Study of Epilepsy, Baltimore, May 25.
Nebraska State Medical Association, Lincoln, May 12-14.
New Hampshire Medical Society, Concord, May 13.
North Dakota State Medical Association, Grand Forks, May 13-14.
Ohio State Medical Association, Columbus, May 5-7.
Oklahoma State Medical Association, Guthrie, May 12-14.
Rhode Island Medical Society, Providence, June 4.
South Dakota State Medical Association, Watertown, May 26-28.
Texas State Medical Association, Houston, May 12-14.
West Virginia State Medical Association, Bluefield, May 13-15.

INTERNATIONAL SURGICAL ASSOCIATION

Fourth Congress held in New York, April 13-16, 1914

The President, PROF. A. DEPAGE, Brussels, Belgium, in the Chair

Election of Officers

President of the next Congress, Dr. W. W. Keen, Philadelphia; president of the association, Prof. Charles Willems, Ghent; treasurer, Prof. J. Lorthioir, Brussels; secretary, Prof. L. Mayer, Brussels.

The next meeting will be held in Paris in September, 1917.

Military Surgery: President's Address

PROF. A. DEPAGE, Brussels: The surgery of war owes much to America. In 1861 the sanitary commission appointed by President Lincoln played an important part in the course of events. Since then new duties have arisen with which the surgeons of all countries should reckon. We should be employed in perfecting our sanitary organizations. The international understanding should be reinforced more and more by the organization of help for the victims of war. Without doubt such an understanding already exists, the Red Cross is the most striking illustration of this. At the time of the last Balkan war we saw ambulances which had come from all countries, to repair to the seat of war. The fate of the wounded depends more than all on the aid which is given in

the front of the battle, for as long as the engagement lasts the exposed ground is inaccessible for the ambulance men, of whom more than one has sacrificed his life in spite of all precautions taken; thus hours pass during which the men remain without help.

The following is without doubt the solution: Each of the combatants must carry with him side by side with his cartridges the articles necessary for the first dressing. This solution has already been adopted by different countries. The experience of late wars has proved only too clearly that before all the sanitary education of the soldier must be improved. He must realize the dangers of infection by earth, dust and water; he must know that in case of a wound in the abdomen it is better to rest motionless, even for hours, than to walk as far as a station. The military instruction of a soldier in the future will not be complete unless it comprises an acquaintance of the necessary measures to take for his personal safety, and especially the elementary rules of asepsis and antisepsis. The making general of these instructions will result in a great saving of human life. We who are brought in close contact with the dreadful miseries of this poor human race find it more and more difficult to understand why men do not employ their reasoning powers to a good end by ceasing this destruction of one another. We hope soon to see the "United States of Europe" in friendly intercourse with the United States of America," and we reserve our deepest admiration for those who are working to assure universal peace.

SYMPOSIUM ON AMPUTATIONS

Amputations of the Arm and Forearm

PROF. OSKAR WITZEL, Düsseldorf, Germany: The indication for an amputation can be fixed only if one is in touch with all the modern resources capable of assuring the preservation of wounded, diseased and deformed limbs. The introduction into surgery of the antiseptic treatment of open wounds, contusions and fractures by von Bergmann allows the postponement of amputation in time of war as well as in ordinary practice. The processes of suture, resection, anastomosis and transplantation of the blood-vessels enable the preservation of parts of limbs wounded or affected by arteriosclerosis. In cases of suspected wounds, Bier's method of prophylactic hyperemia and his method of hyperemia, together with small carefully made incisions in the suppurating parts, preserve limbs in which septicemia and pyemia would otherwise have demanded amputation. Modern operative orthopedics restores the power of useless limbs by means of osteotomy and musculotendinous transplantation. In cases of simple tumors and even in myeloid sarcoma, excision followed by transplantation is more than ever justified. Even in malignant tumors the adjunction of roentgenotherapy and chemotherapy allows the hope of a less radical position than formerly. Amputation of itself can never endanger life and should procure for the patient a useful and painless stump. The danger of the actual operation is decreased by increasing the resisting powers of the patient, whether the case is one of emergency or not, by complete arrest of hemorrhage in cases of accident, and by strengthening the heart-action by camphorated oil, saline infusions, inhalation of oxygen, application of heat and respiratory exercise. The choice of an anesthetic, the preservation of warmth during the operation and Esmarch's tourniquet are also important factors. General anesthesia is preferable on account of the psychic effect resulting from amputation. Hackenbruch's process is suitable for minor operations, and Braun's endoneural anesthesia for more extensive removals, always with the addition of narcotics and with strict attention to discipline in the working of the operating-theater. Bier's rachianesthesia will rarely be indicated.

After the operation, life would be saved by simple and thorough asepsis. The section of tissues should be clean; in order not to injure their vitality it is necessary to work with gentleness, heat and moisture. For this end the use of antiseptics must be rejected, and there must be a strict

hemostasia. Cardiac tonics and respiratory exercise judiciously applied prevent thrombo-embolism. To obtain a painless and serviceable stump, clean section should be made well above the nerve-stumps; in disarticulation and epiphyseal amputation, avoiding the opening of the marrow canal prevents the formation of neuritis by fixation of the nerve-roots on the surface of the sectioned bone; sealing the marrow canal by the processes of Bier, Wilms, Ritter or Bunge also prevents this accident. Massage of the soft tissues and early utilization of the stump in temporary prostheses serves the same purpose. For a good utilization of the stump as a lever for prosthetic apparatus, regard must be taken of the unequal retraction of the muscles and tendons. The suture of neighboring muscles and those of opposing ones between themselves helps to maintain the functional equilibrium. Certain tendinous groups, particularly in the forearm, may be transferred into rings covered anew with skin, giving the most life-like prostheses. The creation of levers possessing active movements, and digital autoplasty give hope of remarkable success.

Amputations of the Leg

DR. J. F. BINNIE, Kansas City, Mo.: The level at which amputation of the leg below the knee is performed has no influence on the vital dangers of the operation; hence the choice as to the method and site of such an amputation depends on the lesion for which the operation is required and on the use that is to be made of the resulting stump. No particular improvement has been made in the methods of amputating below the ankle-joint. If gangrene is the occasion for the amputation, the site of operation will depend largely on the extent of the vascular disturbance, and this is determined by the use of Moschowitz's method of examination or by Sandrock's method, which is much simpler. The use which is to be made of the stump is a factor of prime importance in the choice of a site of amputation. If the financial condition of the patient is such that he cannot indulge in a more or less expensive artificial limb, then it is of vast moment to save as much of the limb as possible and to provide him with a good stump; one that will withstand abuse and on which the weight of the body can be supported without harm resulting. The types of these operations are Symes' and Pirogoff's.

If the patient can afford a good artificial limb it is better to amputate at a higher level so that there may be room between the stump and the ground for such an apparatus. The improvements attained in amputations of the leg are all in the attainment of better weight-bearing stumps, and the designs of artificial limbs must in the future adapt themselves to these improvements. Hirsch's and Bunge's aperiosteal treatment of the bony stump in any amputation, and osteoplastic amputations under particularly favorable circumstances, are very valuable means toward obtaining ideal weight-bearing stumps. All the advantages of Bier's operation can be obtained easily and safely by covering the cut end of the tibia with a free transplant of bone.

Amputations of the Leg and Foot

DR. M. DURAND, Lyons, France: Any one of the three middle toes may be amputated by disarticulation of the second phalanx, by metatarsophalangeal disarticulation, or by amputation in continuity of the first phalanx. These operations do not alter the function of the foot. No other operation is recommended. These conditions also apply to the small toe. The great toe is amenable to all operations in continuity or contiguity. Total disarticulation, especially if carried out by the subperiosteal method, gives excellent results. The walk is but slightly affected by the simultaneous disarticulation of the five toes. As to the metatarsal bones, amputation of one of the four last metatarsal bones in continuity or by disarticulation leaves but small difficulty. The disarticulation of the first metatarsus is a little more serious from the functional point of view. It has not, however, the disadvantages ascribed to it. The subperiosteal method is particularly favorable in this case. Not more than two of the metatarsal bones must be amputated. Transmetatarsal and tarso-

metatarsal amputations, according to Lisfranc, generally give excellent functional results.

Amputations and disarticulations which affect the anterior tarsus without suppressing it entirely must be recommended. Chopart's disarticulation is an unreliable operation; it risks a reversion of the stump and it can, if not entirely proscribed, at least be reserved only for very exceptional conditions. Ricard's operation and subastragaloid disarticulation are both excellent and have practically the same value. The osteoplastic operations on the posterior tarsus (Sebilot, Pirogoff, Pasquier-Lefort) preserve the normal bearing on the plantar tissues and furnish also very good results. The tibiotarsal disarticulation carried out according to Ollier's subperiosteal method gives supple and enduring stumps. It leaves such good functional results that it may be considered equal to the greater part of the more conservative operations of the posterior tarsus. Of supramalleolar amputations and amputations of the lower third of the leg it may be said that they are of slight mutilation, rendering means of provision of solid skin tissues obtained from the heel; they sometimes permit the direct bearing of the stump extremity on the prosthetic apparatus. They have a usefulness very similar to the tibiotarsal disarticulations because of the length of the leg-lever and the power of the muscles which they preserve. Amputations of the middle third of the leg do not admit of the terminal weight-bearing if performed according to classical methods. There is some hope that the former osteoplastics will improve in their results. Amputations of the leg above the middle part have ceased to deserve the name of "amputation at the seat of election" and should be performed only when the extent of the injuries does not permit of a lesser sacrifice. Larry's intracondylar amputation is preferable to the disarticulation of the knee.

Amputations of the leg and foot owe their gravity solely to the affection which necessitates their performance and to the general condition of the patient. The progress of surgical technic and of asepsis has enabled a more correct adaptation of the stumps to the prosthetic apparatus and a considerable increase of the utilization of these stumps. Prosthetic apparatus in their technical realization have considerably improved the utilization of stumps in amputation of the foot, and especially of the leg. Owing to this progress we can now usefully perform amputations of the middle and lower third of the leg.

Amputations of the Leg and Foot

DR. E. RANZI, Vienna: The most important condition for the portability of the stump is formed by the removal of the excessive formation of callus on the surface of the stump. Bier and Wilms avoid this by closing the marrow-cavity, the former using a flap of periosteum and bone, the latter using sinew; Bunge accomplishes the same result by the removal of the periosteum and endosteum on the lower stump end. The removal of the cut outside portable surface, and the prevention of adhesions between the soft parts and the stump are of less importance for the portability of the stump. Of the methods that are most sought after for portability, that of Bunge seems to be the best, because on the one hand it is the simplest and on the other the results are the best if no *prima intentio* occurs. In every method of operation it is of the greatest importance for the results that the patient take walking exercise and has massage, as well as that he should put his weight on the wooden leg as soon as possible.

Discussion on Amputations

PROF. A. DEPAGE, Brussels: One of the greatest advances of modern surgery in times of war is without question the substitution of more conservative surgery for the brutal amputations formerly in use. On the French side during the Crimean War, in 22,521 wounds of the extremities there were 6,577 amputations; on the side of the English there were 777 amputations in 4,764 wounds; during the Civil War in America there were over 30,000 amputations done, and in the Franco-Prussian War the percentage was still higher. Since the danger of amputation on the battle-field is understood it has become exceptional. The ambulance service in times of

war is often manned by young practitioners impatient for action and eager to perfect themselves in the art of operating. During the Russo-Japanese War, Vreden and Haga interdicted all operation on the field that were not absolutely necessary, and it was not otherwise during the last war at Constantinople. It should be repeated on every occasion that the wounded man in time of war has more right to our protection than any other. The field of battle should not be a field of experience for the surgeon.

The practice of amputation in times of war may be divided into three categories: primary, intermediate, and secondary or tertiary operations. The primary are those necessitated on the field of battle by the extent of the lesion and the imminent peril to life. The immediate treatment of wounds on the field of battle should be limited as far as possible to the prevention of hemorrhage and infection. Applications of iodine dressings and tamponing with 10 per cent. zinc chlorid solution are useful for this purpose. The intermediate operations are those practiced between the second and ninth day, after the chance of infection has passed. Even then we should not sacrifice a limb on the first manifestation of fever. In our ambulance service in the recent war not a single amputation was done because of suppuration following a wound by a projectile. Most amputations were done because of grave infection following gangrene. The latter was not caused by coagulation, as was formerly thought, but by compression and infiltration produced by the edema due to long marches. Amputation in these cases was not always urgent; sometimes continuous lavage, friction with alcohol and rest in bed would result in the disappearance of the edema. In doing an amputation for gangrene the question was not so much whether to do an osteoplastic or a periosteal operation as how to secure the best nutrition possible. Secondary and tertiary amputations are practiced when the wound is healed and are necessitated especially by deformities, retracted cicatrices, neuroses, etc. Here the surgeon is guided by general hospital practice.

DR. A. LAMBOTTE, Brussels: It is not my practice to use the Esmarch bandage in doing amputations. It renders operation on the thigh long and difficult. In its place I use three or four ligatures to keep the field dry. I clamp both the femoral artery and the femoral vein, and, in addition, it is necessary to ligate two or three of the muscular arteries. There is no bleeding after the operation with this procedure. In amputation of the foot I find the subastragaloid disarticulation of Roux the operation of choice. I have used it in twenty cases with success. The cicatrix is well placed and the shortening minimized. I have had recourse on one occasion to a dermoplastic operation by the method of Keetley for an incurable ulcer of the leg, and secured a perfect result.

DR. ZAHRADNICKY, Memecky Brod: We have had 255 amputations of the larger joints with 23 deaths, or a mortality of 9 per cent. In this series there were 4 transmetacarpal, 5 metacarpal, and 3 amputations of the hand with no mortality; there were 24 antibrachial amputations, with 2 deaths; 25 brachial, with 2 deaths; 4 interscapular, without mortality, making in all 65 operations on the upper extremities with 4 deaths. Of the amputations on the lower extremities there were 60 femoral amputations, with 10 deaths; 70 crural, with 5 deaths. They did 46 femoral operations according to Gritti with 3 deaths; 10 according to Pirogoff's method, without death; one according to Syme, without death; and according to Chopart, 1 amputation, with 1 death; 1 according to Lisfranc, and 1 metatarsal, without death, making 190 cases with a mortality of 10 per cent. The highest mortality was from gangrene, there being 12 deaths in 31 cases of operation, a mortality of 38.7 per cent.

DR. W. H. HUTCHINGS, Detroit: A method which has given me marked success in infected cases is to open freely and make an autogenous vaccine, which is administered as soon as possible. A dressing of 6 per cent. salt and 1 per cent. sodium citrate in distilled water is kept on the wound. This provides continuous drainage, and, together with the increased bactericidal power of the blood due to the vaccines, I believe has saved many lives.

DR. WILLY MEYER, New York: I wish to call attention to the possibility of avoiding amputation, especially in endarteritis in young persons, by means of hypodermoclysis of Ringer's solution by the Ito-Kobar method. Intramuscular injections of from four to five hundred c.c. at each injection have been effective in several cases that have been under my care. If hypodermoclysis is unsuccessful, one may attempt an arteriovenous anastomosis, and, this failing, one may then resort to amputation.

DR. M. L. HARRIS, Chicago: The mortality following amputation is high in the aged for gangrene and the severe crushing injuries involving the thigh. Such amputations should be done under nerve-blocking rather than under general anesthesia, because shock is obviated.

DR. WILLIAM L. ESTES, South Bethlehem, Pa.: The blood-pressure is an important indication as to the advisability of attempting operation. It is useless to operate if the blood-pressure is 80 mm. or lower. When the blood-pressure is above 80 mm. one may operate. This is especially true in crushing injuries. In order to obtain a bloodless field I no longer use constriction, but employ the gradual dissection method, tying off the vessels as I proceed. With this method there is no oozing after the operation. Out of 724 amputations I have done few by the subperiosteal method, but have nearly always used a periosteal flap. Of this number only eighteen came to a second operation from any cause whatever. The nerve should be cut 4, 5 or 6 cm. above the section of the bone. In 42 transtarsal amputations I have used Chopart's operation thirty-six times, and all the patients did well.

(To be continued)

TENNESSEE STATE MEDICAL ASSOCIATION

Eighty-First Annual Meeting, held at Memphis, April 7-9, 1914

The President, DR. W. D. HAGGARD, Nashville, in the Chair

The Drug Habit in Tennessee

DR. LUCIUS P. BROWN, Nashville: The fundamental idea of the Tennessee law has been to restrict the handling of narcotics to physicians and pharmacists for medical purposes only, and to require the keeping of books on the purchase and sale of the drugs. The various other provisions of the law are subsidiary to these central ideas. The three months of operation of the Tennessee law have resulted in uncovering to a rather remarkable degree the prevalence of the disease. Up to April 1 the pure food and drug department has issued 1,403 permits to refill prescriptions, of which very few were renewals of existing permits. It has been estimated that between 1 and 2 per cent. of the population is infected. The books of our department show that of these 1,403 addicts, 1,226 are users of morphin, 97 users of laudanum, 71 of gum opium, 8 of heroin, and 1 of codein. The average dose of the morphin addict is about $8\frac{1}{2}$ grains a day. The aggregate usage is 609 ounces per month, which at the usual retail price of 6 grains for 10 cents would amount to \$4,872 per month, or \$58,464 per year spent by these registered addicts.

DISCUSSION

DR. GEORGE E. PETTLY, Memphis: Crothers has estimated that 15 per cent. of the members of the medical profession are using drugs. I think that this is entirely too high. I have tried to form an estimate and I am not able to say that more than 3 or 5 per cent. of the medical profession use drugs. Heretofore the greatest difficulty has been to get men self-sustaining after they are put back onto their feet. The slightest ailment will prompt these persons to get more of the drug. No physician should prescribe an opiate for them unless they are in an extreme condition in which its therapeutic impression is absolutely necessary.

DR. F. A. RICHARDS, Sparta: I should like to know what course a physician should adopt with persons who have formed the habit and have been put on their feet again, or who have asserted that they have quit the use of drugs. These persons easily drop back into the habit.

DR. E. T. NEWELL, Chattanooga: Dr. Brown has told us that most of these addicts are produced by the doctors themselves. It is appalling. We should cooperate with the state officials in seeing that the number of the drug addicts in this state is reduced to practically nil.

DR. S. T. HARDISON, Lewisburg: Some restriction ought to be placed on the practice of physicians who take morphin.

DR. L. E. BURCH, Nashville: In cases of acute pain, instead of using morphin or opium, I would suggest that apomorphin be used, 1/40 grain, repeated every fifteen minutes until two or three or more doses are given. You will be astonished at the results you will obtain. I have used it in gall-stone and kidney colic with gratifying results.

DR. L. P. BROWN, Nashville: When the country physician dispenses in such cases—and by dispensing I do not mean bedside administration, but leaving behind a portion of the drug to be taken after the doctor leaves the house—the physician should always make a note of the purchase and how the drug is administered. When a physician dispenses drugs he must keep a record the same as a druggist.

DR. GEORGE H. PRICE, Nashville, introduced a resolution, which was adopted, earnestly endorsing the antinarcotic law of Tennessee and pledging the association to aid the efficient enforcing official, Dr. L. P. Brown, pure food and drug inspector, to the end that the people of the state be prevented from contracting the drug habit and freeing those already addicted from their slavery.

Arteriosclerosis of the Cerebral Vessels

DR. JOHN PHILLIPS, Cleveland: The treatment of cerebral arteriosclerosis is chiefly concerned with the prevention of conditions which lead to its development. Cases of syphilis should have long and thorough treatment. Patients with signs of vascular degeneration should avoid excessive work, alcohol and tobacco. The diet should be light, the bowels kept freely open and moderate outdoor exercises should be indulged in. The advantage of careful attention to the bowels is shown in one of my cases in which the attacks of intermittent closing of the cerebral vessels ceased after thorough catharsis. In the cases of arterial hypertension should nitroglycerin be used? If the diastolic pressure is high and increased systolic pressure is a compensatory measure, to lower the latter under these conditions would simply decrease the blood-flow to the various organs. A low systolic pressure with a high diastolic pressure would be an indication that the former had at some time been higher, and that now the myocardium was failing and digitalis or other cardiac stimulants would be indicated. With our present studies of diastolic and pulse-pressure, the latter being the difference between the systolic and diastolic readings, the field of usefulness for nitrites has been limited to the administration for relief of such symptoms as headache, temporary aphasia and monoplegia or hemiplegia due to intermittent closing of vessels. There is no good evidence that iodids are of value, except in cases of syphilitic origin.

A practical point I should like to emphasize is the practice of massage in the prevention of contractures after hemiplegia. If massage with passive movements is started during the second or third week and continued for months or longer, the troublesome contractures can be prevented. In cases of cerebral hemorrhage in which there are evidences of greatly increased intracranial tension with approaching death, Cushing has advised cranial decompression and in some cases he has attempted to evacuate the clot. The result in some cases has been sufficiently encouraging to warrant further trial.

DISCUSSION

DR. JOHN A. WITHERSPOON, Nashville: I know of no disease of middle life or past middle life with which we come in contact more frequently than those changes in the vascular supply of the brain. Just how much we can differentiate those focal changes, or just how much we may have circumscribed atheroma, is difficult to say. I have always felt that the vast majority of cases of marked atheromatous change before 40 years of age were of syphilitic origin. American life plays a very strong part in bringing about these changes. The majority of cases can easily be diagnosed, and yet many times I have seen cases in which changes in the vascular sys-

tem of the brain were quite difficult to differentiate from cerebral tumor. We have no explanation of the apparently beneficial effect of the iodids on the arterial system, but we do know that they more frequently help to control the pain of aneurysm; that they frequently act on the vascular system to give comfort. The nitrites we understand, but the iodids we do not, yet I think they are valuable in those cases of arteriosclerosis of syphilitic origin.

DR. H. W. WITT, Nashville: A distinction between the neurasthenic state and the stage of general mental and physical weakness from arterial changes can be made by an observation of the blood-pressure and a careful examination of the heart and peripheral arteries. At the same time, there are peculiarities of mental instability that enable us to make a proper diagnosis. In such cases it is risky to make a favorable prognosis. I agree with Dr. Witherspoon as to the use of the iodids. I have derived definite value from the iodids, not in reducing blood-pressure but in cases with dizziness and slight conscious disturbances.

DR. JOHN PHILLIPS, Cleveland: I believe that the effect of the iodids in arteriosclerosis is very much overestimated. We know from the studies of Longcope and others that 80 per cent. of the cases of aneurysm are syphilitic in origin, and it is in the syphilitic cases that we get the best results from the use of iodids.

(To be continued)

MEDICAL ASSOCIATION OF GEORGIA

Sixty-Fifth Annual Meeting, held at Atlanta, April 15-17, 1914

The President, DR. RALSTON LATTIMORE, Savannah, in the Chair

Officers Elected

The following officers were elected for the ensuing year: President, Dr. W. B. Hardman, Commerce; vice-presidents, Dr. C. L. Williams, Columbus; Dr. F. D. Patterson, Cuthbert; secretary-treasurer, Dr. William C. Lyle, Augusta. Place of next meeting, Macon.

Suprapubic Prostatectomy

DR. W. L. CHAMPION, Atlanta: The majority of operators prefer the suprapubic operation. The approach is easier, the operation more thorough, and the after-results better. On account of the age of the patients suffering with hypertrophy of the prostate, there will always be mortality from operative interference, but if all of the cases are carefully studied and selected for operation, the mortality will grow less, and the functional results will be more satisfactory.

DISCUSSION

DR. EDGAR G. BALLENGER, Atlanta: I would like to emphasize the importance in prostatic work of removing the gland before the patient's health is impaired by back pressure, thus damaging the kidneys. No one thing will lessen the mortality to a greater extent than to remove the prostate before the kidneys are seriously damaged. If the gland is not much enlarged, with residual urine, it is almost certain the patient will have trouble with the prostate. Therefore, I would urge that operation be not postponed beyond a reasonable period.

DR. C. C. HARROLD, Macon: A number of patients with hypertrophy of the prostate unquestionably die without operation. As to the use of the retention catheter, I have had two patients in the last two years where I found the catheter could not be introduced. In both cases suprapubic drainage was instituted for three or four days. In one case the drainage was left in for seven days before operation.

DR. E. G. JONES, Atlanta: A patient with enlarged prostate is said to suffer from renal inactivity by reason of the back pressure, and the relief of this back pressure is apt to be followed by marked depression in renal function, which may be troublesome and cause death.

Anoci-Association Anesthesia

DR. E. C. DAVIS, Atlanta: We have found the local use of novocain solution which Crile recommends very advantageous

but the quinin and urea solution often acts as an irritant, causing a tendency to infection or discharge of a serous secretion which is quite annoying to the patient. My experience covers 289 cases, and I believe that it is only the beginning in a line of work which will prove of inestimable value in the future.

Oil-Ether Colonic Anesthesia

DR. JULIAN C. PATE, Valdosta: The advantages of this method of anesthesia over others are: 1. The element of apprehension and fear caused by placing a mask over the face as in inhalation anesthesia is avoided. 2. No expensive apparatus is required. 3. The after-effects of the anesthetic are reduced to a minimum. 4. The more complete relaxation is secured. 5. The limits of safety are widely extended compared with other methods. 6. A more even plane of surgical anesthesia is maintained. I have used this anesthetic in three cases with satisfactory results.

The Management of Pregnancy and Normal Labor

DR. BAXTER MOORE, Atlanta: The care of the pregnant woman should commence as soon as the patient has reason to believe that she has conceived. The patient should be made to feel that her condition is a normal physiological condition. Her mental surroundings should be as cheerful as possible. Labor should take place certainly not later than 282 days after conception. The patient should be allowed time to give birth to her child after labor has been started. Do not use the obstetric forceps if it is possible to avoid the use of them.

The Treatment and Mortality of Cerebrospinal Meningitis

DR. J. E. PAULIN, Atlanta: The basis of this study is the collected results of 72 cases of cerebrospinal meningitis admitted to the contagious wards of the Grady Hospital between April and July, 1913, and eight cases occurring in my private practice. Of the eight cases in my private practice, seven were seen within twenty-four hours of the onset of the disease, with no mortality. The eighth patient was seen seven days after the onset of illness and was dying at the time I was called. The mortality in private cases is lower than in hospital cases because the treatment is instituted much earlier. There is practically no disturbance occasioned the patient by the use of the antimeningitis serum. The character of the spinal fluid and the relation of the meningococci to the pus cells, whether they are intracellular or extracellular, gives some indication of the severity of the infection. Many of the extracellular organisms, after the administration of one or two doses of the serum, generally means a very severe infection, and the chances are that the serum will do little or no good. In the cases where the fluid becomes turbid, the organisms became intracellular and the pus-cells fail to stain as deeply after two or three doses of the serum, the serum should be given until the spinal fluid is free from organisms. Drugs offer very little hope except the relief of symptoms. The mortality depends on two factors: (a) the age of the patient, meningitis being very fatal to children under five years of age and individuals over fifty; (b) the chances of recovery are better when the serum is administered freely. The mortality gradually increases as the length of time increases between the onset of the disease and the administration of the serum.

DISCUSSION

DR. STEWART R. ROBERTS, Atlanta: A valuable point in reaching a conclusion as to the treatment is the necessity for remembering that antimeningitis serum is applicable only in cases of acute cerebral epidemic meningitis. Meningitis may be caused by five different germs. The staphylococcus may cause typical meningitis, and so may the streptococcus. It seems, at times, difficult to differentiate by the clinical symptoms between acute pneumococcic meningitis, which is practically incurable, and acute epidemic cerebrospinal meningitis. It is an easy matter to do a lumbar puncture. The treatment of meningitis at present is practically limited to the cerebrospinal form, and we are more or less helpless in treating the other four forms.

(To be continued)

NEW YORK NEUROLOGICAL SOCIETY

Meeting held March 3, 1914

The President, DR. SMITH ELY JELLIFFE, in the Chair

Paralysis Agitans: Motor Pathology

DR. SMITH ELY JELLIFFE: I have serial sections from a case of paralysis agitans which illustrate the paucity of the fibers in the internal capsule, especially in that group of fibers derived from the development of the cerebello-rubro-spinal system. This finding bears on the development of the present-day study of tremors and irregular motor reactions, such as are found in multiple sclerosis, Huntington's chorea, the lenticular degeneration of Wilson, and the group of analogous motor phenomena which have been studied for a number of years and were now regarded as due to disorder or defects in the extra-pyramidal tracts.

DISCUSSION

DR. I. ABRAHAMSON: Cases of tumor of the midbrain involving this region might show a tremor resembling that of paralysis agitans, but it is decidedly coarser and has greater amplitude—almost like a caricature of that of paralysis agitans.

DR. CHARLES L. DANA: According to my experience with paralysis agitans, about 90 per cent. of the cases show the same method of development, they pursue the same course, have the same symptoms, and the prognosis is about the same. If this combination does not constitute a clinical type, then I am at a loss how to describe one.

DR. SMITH ELY JELLIFFE: In the study of the heredity of Huntington's chorea, three distinct trends have been found, namely, the motor phenomena, the mental phenomena and the age factor. These trends might appear in different families, but when the three occur in the same individual, then a typical situation which might be termed Huntington's chorea is present. I regard paralysis agitans in much the same light; it represents a syndrome or combination of factors rather than a clinical entity.

The Relief of States of High Vascular, Muscular and Mental Tension

DR. WILLIAM J. M. A. MALONEY and DR. VICTOR E. SORAPURE: An emotional state is consequent on a physical state; the latter is the immediate source and precursor of the emotion. According to this theory fear develops because the heart quickens; the heart does not quicken because we fear; the tachycardia is the cause of the fear; the fear results from the tachycardia, and we feared because we breathed rapidly and regularly; we did not breathe rapidly and irregularly because we feared; the hurried, shallow, gasping respirations caused the fear; the fear resulted from the hurried, shallow, gasping respiration. Fear without visceral change cannot occur. Absence of visceral change implies absence of emotion. To minimize visceral change is to minimize emotion. Deep breathing slows the heart's action. The changing of hurried, shallow breathing into slow, deep breathing, and the reducing of the heart's rate mitigates or dispels fear. So long as the breathing is controlled and the heart slow, no considerable fear nor excitement can exist. Every emotion, every thought is externalized in muscular action.

I have elaborated for the relief of states of mental and muscular tension certain depressor exercises, which I use as an introduction to the treatment of ataxia by the blindfold method. In tabetics who were practicing these exercises I have observed a fall of blood-pressure, and the patients reported that at home the exercises often led to sleep. In a case of chronic nephritis the exercises led to a fall in the blood-pressure from 220 to 192 mm. in fifteen minutes. Altogether, over 300 observations have been made, and in more than 50 cases the effect of these exercises has been studied.

The exercises might be divided into two groups: breathing exercises and relaxation exercises. Breathing exercises: As we seldom use effort to expire, and often need effort to inspire, expiration is to a great extent a passive, mechanical act, whereas inspiration more often is performed consciously. So

inspiration is usually better controlled than expiration, and much of the trouble in teaching breathing exercises is in training patients to govern their expiration. We first instruct the patient to breathe deeply and to pause at the end both of inspiration and of expiration. The breathing should be abdominal and should be done without jerking. One of the purposes of deep breathing is to distract the patient from obsessing thoughts and disturbing ideas; to focus his attention on the exercises. But deep breathing quickly tires patients. Therefore, after about twelve full breaths, the patient is allowed to pass to breathing of moderate amplitude. All imagery is discouraged. The patient is asked to feel only the passage of air through his nasal cavities and the tactile sensations which arise from the movements of the abdominal wall against his clothes. While he is so practicing, he is cautioned to keep his attention on the sensations which accompany his breathing. After a few minutes of "medium" breathing, the patient is taught to breathe quietly, and to attend only to the accompanying sensations. A bag of sand or shot or other heavy object placed on the abdomen is useful to increase the muscular effort involved in breathing, so that breathing, during the exercises, might not easily lapse into an unconscious act. Instead of the sand-bag, the physician's hand may be used.

Relaxation exercises: To relax the muscles, passive movements in which the muscles were alternately lengthened and shortened are employed. The scalp, forehead, cheek and jaw muscles of the recumbent patient are passively moved by the physician, and this is continued until wrinkling diminishes or disappears and muscular spasm is eliminated. Next, a shoulder is relaxed; then an arm. Each joint is moved passively until all trace of muscular tension vanishes. All movements should first be made passively by the physician, and then, where possible—limbs, head and trunk—passively induced by the action of gravity.

The effects of breathing and relaxation exercises: Besides the tranquilizing of excited and anxious states, and the general relaxation of the musculature, certain other physiologic effects result. During the exercises a high blood-pressure almost invariably falls. Not only in organic renal diseases, but also in cases of high blood-pressure in which no renal disease could be detected, a fall occurred. A reduction of from 25 to 30 mm. in the systolic blood-pressure, as a rule, results from the exercises, and even greater reductions occur. This fall in blood-pressure was observed not only in cases of high pressure, but also in normal people, among whom a fall of from 10 to 15 mm. was customary. The fall, as a rule, affected almost equally the systolic and the diastolic pressure in normal people, and sometimes there was an equal fall in the systolic and diastolic pressure in persons with organic disease, but in those in whom the blood-pressure was abnormally high, the systolic pressure usually fell to a greater degree than the diastolic.

Psychologically, the exercises produce concentration of attention and restriction of consciousness. The physiologic effects are relaxation of the voluntary muscles, diminution of muscular reflexes, slowing of the pulse rate, a tendency to reestablish in the pulse the normal rhythm in time and volume, lowering of blood-pressure, and a tendency to restore the normal pulse pressure. The exercises should last about twenty minutes at first. If they were continued longer, the patient grew restless.

Therapeutic applications: These exercises were originally devised as an aid to the reeducation of the ataxic tabetic. Obviously, they were applicable to all cases in which the relief of high vascular, muscular or mental tension was desired. They were therefore taught in cases of high blood-pressure, of muscular spasm, of insomnia and other neuroathenic symptoms.

DISCUSSION

DR. WALTER TIMME: I do not think the theory that the rapid heart action produced the fear is susceptible of proof, but rather the converse. For example, take a cat and give it sufficient atropin to diminish the auto-activity that has control over the heart's action, a sudden fright would fail

to produce rapid heart action, but still the animal would be frightened. Fright may produce blanching of the skin and diarrhea, due to stimulation of the autonomic nerve ends. In other words, the results of two factors are interwoven, the two factors being the sympathetic and the autonomic systems. Referring to the blood-pressure, while in certain cases its reduction might prove beneficial, in other cases the high blood-pressure may be compensatory, and its reduction would prove injurious. With a productive inflammation of the kidney, a high blood-pressure is a purposeful action, and by reducing it the kidney cannot functionate properly. With functional conditions, of course, the reduction of a high blood-pressure is beneficial, but to attempt to reduce it below its physiologic limits is of doubtful efficacy.

DR. RICHARD B. KRUNA: I have employed exercises similar to those described in the reeducation treatment of infantile paralysis for the past eight years, also in the treatment of cardiac neuroses, in conditions of disturbed innervation of muscular tissues, of increased muscular activity, such as we find in convulsive tics and in neurotic tachycardia, and I can subscribe to the fact that by this method we can establish greater regularity of the heart's action, and that in infantile paralysis it improves the innervation of the muscles that are affected by the paralysis springing from certain segments of the cord.

DR. SMITH ELY JELLIFFE: I am glad to hear emphasized the value of the psychic element in connection with this method of treatment. I believe, however, that the authors will have to relinquish their contention that fear is consequent on the quickened heart's action. If anything has been shown by the recent work on the sympathetic nervous system, it is that the James-Lange theory failed fully to account for these phenomena, and that after all we are not afraid because our hearts beat, nor do our hearts beat because we are afraid, but that these phenomena are the result of interrelatory phenomena operating through the sympathetic and the autonomic nervous system.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia April, CXLVII, No. 4, pp. 469-624

- 1 *Cholecystitis without Stones or Jaundice in Its Relation to Chronic Pancreatitis. W. J. Mayo, Rochester, Minn.
- 2 *Treatment of Pylorospasm in Infancy. J. Ruhräh, Baltimore.
- 3 Tuberculosis of Spleen, Septic Infarction, Polycythemia, Splenectomy. J. Douglas and A. B. Eisenbrey, New York.
- 4 Giant Tumors of Conus and Cauda Equina. J. Collins and C. A. Elsberg, New York.
- 5 Cases of Hypotension Associated with Definite Symptomatology. E. H. Goodman, Philadelphia.
- 6 Significance of Diastolic and Pulse-Pressure. P. Nicholson, Ardmore.
- 7 Action of Certain Anilin Dyes on Bacterial Development. C. E. Simon, Baltimore, and M. A. Wood, Houston, Tex.
- 8 *Diagnostic Value of Percutaneous Tuberculin Test. E. B. Krumbhaar and J. H. Musser, Jr., Philadelphia.
- 9 *Successful Removal of Hemangio-Endothelioma from Dura of Frontal Region of Brain. T. Diller and R. T. Miller, Jr., Pittsburgh.
- 10 *Total Non-Protein Nitrogen of Blood in Pregnancy and Eclampsia. C. B. Farr and P. F. Williams, Philadelphia.
- 11 Prolapse of Ovary; Its Rational Management. C. D. Palmer, Cincinnati.
- 12 Precocious Development of External Genitals Due to Hypernephroma of Adrenal Cortex. H. D. Jump, H. Beates, Jr., and W. W. Babcock, Philadelphia.
- 13 Symptoms Suggesting Pituitary Disorder. E. D. Bond, Hathorn, Mass.
- 14 Value of Auto-Inoculation in Pulmonary Tuberculosis. H. L. Barnes, Wallum Lake, R. I.
- 15 Early Symptomatology of Cancer of Esophagus. H. H. Janeway, New York.

1. **Cholecystitis without Stones or Jaundice.**—In this paper Mayo endeavors to show that in the presence of chronic pancreatitis without jaundice and without evidence of back pressure on the biliary tract the gall-bladder should be removed if it shows marked evidences of chronic cholecystitis, especially the strawberry type. In at least a half-dozen cases

operated on in the Mayo clinic the following sequence has occurred: cholecystostomy had been done for chronic cholecystitis without stones and with a complicating chronic pancreatitis. The patient was relieved for some weeks or months and then the symptoms returned. Recognizing the need of more prolonged drainage the gall-bladder was reopened and drained for a considerable period. There was complete relief so long as drainage of the gall-bladder continued, but sooner or later, after the fistula in the gall-bladder healed, the symptoms returned. It has been Mayo's experience that removal of the gall-bladder promptly relieves the symptoms and permanently cures the patient.

Chronic pancreatitis, the result of gall-stone disease, is usually cured by the removal of the stones and drainage of the biliary tract and in the chronic infections of the gall-bladder with secondary involvement of the pancreas, in the absence of interference with biliary drainage, cholecystectomy furnishes a satisfactory symptomatic cure.

2. Treatment of Pylorospasm in Infancy.—The points to which Ruhräh particularly calls attention are: 1. A more careful diagnosis. 2. A longer trial at medical treatment, especially in all cases in which the diagnosis of pylorospasm is probable. 3. The necessity of the use of breast milk. 4. The superiority of atropin to other forms of medication.

8. Percutaneous Tuberculin Test.—In 76 unselected non-tuberculous cases tested by Krumbhaar and Musser only 5 failed to give a negative reaction, and in only 2 of these was the Moro positive. Of 24 cases in the first two grades of pulmonary tuberculosis all reacted positively, indicating as is generally accepted, the specificity of the reaction. Of 10 cases of far-advanced pulmonary tuberculosis, 9 reacted negatively and 1 doubtfully positively. Of 10 tuberculous cases other than pulmonary all reacted positively. Of 28 clinically doubtful cases, by the Moro test 7 reacted positively, 6 doubtfully and 15 negatively. In the 16 cases in which von Pirquet tests were also made, 9 negative Moro cases gave 7 positive and 2 doubtful von Pirquets, while 1 doubtful Moro gave a positive von Pirquet. The others tallied with the Moro test.

In the light of these figures reinforced by the opinions of others, Krumbhaar and Musser believe to be erroneous the prevalent opinion that positive reactions in adults are of little or no value. The constantly positive reaction in all undoubted early and moderate cases of tuberculosis is a strong indication of the specificity of the reaction. The negative reaction in 90 per cent. of the far-advanced cases indicates that after bodily resistance has been overcome, with the probable disappearance of antibodies, the tissues fail to react to the test. As well as in pulmonary tuberculosis the test is of value in the differential diagnosis of pleural effusions, joint diseases, abdominal tuberculosis versus typhoid, etc. A general anaphylactic reaction, according to Chiaravallotti, as shown by an increase in the number of leukocytes in the peripheral blood following application of the test, is not demonstrable. The test may be repeated on the same patient without alteration of the results. Although in this series the results were in every case the same, rare instances have occurred where repetition produced a different result.

9. Tumor of Frontal Region of Brain.—This case Diller and Miller say was interesting from several points of view. Here was a growth of fair size which produced none of the well-known symptoms of brain tumor, but which manifested itself chiefly by Jacksonian epilepsy involving the left arm and by a slowly progressive hemiplegia. This tumor, situated just anterior to the right motor cortex and lying between the falx and frontal lobe would naturally be expected to produce symptoms referable to the trunk and leg rather than the arm. Yet from the onset there appeared to have been convulsions of the muscles of the upper abdominal wall accompanying those of the arm while the leg itself was never involved in convulsions.

The authors were somewhat led astray in supposing the lesion chiefly located in the arm center. The movements in the epigastric region they found difficult to interpret, since they occurred with only two or three of the arm convulsions;

moreover, they had the patient's history that similar attacks had occurred over a period of many years running back to childhood. They were, therefore, disposed to eliminate these attacks from consideration as evidence pointing to localization of the lesion. Even now it is difficult to interpret them. If one considers these early epigastric convulsions indicative of a lesion in the frontal cortex involving the adjacent center for the trunk, there is great difficulty in explaining the long history, the disappearance of these convulsions for several years and their subsequent reappearance with the onset of trouble in the left arm. The patient also described these epigastric movements as definitely limited to that region of the body and it was felt that this manifestation, whatever it indicated, was probably not related to the arm convulsions and hemiplegia.

This case also illustrates the practical point that a tumor may declare itself in an irregular and unusual manner. Besides the absence of general symptoms of brain tumor, the Babinski toe reflex and ankle-clonus, which one might expect to find, were both absent in this case. The knee-jerk, however, was distinctly increased as compared with its fellow, and was a diagnostic sign of considerable value.

10. Nitrogen of Blood in Pregnancy.—Farr and Williams found by testing that in normal pregnant women the total non-protein nitrogen does not usually exceed 30 mg. per 100 c.c. of whole blood. In general hospital cases without demonstrable renal lesions it may frequently reach 40 mg. or more. Slighter disturbances of function are therefore more clearly defined in the former class. In all cases of pregnancy in which there was definite renal insufficiency or eclampsia, with one exception, there was always a slight and in most cases a considerable increase in the total non-protein nitrogen. The degree of retention was similar to that found in parenchymatous nephritis rather than the higher grade common in the interstitial variety. It bore no definite relation to the severity of the symptoms. In only one case did the figures reach a height which, according to Strauss, would suggest a dubious prognosis. This patient died; another, with much less retention, also died.

The relatively normal elimination of phthalein in some cases of eclampsia and the markedly lowered excretion in some clinically normal cases deter the author from drawing conclusions as to its real diagnostic or prognostic value. The presence of a rising blood-pressure, the condition of the urine as regards albumin and casts, and the clinical picture the authors believe are severally more important than either of the newer methods they have employed. Further experience may modify this view, for Widal considers the examination of the blood of greater prognostic, if not diagnostic value, than the examination of the urine.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

April, LXIX, No. 4, pp. 581-752

- 16 Rôle of Abdominal Cesarean Section in Treatment of Eclampsia. R. Peterson, Ann Arbor, Mich.
- 17 *Serum Diagnosis of Pregnancy by Dialysation Method. C. F. Jellinghaus and J. R. Losee, New York.
- 18 Needlessness of Combined General and Local Anesthesia. B. C. Hirst, Philadelphia.
- 19 *Aqueous Solutions of Iodin in Treatment of Gonorrhea in Women. H. J. Hartz, Philadelphia.
- 20 America's Contribution to Gynecology. E. T. Abrams, Dollar Bay, Mich.
- 21 Mechanism of Labor from Standpoint of Comparative Anatomy. E. A. Schumann, Philadelphia.
- 22 Well Authenticated Case of Sarcoma of Placenta. W. H. Cary, Brooklyn.
- 23 Case of Monstra Per Defectum. G. R. Smith, Mount Vernon, Wash.

17. Serum Diagnosis of Pregnancy.—Jellinghaus and Losee do not recommend the dialysation method for diagnostic purposes. It is entirely a laboratory procedure, the many sources of error make it absolutely unsuited for an office test, although the little box containing the reagents, etc., put up by a well-known drug firm would lead one to believe that it is. The box contains two dialysers, powdered placental albumen, etc. The powdered albumen is absolutely useless, as the authors have convinced themselves by personal trial.

They state that it seems a pity that such an outfit should be put on the market, for it will make many believe that the test is easy. If the outfit is generally used the literature will soon be crowded with positive and negative results equally devoid of value.

19. Iodin Treatment of Gonorrhea in Women.—In gonococcal infections of the lower genital tract, Hartz says iodine is a valuable agent in the treatment. It offers a more rapid, more thorough, and a more permanent improvement in the patient's condition than most other methods commonly in use. Gonococci disappear early from the secretions; intrapelvic extension is far less frequent; the use of the cautery and strong caustics is obviated and hence less scarring results. The constitutional condition of the patient improves as a result of the early cessation of the profuse discharge. The rapid improvement and lack of pain noticed by the patient encourages her to continue with the treatment. The entire course of treatment is of comparatively short duration, and but little burdensome to the patient and physician, and lends itself readily both to dispensary and private practice.

Of twenty-five cases that comprise Hartz' series, eighteen patients were cured, after treatment from four to ten weeks. Two of the remaining seven cases were markedly improved but still showed a few gonococci in the discharges from the cervix, the source of which, in all probabilities was reinfection from the husband, who also had gonorrhea, or possibly from the Fallopian tubes with patulous uterine orifices discharging the contents into the uterine cavity and hence through the cervix, or from the deep cervical glands beyond the reach of local medication. Of two patients who complained of intrapelvic symptoms, prior to the commencement of treatment, both were subsequently operated on for chronic salpingo-oophoritis, though the local condition of the lower genital tract had cleared up. The other three cases that showed improvement were under treatment from four to five weeks but drifted away from view and treatment was discontinued. One patient developed symptoms of intrapelvic involvement shortly after applications were begun, but with expectant treatment and rest in bed, her condition soon improved. Three of the eighteen patients that were cured had abscesses of Bartholin's gland which required incision and drainage.

The dilatation of the urethra by means of Hegar's dilators with light massage of the follicles over the dilator and with subsequent instillation into the urethra of the following solution: iodine (crystals), gr. v; albolene, oz. i, greatly enhanced the restoration of the parts to normal. The solution was retained in the canal from three to five minutes. The dilator if covered with Finger's ointment is also of value in these cases. Under the above outlined treatment the thick and copious yellow discharge soon disappears and is replaced by a thin whitish watery secretion in which gonococci are absent. A solution of zinc sulphate and alum one teaspoonful of each to two quarts of water used as a douche twice daily helps to limit the latter discharge.

American Journal of Orthopedic Surgery, Philadelphia
January, XI, No. 3, pp. 367-540

- 24 Treatment of Tubercular Coxitis. R. Werndorff, Vienna.
- 25 Osteomyelitis at Sacroiliac Joint with Gas-Bacillus Infection. S. M. Cone, Baltimore.
- 26 Use of Celluloid Foot Plates. E. S. Geist, Minneapolis.
- 27 Recumbency in Treatment of Pott's Disease. G. B. Packard, Denver.
- 28 Pathology of Tabetic Arthropathy. L. W. Ely, Denver.
- 29 Cervical Rib. Report of Thirty-One Cases. M. S. Henderson, Rochester, Minn.
- 30 Joint Syphilis. A. O'Reilly, St. Louis.

American Journal of Public Health, Boston
March, IV, No. 3, pp. 179-288

- 31 Occupational Diseases and Legislative Remedies. J. B. Andrews, New York.
- 32 Relationship of House-Fly to Disease. D. B. Armstrong, New York.
- 33 Midwives in America. C. C. Van Blarcom, New York.
- 34 Meaning of "Faith Cures" and Other Extra Professional "Cures" in Search for Mental Health. W. A. White, Washington, D. C.
- 35 Prevention of Carriers. W. A. Sawyer, Berkeley, Cal.

Archives of Pediatrics, New York
March, XXXI, No. 3, pp. 161-240

- 36 Infants' Milk Stations: Their Relation to Pediatric Clinics and to Private Physician. S. J. Baker, New York.
- 37 *Experiment in Collection of Human Milk for Hospital and Dispensary Uses. B. R. Hoobler, New York.
- 38 *Simple Method of Preparing Albumin Milk. B. R. Hoobler, New York.
- 39 Observations on Milk-Station Infants. M. S. Reuben, New York.
- 40 *Study of Child in Tuberculous Milieu. M. Fishberg, New York.

37. Experiment in Collection of Human Milk.—The experiment on which Hoobler reports was planned and carried out to answer the following questions: 1. Will mothers sell their surplus milk? 2. Can such milk be purchased without injury to the infant on the breast? 3. What price would have to be paid for the milk in order to secure it? 4. How much extra machinery would have to be set in motion in order to collect it? The results are summed up as follows: 1. Mothers are perfectly willing to sell their milk. 2. Certain mothers can spare a portion of their milk without detriment to their own child. 3. Human milk can be purchased at a reasonable price. 4. Its collection can be accomplished without additional machinery than may be found in connection with any well organized Social Service Department. 5. If needy mothers are chosen to furnish the milk a double charity is performed, viz., a struggling mother is helped to support herself and child, and sick babies are furnished with the best food known.

38. Simple Method of Preparing Albumin Milk.—The method described by Hoobler is as follows: Take 1 pint of fat-free buttermilk and add to it 1 pint of warm water, to which has been added 10 grams of powdered casein. This will make 1 quart of fat-free albumin milk. If it is desired to have an albumin milk containing more fat, instead of using fat-free buttermilk use artificial buttermilk made from whole milk. After the casein suspension has been added the milk can be bottled and put on ice until ready to use. The thick smooth buttermilk will hold the finely divided particles of casein in a very even suspension, and allow same to pass through the nipple without blocking, and will stand for some time without settling to the bottom of the bottle. The formula of the albumin milk made from the fat-free buttermilk is: Protein, 2.8 per cent.; fat, 0.25 per cent.; carbohydrate, 2 per cent. The formula of the albumin milk made from the whole milk buttermilk is: Protein, 2.8 per cent.; fat, 1.75 per cent.; carbohydrate, 2 per cent.

Metabolism studies have been made on children fed on this modified albumin milk, and the absorption and retention of nitrogen was in practically the same proportions as when fed on the original albumin milk. This casein flour costs 40 cents per pound, and is sufficient to make 44 quarts of albumin milk. To make the same amount from moist casein curd would require the use of 22 quarts of milk. It would seem from the foregoing that albumin milk made from casein flour accomplishes in every particular the things expected of the albumin milk made up from fresh casein curd.

40. Study of Child in Tuberculous Milieu.—The children in 217 families, in which either the father or mother, or both, were found tuberculous, were investigated by Fishberg. They were found living under conditions greatly favoring the dissemination of the disease. Of 274 consumptives found among these people, only 112 slept in a separate room, and 136 slept in beds by themselves; the rest shared their rooms or beds or both, with other persons. Inasmuch as these children were burdened by both a deleterious environment and tainted heredity, they offered splendid material for the study of the effects of the tuberculous milieu on children.

Of the 1,129 persons comprised in this group of families 792 were under 15 years of age. Nearly all of these children were reared on breast milk, only 5.5 per cent. having been brought up on artificial feeding. The proportion reacting to tuberculin was not found to have been influenced by the manner of feeding during infancy. Some mothers suffering from active tuberculosis were found suckling their infant and the latter apparently thrived as well as others of the class: many, however, infected them with active tuberculosis. The weight of the infants was fairly normal, but the children

dren over 4 years of age were deplorably short of weight when compared with others of their class. During the six months they were kept under observation, one-half remained stationary in weight, 40 per cent. had lost and 10 per cent. had gained in weight. In 8 per cent. of the children enlarged superficial thoracic veins were found. In children in whom a diagnosis of tuberculosis was made, 37.5 per cent. showed these enlarged veins and three-fourths were unilateral. Of the children showing signs of latent tuberculosis, 25 per cent. had enlarged thoracic veins.

The cervical glands were swollen in 67.8 per cent. of the children; swollen glands in the axilla, groin, etc., were exceedingly rare. Only one child was found with enlarged supraclavicular glands, and it had other symptoms and signs of tuberculosis. Hyperplastic conditions of the nose, throat and pharynx, such as enlarged tonsils, adenoids, chronic rhinitis, etc., were found in 58.6 per cent. of the children. Scrofula was rather infrequent. The external stigmata of tuberculosis, such as scrofuloderma, tuberculides, phylctenula, glandular blepharitis and conjunctivitis, keratitis, etc., were exceedingly rare among these children.

The cutaneous tuberculin test, applied twice and three times to those who reacted negative to the first application, was found positive in 7 per cent. of infants between 1 and 6 months of age. Between 6 months and 1 year of age 21 per cent. of the infants reacted positively. The percentage of positive reactions keeps on increasing with advancing age, and at fourteen years 83.79 per cent. were found infected with tuberculosis. Among the 692 children, 65 were found to be suffering from active tuberculosis. Of these 13 had tuberculosis of the bones and joints, 4 Pott's disease, 2 spina ventosa, and one tuberculosis of the glands. With active pulmonary tuberculosis, 19 children were found, and 25 with tracheobronchial adenitis. The mortality of children under 14 among these families was rather high. Of 188 children under 6 who died, 30 succumbed to meningitis, i. e., 16 per cent., of all the deaths of children under 6 years of age were due to meningitis, which is enormous when compared with the 2 per cent. of deaths due to this cause among the general population. While only 17, or 7.3 per cent., of all the deaths were said by the mothers to have been due to pulmonary tuberculosis, it must be borne in mind that in 79 cases the parents stated that the deaths were due to unknown causes.

Boston Medical and Surgical Journal

April 16, CLXX, No. 16, pp. 601-636

41 *Problems in Nephritis. H. D. Arnold, Boston.

42 Importance of Diagnosis and Treatment of Primary Syphilis. C. M. Smith, Boston.

43 Case of Bone Cyst of Os Calcis. W. P. Coues, Boston.

41. **Problems in Nephritis.**—Cases of nephritis Arnold claims do better on a low protein diet, which requires less functional activity on the part of the kidneys. The degree to which the protein should be cut down depends on the degree of impairment of the renal functions. A rough estimate can be made on the basis of allowing 90 grams of protein in the lightest cases and about 40 grams in the severe or advanced cases. Intermediate grades should have an amount of protein between these extremes, varying according to the severity of the disease. If the symptoms improve and the blood-pressure falls, the functional tests are not essential; otherwise valuable information may be obtained from them, even in the present stage of our knowledge. With the accumulation of more data, the inferences that may be drawn from these functional tests will be more and more valuable. In cases with edema, and also in the cases in which the blood-pressure remains high although the protein in the food is reduced, the amount of salt should be reduced.

As a result of further study Arnold is convinced that we shall undoubtedly divide cases of chronic interstitial nephritis into at least two or three clinical types. A better understanding of these cases and a more careful study of the problems of nephritis will lead to more intelligent treatment and resulting benefit to the patient. A proper regulation of the diet—not forgetting to provide a sufficient amount of

nutrition—will, he says, enable many of these patients to live in comfort for years longer than we have been taught to expect.

Bulletin of Johns Hopkins Hospital, Baltimore

April, XXV, No. 278, pp. 101-132

44 *Clinical Method of Studying Titratable Alkalinity of Blood and Its Application to Acidosis. A. W. Sellards, Baltimore.

45 Errors in Diagnosis of Pulmonary Tuberculosis. L. Brown, Saranac Lake, N. Y.

46 *Protective Enzymes of Body (Abderhalden). E. G. Grey, Boston.

47 Principal Types of Microorganisms in Baltimore Milk. L. P. Shippen, Baltimore.

48 Bacteriologic Findings in Baltimore Oysters. M. Joseph, Baltimore.

44. **Titrateable Alkalinity of Blood and Its Application to Acidosis.**—Changes in the titrateable alkalinity of the blood were found by Sellards to occur which give rise to distinct qualitative differences in the reaction of normal and pathologic sera to phenolphthalein. Conditions are readily obtained under which the blood serum, during an acidosis, is neutral or acid, whereas under the same conditions all normal sera are strongly alkaline. The less severe grades of diminished alkalinity can be detected in a qualitative way from the behavior of sera before and after the removal of protein and by the selection of a solvent, such as alcohol, in which the ionization and hydrolysis of carbonates are diminished. The effect of protein and of the solvent on the reaction permit a variety of combinations of these factors for detecting varying grades of diminished alkalinity.

Definite changes in the titrateable alkalinity occur in experimental and spontaneous acidosis, in certain nephropathies, and in some anemias. The method also affords information of value in the differentiation of certain obscure comas. Cases of diabetes occur in which the excretion of ammonia and of acetone and related bodies is normal, but the titrateable alkalinity is decreased and the tolerance to bases is increased. This affords proof of a definite impoverishment in bases in these cases. Changes in the titrateable alkalinity are accompanied by corresponding changes in the tolerance of the body to fixed bases. The titrateable alkalinity is of important biologic significance, while the available evidence indicates that the physico-chemical reaction of the blood is maintained at a fairly constant value, even in outspoken grades of acidosis.

The parallelism between the diminution in titrateable alkalinity and the increase in tolerance to fixed bases in diabetes and in the nephropathies affords crucial evidence that this increase in tolerance is due practically altogether to a deficit of the body in alkalies or alkali-yielding substances. The questions as to whether such a condition constitutes an acidosis will be discussed in a subsequent paper.

46. **Protective Enzymes of Body (Abderhalden).**—In transplanting epithelial organs Grey says it is necessary to remember that such a procedure stimulates the formation of antiferments in the host; and, in the case of glands, it is important to avoid any preliminary intravenous or subcutaneous feeding—perhaps oral also—of the substance, since such administrations encourage the development of protective enzymes on the part of the host. The results of Grey's work agree with the conclusions of those investigators who have found that the Abderhalden ferments are specific.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

April, VI, No. 10, pp. 155-176

49 Medical Ethics and Publicity. R. W. Johnson, Baltimore.

50 Relation of Public to Profession. C. J. Bonaparte, Baltimore.

51 Relation of Press to Physician and People. T. J. C. Williams, Baltimore.

Canadian Medical Association Journal, Toronto

April, IV, No. 4, pp. 277-372

52 Suprapubic Prostatectomy. A. McLean, Detroit.

53 *Present Position of Venesection. R. D. Rudolf, Toronto.

54 *Gastro-Enterostomy: Experimental and Clinical. F. A. C. Scrimger, E. W. Archibald and A. H. Pirie, Montreal.

53. **Present Position of Venesection.**—In many cases Rudolf says venesection is the most powerful method of treatment at our command, and, if used with great discretion, seems to be free from any bad effects. It is often indicated

in heart failure, acute or chronic, with marked cyanosis; acute toxemias, such as acute uremia; acute infections, such as typhoid and pneumonia; chronic toxemias, especially those with high blood-pressure. It may occasionally be used in cases in which one wishes to increase the coagulability of the blood, as in deep hemorrhages, and in aneurysm. Rudolf uses a method which consists in puncturing the vein through the skin with a sharp needle 2 mm. in diameter. The blood flows freely through this and if a piece of tubing, previously filled with water be attached to the needle and this be led into a vessel, then as much negative pressure may be used as desired and thus the chances of clotting in the needle are lessened.

54. Gastro-Enterostomy: Experimental and Clinical.—Placing of the stoma in the pyloric portion the authors claim as being the rational procedure. Here food will pass out by the stoma chiefly, though partly also by the pylorus if open. If an ulcer is present, it can be efficiently protected by excluding the pylorus. In both cases the animals do well. If an ulcer is found proximal to the pylorus anywhere in the pyloric portion, it can still be protected by laying a fascial ligature around the stomach between it and the anastomosis; further, in animals at least, an anastomosis placed in relatively the same position as that necessarily used in the human, if a short-loop operation is done, is much more efficient when the fascial ligature is applied immediately distal to the stoma, than when placed at the pylorus. The anastomosis in the cardiac portion, with the pylorus open, will, as has been observed by others, allow most of the food to go by the pylorus. It will afford no protection to an ulcer in that situation. More than this, in dogs at least, most of the food leaving by the pylorus reenters the stomach through the anastomosis, and the animals will not do well; they vomit and grow thin. The addition of the exclusion of the pylorus will protect an ulcer, but will not greatly improve things otherwise. The stomach will still fail to empty. The animals will vomit and grow thin.

What is the reason for the inefficiency of the stoma placed in the cardiac portion and its efficiency when in the pyloric portion? The answer according to the authors is to be found in the observations of intragastric pressure made by v. Pfungen, Kelling, Cannon and others. They proved that the pressure in the cardiac portion during digestion was low, but strikingly constant, variously estimated at from 6 to 16 cm. of water, while in the pyloric portion it is intermittently high, estimated at from 60 to 120 cm. of water, during active peristalsis. The cardiac portion is practically without peristaltic activity; its function is to maintain by tonic contractions a constant low pressure. The pyloric is strongly peristaltic, its muscle rhythmically develops relatively great power. The low pressure in the cardiac portion is insufficient to force out of the stoma so long, at least, as there is an easier path into the pyloric antrum. The high pressure in the pyloric end will force the food rapidly through any opening that is available.

Illinois Medical Journal, Chicago

April, XXV, No. 4, pp. 213-284

- 55 Cesarean Section, Report of Fourteen Cases from Services of Drs. Parkes and Danforth. W. C. Danforth, Evanston.
- 56 Injury to Pelvic Outlet Following Labor, or Any Other Cause. Should Immediate Repair Be Made? H. E. Sauer, Chicago.
- 57 *Device for Treatment of Prostatitis. C. M. McKenna, Chicago.
- 58 Carcinoma of Breast, Treated with Injections of Quinin Bisulphate and Roentgen Rays. M. Reichmann, Chicago.
- 59 Are Criminals Insane Individuals? C. H. Anderson, Menard.
- 60 Constitutional Immorality. P. E. Bowers, Michigan City, Ind.
- 61 Data Gathered in Study of Two Hundred and Sixty-Nine Murderers. R. Sleyster, Waupau, Wis.
- 62 Ways and Means of Preventing Physical, Mental and Moral Degeneracy. G. H. Hill, Des Moines, Iowa.
- 63 Deterioration in Dementia Praecox. C. Rickler, Kankakee.
- 64 Wassermann Reaction in Dementia Praecox. M. A. Bahr, Indianapolis.
- 65 Modern Conceptions of Paranoiac State. C. F. Read, Chicago.

57. Device for Treatment of Prostatitis.—The device which McKenna describes is a glass suction tube that fits into the rectum in such a way that hyperemia of the prostate and its surrounding tissue may actually be produced.

Journal of Abnormal Psychology, Boston

March, VIII, No. 6, pp. 361-428

- 66 Productions in Manic-Like State Illustrating Freudian Mechanisms. J. T. Maccurdy, Ward's Island, N. Y.
- 67 Slips of Tongue and Pen. C. P. Oberndorf, New York.
- 68 Three Examples of Name-Forgetting. H. W. Frink, New York.
- 69 Inventorial Record Forms of Use in Analysis of Dreams. L. H. Horton, Boston.
- 70 Freudian Psychology and Psychic Research. L. T. Troland.

Journal of Nervous and Mental Disease, Lancaster, Pa.

April, XL, No. 4, pp. 209-272

- 71 Case of Amyotonia Congenita. C. C. Beling, Newark, N. J.
- 72 Nature and Cutaneous Sensation, with an Instrument for Its Measurement. W. Timme, New York.

Lancet-Clinic, Cincinnati

April 11, CXI, No. 15, pp. 427-460

- 73 Serum Treatment of Puerperal Sepsis: Report of Three Cases. H. L. Woodward, Cincinnati.
- 74 *Camphor in Pneumonia. O. J. Seibert, Cincinnati.
- 75 General Cutaneous Emphysema in Whooping-Cough. C. A. Stammel, Jr., Cincinnati.
- 76 Diagnosis and Treatment of Tic Douloureux. V. P. Blair, St. Louis.

74. Camphor in Pneumonia.—The method used by Seibert is very simple and painless. After sterilizing the skin with tincture of iodine and cocainizing the subcutaneous tissue with a 2 per cent. solution of cocaine, with either a Luer or a Record syringe, he injects 10 cc. to the 100-weight of a 30 per cent. camphorated sesame solution and repeats this every eight or twelve hours, according to the severity of the infection. The best location for the injections is the outer side of the thigh, beginning high up and alternating thighs. As in any other bacterial infection, the earlier the treatment is begun the better and quicker the results.

Medical Record, New York

April 18, LXXXV, No. 16, pp. 691-736

- 77 Syphilis in Relation to Life Insurance. H. H. Schroeder, New York.
- 78 Present Status of Typhoid Immunization in Hospitals and Training Schools of New York. A. Meyer, New York.
- 79 Case of Facial Hemiatrophy. M. Neustaetter, New York.
- 80 Visualization of Upper Intestinal Tract, by Means of Roentgen Rays in Conjunction with Use of Improved Duodenal Tube. L. O. Palefski, New York.
- 81 Isoserum Treatment of Incoercible Vomiting of Pregnancy. C. K. Austin, Paris.
- 82 Cancer Statistics. A. L. Benedict, Buffalo.
- 83 Epidemic Icterus. A. Strauch, Chicago.

Michigan State Medical Society Journal, Grand Rapids

April, XIII, No. 4, pp. 211-285

- 84 Present Status of Surgery of Systemic Goiter. W. S. Bainbridge, New York.
- 85 Etiology and Pathology of Lobar Pneumonia. B. M. Edlavitch, Fort Wayne, Ind.
- 86 Symptomatology and Diagnosis of Pneumonia. H. B. Schmidt, Ann Arbor.
- 87 Albumin Content of Sputum: Its Value in Diagnosis and Prognosis of Tuberculosis. M. L. Holm and E. R. Chambers, Lansing.
- 88 *Experiments to Test the Toxicity of Mother's Milk after Administration of Acetanilid. B. A. Stevenson, Detroit.
- 89 Pelvic Infections. G. V. A. Brown, Detroit.
- 90 Syphilis of Nervous System. T. Klingmann, Ann Arbor.
- 91 Retrospect. E. T. Abrams, Dollar Bay.
- 92 Tonsillitis. J. J. Reycraft, Petoskey.
- 93 Elephantiasis. Case Report. H. C. Rockwell, Diamondale.

88. Acetanilid in Mother's Milk.—To ascertain whether acetanilid does appear in the milk of a nursing mother and if so, whether in sufficient quantity to cause the death of an infant, tests were made by Stevenson. The babies were put on artificial food and the drugs were administered to the mothers and specimens obtained. In one set of experiments the reaction of the urines to the reagents was in each case definitely positive or negative, but the reaction of the milk specimens was not so satisfactory. The specimens from one patient were not uniform in color when first taken and there was considerable confusion after the addition of the reagents owing to the many shades and tints that were exhibited. It was decided that this might be due to the presence of the casein, so in the next set of experiments hydrochloric acid was added to each specimen and it was then boiled and filtered. With the comparatively clear filtrate thus obtained it was possible to be very positive about the reaction.

In this set of experiments the milk and all the urine secreted for thirty consecutive hours was obtained for the tests. The precipitation of the casein obviated the confusion in the color reactions. In the twenty-four specimens of milk and twenty specimens of urine examined there was a very faint reaction in but three specimens, these reactions occurring in thirty hours after the first and fifteen hours after the second dose. The babies began nursing as soon as the experiments were concluded and none of them showed any ill effects. From these experiments it would seem that acetanilid derivatives are at times eliminated but that more frequently there is no trace of them. The quantity found in each case was so minute that it could only be detected by holding the specimen against a white background. The time of the first appearance of the reaction after the administration of a dose of 4 grains varied from seven to fifteen hours.

Modern Hospital, St. Louis

April, II, No. 4, pp. 203-266

- 94 New Montefiore Home for Chronic Invalids. S. Wachsmann, New York.
- 95 Functions of Modern Hospital. R. O. Beard, Minneapolis.
- 96 Standardization of Hospital Plumbing Fixtures. W. B. Stratton, Detroit.
- 97 Organization of Housekeeping Department. H. Crawford, Baltimore.
- 98 Student Government in Industrial School. A. M. Clay, Chillicothe.
- 99 Mechanic Ventilation of Hospitals. T. J. Van der Bent, New York.
- 100 Cobb Building of Seattle for Physicians and Surgeons. A. H. Albertson, Seattle.
- 101 Organization and Management of Housekeeping Department. E. A. Greener, Muskegon, Mich.
- 102 Small Hospital of Low Cost. V. A. Matteson, Chicago.
- 103 Hospital Aid for Handicapped. B. Hollings, Cambridge, Mass.

New York State Journal of Medicine

April, XIV, No. 4, pp. 175-228

- 104 Relation of Ileocecal Valve to "Lane's Kink." W. F. Campbell, Brooklyn.
- 105 Treatment of Typhoid. W. S. Gleason, Newburgh.
- 106 Recognition of Early Heart-Insufficiency. A. T. Lytle, Buffalo.
- 107 Management of High Blood-Pressure. F. C. Rice, Ripley.
- 108 Blood-Pressure in Pulmonary Tuberculosis. L. Shalet, New York.
- 109 Hematuria: Its Pathologic and Diagnostic Import. L. F. Schiff, Plattsburgh.
- 110 Treatment of Fibroids by Deep Roentgenotherapy. J. J. Levy, Syracuse.
- 111 Pathology and Treatment of Chronic Gonorrheal Urethritis in Male. J. D. Olin, Watertown.
- 112 Recent Advances in Neurology and Psychiatry. E. L. Hanes, Rochester.
- 113 Burden of Mental Defect. H. G. Matzinger, Buffalo.
- 114 Relation of General Practitioner to Public Health. A. MacFarlane, Albany.
- 115 Surgical Treatment of Cholecystitis. M. O'Meara, Kingston.
- 116 Lichen Implanus. W. B. Cunningham, New York.
- 117 Prevention of Tuberculosis by Medical Inspection of Schools. M. E. Lapham, Highlands, N. C.
- 118 *Case of Sciatica, Treated with an Autogenous Vaccine. H. Greeley, Brooklyn.
- 119 Publicity in Lay Press by Members of Society. F. E. Sondern, New York.

118. **Sciatica Treated with Autogenous Vaccine.**—Greeley made a vaccine from a throat coccus, and at once gave the patient a dose of 100 millio, killed by one hour at 60 C. The patient developed no reaction of any kind (not even at puncture). His temperature continued normal or a little below, and at the end of a week Greeley doubled the dose. This increased the pain, which had remained about constant, and developed 0.5 F. temperature elevation which disappeared within twenty-four hours. Three days later he was up and about, greatly improved, and at the end of the week was given the third dose, 400 million. This reacted about as the preceding, but when he returned again, seven days later, all pain had disappeared, and a final precautionary dose of double the last was given without any following reaction, and the patient has been without the least symptom of the malady for the past five months.

Northwest Medicine, Seattle, Wash.

April, VI, No. 4, pp. 91-120

- 120 Insane in Washington Territory. T. W. Prosch, Seattle.
- 121 Some Phases of Chronic Membranous Pericarditis. N. W. Jones, Portland, Ore.
- 122 Perforating Duodenal Ulcer with Reference to Pain in Left Shoulder as Symptom. A. A. Matthews, Spokane.
- 123 Recent Observations in Nephritis. G. G. Richards, Salt Lake City.

- 124 Blood-Pressure in General Practice. R. W. Stearns, Medford, Ore.
- 125 Surgical Problems of Country Physician. G. W. States, Preston, Idaho.
- 126 Cancer Control Precancerous Lesions. J. C. Bloodgood, Baltimore.
- 127 Relation of Roentgenologic Specialist to Medical Profession. E. F. Tucker, Portland, Ore.

Southern Medical Journal, Nashville

April, VII, No. 4, pp. 261-344

- 128 *Pathology of Heart in Rheumatic Infection in Children. W. W. Harper, Selma, Ala.
- 129 Symptoms of Rheumatism in Childhood. H. P. Dawson, Montgomery, Ala.
- 130 Mumps. J. S. Turberville, Century, Fla.
- 131 Cocain as Respiratory Stimulant. G. E. Pettey, Memphis.
- 132 Report of New York Commission on Milk Standards. W. A. Evans, Chicago.
- 133 Dairy Inspection in Cincinnati. J. H. Landis, Cincinnati.
- 134 Sanitary Milk Surveys in Kentucky—Some Facts, Methods and Results. R. M. Allen, Lexington, Ky.
- 135 Ununited Fractures. D. Eve, Nashville.
- 136 Indigestion as Seen by Surgeon, with Illustrative Case Histories. W. B. Thorning, Houston, Tex.
- 137 Growths and Syndromes of Thyroid Requiring Operation. W. D. Haggard, Nashville.
- 138 Case of Priapism Relieved by Intravenous Injections of Salvarsan. C. W. Shropshire and C. J. Watterston, Birmingham, Ala.
- 139 *Surgical Treatment of Anuria. G. R. Livermore, Memphis.
- 140 Case of Anorectal Imperforation with Autopsy Findings. H. P. Cole, Mobile, Ala.
- 141 Foreign Body in Sphenoid Cavity. R. B. Nelson, Memphis.
- 142 Treatment of High-Pressure Disease. S. R. Roberts, Atlanta, Ga.
- 143 Accommodation in Eyes of Persons Above Forty Years of Age. D. S. Reynolds, Louisville, Ky.

128. Abstracted in THE JOURNAL, Dec. 20, p. 2269.

139. **Surgical Treatment of Anuria.**—In Livermore's method the kidneys are exposed, delivered and stripped of their capsules, a 1/2-inch incision is then made in the cortex of each kidney, in the center of its convex border and continued into the pelvis. A strip of gauze 1/2-inch wide is saturated with a 10 per cent. ichthyol in glycerin solution, grasped with dressing forceps and carried through the incision in the cortex into the pelvis of the kidney. The gauze may be packed directly into the pelvis of the kidney instead of going through the cortex, but Livermore believes it better to have the action of the ichthyol and glycerin on both cortex and pelvis. The kidneys are then returned to their positions and the wounds closed with the drains coming out in the center of the wounds. The gauze should be renewed in twenty-four hours and the wounds again packed with fresh gauze saturated with the ichthyol glycerin solution. Repeat procedure till free diuresis is established.

West Virginia Medical Journal, Wheeling

April, VIII, No. 10, pp. 327-360

- 144 Physiologic and Pathologic Relations of Eye and Accessory Sinuses of Nose. C. B. Wylie, Morgantown.
- 145 State Department of Health. F. V. Beitler, Halethorp, Md.
- 146 Need of State-Wide Sanitary Inspection. W. A. McMillan, Charleston.
- 147 Commercialism vs. Ethics. J. E. McDonald, Logan.
- 148 Present Status of Tonsil and Adenoid Surgery. I. Fawcett, Wheeling.
- 149 Case of Double Cryptorchidism. C. E. Grimm, St. Marys.
- 150 Case of Musculospiral Paralysis. M. Mendeloff, Charleston.
- 151 Ectopic Lentis. J. L. Dickey, Wheeling.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

April 4, I, No. 2779, pp. 745-800

- 1 Lister: Laboratory and Bedside. R. H. Russell.
- 2 *Infection by B. Coli in Puerperium, and on Infective Conditions of Pregnancy. H. J. S. Simson and J. M. Bernstein.
- 3 Plague in Ceylon. A. Castellani and M. Philip.
- 4 Instrument for Detection of Slight Degrees of Nasal Obstruction. H. A. Kisch.
- 5 Case of Temporo-Sphenoidal Abscess in Course of Chronic Otitis Media. A. Ryland.
- 6 Two Cases of Ocular Disease Associated with Pyorrhea Alveolaris. S. G. Tibbles.
- 7 Hygienic Aspect of Coal-Mining Industry in United Kingdom. F. Shufflebotham.

2. **Infection by B. Coli in Puerperium.**—In all cases of pregnancy and especially in primiparae, if there be symptoms pointing to bladder irritation, or a previous history of so-called ague or malaria, the authors insist that the bacterial

examination of a catheter specimen of the urine is indicated. If a condition of bacilluria be found, then a prophylactic course of vaccines is called for, and may prevent serious complications later on.

As regards treatment of the actual infection itself during the puerperium, Simson and Bernstein state that there can be no doubt that autogenous vaccines give by far the best results. In puerperal fever there has been a tendency to administer immediately antistreptococcus serum; but, though this may give favorable results occasionally in puerperal septicemias, it is obvious that it can be of no use in *B. coli* infections. It is certain that the stock *B. coli* vaccines are not nearly so efficacious as are the autogenous vaccines, for already the bacillus alters its characters with its environment, and it is usually one of the many atypical varieties of the *B. coli* which causes the infection. In Case 1 of this series no improvement followed the administration of a stock *B. coli* vaccine. While there must be delay in preparing an autogenous vaccine, there is no extreme urgency in these infections, and it is possible to hasten the process so that the first dose may be given in less than twenty-four hours. As a rule, improvement is rapid, and after the first dose the temperature may fall and the toxic symptoms be relieved, whilst the bacteria may disappear from the urine. But even so, one must be guarded in giving a prognosis of rapid return to health or in discontinuing the treatment too soon; for, though it is easy to control the bacterial activity, in some cases it is difficult and occasionally impossible entirely to inhibit them. Consequently the vaccines should be continued in increasing doses at increasing intervals of time for several weeks and the further treatment controlled by periodical examinations of the urine. Three cases of autogenous *B. coli* infection are cited.

Bristol Medico-Chirurgical Journal

March, XXXII, No. 123, pp. 1-96

- 8 *Diseases of Lungs Associated with Presence of Friedländer's Bacillus. J. M. Clarke.
- 9 Unusual Conditions Found in Operating for Radical Cure of Hernia. C. A. Morton.
- 10 *Digital Percussion and Cardiac Sign in Carcinoma. W. Gordon.
- 11 Simulation of Aortic Aneurysm by Other Aortic and Cardiac Diseases. C. Coombs.
- 12 Fibroid Uterus. W. H. C. Newnham.
- 13 Hyperpiesis and Arteriosclerosis. C. W. J. Brasher.
- 14 Electric Reactions in Facial Paralysis, Especially in Reference to Prognosis in Post-Operative Cases. J. P. I. Harty.

8. **Diseases of Lungs.**—Clarke reports three cases of lung disease caused by the bacillus of Friedländer in which the distribution and character of the lesions were thus exactly those of progressive pulmonary tuberculosis. It does not correspond to the ordinary position of bronchiectases, which usually most affect the lower lobes. In one case differences from pneumococcal pneumonia were seen in the irregular oscillations of the temperature, the character of the sputum, which was yellowish-green, abundant and not blood-stained, and the absence of dense consolidation. The signs at the right apex for two or three days suggested the possible formation of a cavity. In two other cases the pulmonary lesions were those typical of chronic pulmonary tuberculosis with excavation. So typical were the lesions in character and especially in distribution, that from the physical signs the diagnosis of chronic phthisis was made. The pathologist reported that no tubercle bacilli could be found in the sputum after repeated and careful investigation. The sputum was large in quantity, purulent and slightly offensive. The first culture showed presence of *B. Friedländer* and *M. catarrhalis*. Repeated examinations for tubercle bacilli were made, but always with a negative result. There were no elastic fibers in the sputum.

10. **Cardiac Sign in Carcinoma.**—The cardiac sign in carcinoma referred to by Gordon is a remarkable diminution of the area of cardiac dulness in the recumbent posture as determined by digital percussion. In that posture the dulness, in the normal adult, begins above about the third costal cartilage, reaches rightwards as nearly as possible to the midsternal line, and measures across about 3 to 3½ inches at the level of the fifth costal cartilage. On the other hand,

in the carcinoma patient who presents the sign, the cardiac dulness in recumbency begins above about the fourth or fifth costal cartilage, has its rightward edge about ½ inch or 1 inch to the left of the midsternal line, and measures across less than 2 inches at the level of the fifth costal cartilage. Often it measures less than 1 inch across. Sometimes there is no cardiac dulness at all. The sign is often associated with a remarkably soft and toneless pulse and feeble heart sounds.

Certain limitations exist as to the significance of the sign. Thus when any cause is present, tending, like ordinary emphysema, to reduce the area of cardiac dulness, then a very small dulness naturally conveys no special meaning. On the other hand, when there is any well-known cause of enlargement of heart dulness, such as albuminuria, valvular heart disease, pericarditis or retraction of lung from phthisis or past pleurisy, then the absence of the sign is equally without significance. Moreover, where the heart is displaced considerably upward the absence of the sign is unreliable, since the organ has been moved from a wider into a narrower space, in which it is not so free to fall back from the anterior chest-wall on recumbency. And lastly, where a large esophageal carcinoma has lain directly behind the heart, Gordon believes that the absence of the cardiac sign was due to the growth pinning the organ forward against the sternum and rib cartilages. Of a total of 111 cancerous cases analyzed by Gordon, 97 (87 per cent.) gave the sign, whereas of a total of 107 non-cancerous cases only 18 (16 per cent.) gave it.

Glasgow Medical Journal

April, LXXXI, No. 4, pp. 241-319

- 15 Malingering. J. Collie.
- 16 Abdominal Emergencies. J. Morton.
- 17 Dangers of Light Anesthesia. G. H. Clark and E. P. Cathcart.

Journal of Obstetrics and Gynecology of British Empire, London

February, XXV, No. 2, pp. 53-112

- 18 Positive Value of Abderhalden's Test in Diagnosis of Pregnancy. R. L. M. Wallis.
- 19 Successive Tubal Gestation Associated with Blood Cyst of Ovary. Laparotomy on each Occasion. Recovery. A. C. Butler-Smythe.
- 20 Three Atypical Cases of Post-Partum Pyelitis. H. L. Murray.
- 21 Uterus Didelphys, Both Horns of which have been Pregnant at Different Times. J. H. Smith.
- 22 Hysterectomy for Hydatid Mole. W. E. Fothergill.
- 23 Carcinoma in Double Uterus (Uterus Septus Bicornis with Vagina Duplex.) R. C. Buist and J. M. Valentine.
- 24 Uterus in Hernial Sac of an Hermaphrodite. S. Clark.

Lancet, London

April 4, I, No. 4727, pp. 947-1016

- 25 Medico-Social Problems from an Insurance Point of View. T. Oliver.
- 26 *Physiology and Pathology of Uterine Hemorrhage. H. B. Whitehouse.
- 27 *Causes of Failure of Vaccine Therapy. W. M. Crofton.
- 28 Operative Treatment of Pulmonary Tuberculosis. H. M. Davies.
- 29 Diagnosis of Pulmonary Tuberculosis by Roentgen Rays. A. C. Jordan.
- 30 *Case of Thoracic Aneurysm of Unusual Size. G. Cooper.
- 31 *Extrathoracic Aneurysm of Transverse Arch of Aorta. D. W. K. Moody.

26. **Uterine Hemorrhage.**—It appears desirable to Whitehouse that a careful investigation should be made of the discharge in every case of obscure uterine bleeding. The points in the investigation to which special attention should be directed are: 1. The presence or absence of thrombi within the vagina. 2. The formation of thrombi within the discharge after the fluid has been allowed to stand. 3. The thrombolytic power of the secretion. 4. The calcium content of the same. 5. The microscopic characters of the deposit obtained after centrifugalization of the fluid collected directly from the uterine cavity in order to obtain an index of the degree of tissue destruction. Six hundred and eight cases were analyzed by Whitehouse.

It was evident that displacements of the uterus do not directly produce excessive uterine hemorrhage. Thus, out of a total of eighty-eight cases of retrodisplacements only thirty-eight gave evidence of menorrhagia and of the latter only fifteen had intermenstrual losses. In those cases in which hemorrhage was present a careful review of the case histories did not show that the displacement was more

acute than in patients in whom no bleeding was present. On the other hand the proportion of irregular bleeding was considerably greater in the complicated cases than in those that are simple. With prolapsus uteri it was found that out of a total of eighty-nine cases only thirteen showed evidence of excessive bleeding. Fibrosis and chronic metritis was in a very large proportion of cases associated with uterine bleeding. Thus, in a total of twenty-seven cases, twenty-three suffered from menorrhagia. Hemorrhage in cases of fibrosis uteri is probably due to two factors: (a) changes in the endometrium, and (b) loss of contractility of the metrium owing to its replacement by fibrous tissue. Out of a total of seventy-three cases of endometritis fifty-six were associated with menorrhagia and twenty-nine with metrorrhagia. A thorough investigation of the cases classed clinically as "endometritis" showed that sixty-one of the patients were married, and of these forty-three directly attributed the irregular hemorrhages to the last labor or abortion at intervals varying from three months to one year. The irregularity, in fact, dated from the resumption of function. Examination of the curettings revealed the following facts: (a) twenty-five cases showed what in the past was designated "glandular endometritis"; (b) nine cases showed all the characteristics of the so-called "interstitial endometritis" of Ruge's classification; (c) atrophic "endometritis" was present in two; (d) plasma cells and marked leukocytic infiltration appeared in seven. In other words, thirty-four exhibited only evidence of those changes known to be but physiologic, and therefore could not be classed as "endometritis." Endometritis of septic origin does not appear to produce uterine hemorrhage. Thus, in a series of fifteen cases where curettage was performed for discharge and pain, the endometrium was infiltrated with plasma cells and leukocytes. Hemorrhage was absent. Hypertrophy of the endometrium, in its diffuse form, occurs under the name of "glandular hypertrophy"; its localized variety is the common "adenomatous polypus." Hemorrhage is usually profuse and appears to be due to excessive thrombolysis of the uterine clot. Cystomata of the ovary rarely cause interference with the menstrual function. Displacements of this organ as a general rule do not produce excessive uterine hemorrhage. Hypertrophy of the ovary affects the stroma rather than the Graafian follicles, and the close association of the condition with hypertrophy of the endometrium appears to afford clinical evidence that it is from the ovarian stroma that the specific hormone is derived. Pelvic inflammation is not infrequently associated with excessive hemorrhage from the uterus. Thus in 176 cases 67, or 38 per cent., were accompanied by menorrhagia. Whitehouse is inclined to think that the hemorrhage is the result of interference with venous return rather than to any specific effect either on endometrium or ovary, since it occurs not only in connection with inflammatory lesions related to the sexual organs, but also in cases secondary to extragenital inflammation, such as appendicitis. The value of curettage in the therapeutics of uterine hemorrhage Whitehouse says is principally for diagnostic purposes. If the examination of the curetted endometrium is taken in conjunction with an analysis of the menstrual discharge, and care taken to correlate the appearances of the endometrium with the period of the sexual cycle, much valuable information may be gained as to the cause of a specific hemorrhage. Curettage at the two extremes of sexual life is, in his opinion, a useless procedure except for diagnostic purposes. It is not possible to alter the character of the endometrium by any amount of curetting. This is proved by examination of repeated curettings from the same uterus, and it accounts for the fact that in glandular hyperplasia of the endometrium curettage is only of temporary benefit. Treatment to be successful must be based on a physiologic and pathologic basis. Thus, where hemorrhage is due to the absence of thrombokinase, attempts may be made to replace the same. Fibrin ferment directly applied to the endometrium is also of service in directly checking hemorrhages of this nature. If bleeding is due to excessive thrombolysis, the result of hyperplasia of the endometrium, temporary relief may be

obtained by curetting. If bleeding recurs Whitehouse suggests that partial oöphorectomy be performed. Where hemorrhage appears to be the result of venous stasis appropriate means must be taken to relieve the same, either by purgation in the case of portal congestion or operation where the cause is severe and chronic inflammation. In those cases in which the uterus has lost its power of regulating the supply of blood to the endometrium, such as in fibrosis or arteriosclerosis, hysterectomy appears to be the safest and best method of treatment.

27. Causes of Failure of Vaccine Therapy.—The potential causes of failure mentioned by Croften are: 1. Failure of patient to react. 2. Failure to diagnose the infecting microbes. 3. Incomplete immunization. 4. Failure to give the doses at proper intervals.

30. Thoracic Aneurysm of Unusual Size.—The tumor in Cooper's case measured $22\frac{1}{4}$ inches round the base, 9 inches from the upper pole of the tumor to the lower pole across the most prominent part, and $11\frac{1}{2}$ inches measured right to left across the tumor.

31. Extrathoracic Aneurysm of Transverse Arch of Aorta.—In Moody's case the tumor measured 23 inches in circumference and 11 inches across.

Quarterly Journal of Medicine, London

April, VII, No. 27, pp. 209-323

- 32 *Paroxysmal Tachycardia. H. G. Butterfield and G. H. Hunt.
- 33 Cholesterin: An Account of Its Relations to Pathology and Physiology. J. W. McNee.
- 34 *Bilateral Salivary Swellings (Mikulicz' Disease). H. Thursfield.
- 35 *Prognosis of Acute Articular Rheumatism, with Special Reference to Cardiac Manifestations. C. G. Kemp.
- 36 Anaphylaxis and Its Bearing on Medicine. Critical Review. J. McIntosh.
- 37 Bacterial Endocarditis. Critical Review. I. Simons.

32. Paroxysmal Tachycardia.—Four cases of paroxysmal tachycardia are described by Butterfield and Hunt, in three of which the heart was examined histologically. In the first case the focus from which the ectopic beats arose was diagnosed as being situated in the ventricles. Post mortem, the interventricular septum was the site of the most extensive disease. In the second and third cases the tachycardia was supraventricular in origin, in one case being auricular, in the other either auricular or nodal. In both these cases the most marked lesions were found in the neighborhood of the sino-auricular node. The histologic examination thus confirms the diagnosis made from the electrocardiograms. The fourth case was one of auricular origin; in the intervals between the attacks the patient enjoyed fairly good health.

34. Bilateral Salivary Swellings.—Clinically, Thursfield says, it is possible to recognize at least eight groups of cases in which bilateral swellings of the salivary glands, either with or without an accompanying enlargement of the lymph-nodes, form the most characteristic symptoms. 1. A congenital hereditary or family affection. 2. "Mikulicz' disease" proper. 3. "Mikulicz' disease" with involvement of the lymphatic apparatus. 4. Leukemia. 5. Tuberculosis. 6. Syphilis. 7. Gout. 8. Sialodochitis fibrinosa; intermittent or periodic salivary swelling. In addition there are from time to time met with cases which do not appear to belong to any of these groups.

The treatment which appears to promise the best results is to remove carefully any possible source of chronic infection, e.g., decayed teeth; to seek to establish the general health; to give arsenic in the largest doses which can be tolerated and to treat the actual swelling with the Roentgen ray.

35. Prognosis of Acute Articular Rheumatism.—An examination of a considerable number of cases of acute articular rheumatism has convinced Kemp that 23 per cent. of patients go through one or more attacks of acute rheumatism without any clinical affection of the heart, irrespective of the age when first attacked; 22 per cent. developed signs of carditis in the acute stage, these signs disappearing during convalescence; 18 to 20 per cent. of the cases which develop signs of endocarditis, not clearing up before patient leaves the hospital, have no permanent valvular lesion, the murmurs being

due to myocarditis, or incompetence from temporary hyperemia of the valves, associated with dilatation. If a synovial membrane can recover, why should not a heart valve? In 14.5 per cent. of cases with acute rheumatism endocarditis of severe type, the murmurs undergo a change, resulting in the disappearance of one or more of the murmurs, such murmurs being due to associated dilatation; as a rule, the murmurs due to myocarditis are softer in character than those due to valvular disease. Cases in which the heart is going to recover completely show signs of such recovery within twelve months of the acute attack, though the process may not be completed till some years later. Graupner's test for the estimation of the cardiac efficiency has not been proved to be of any value in enabling one to recognize the presence or degree of cardiac weakening, not appreciable by the methods already in general use. The amount of physical work which each individual can do in earning his or her living is a far more reliable and efficient test of the heart's working capacity.

Bulletin de l'Académie de Médecine, Paris

March 17, LXXVIII, No. 11, pp. 383-414

- 38 Adiposis Dolorosa in Man of 55. (Maladie de Dercum avec infiltrations massives disséminées et hyperplasies mammaires chez un adulte.) H. Hallopeau and E. Dainville.
- 39 Case of Congenital Torticollis. (Considérations pathogéniques et thérapeutiques.) L. Picqué.

Lyon Médical, Lyons

March 8, XLVI, No. 10, pp. 521-560

- 40 Tuberculosis a Cause of Nodular Erythema. Carle.
- 41 Antityphoid Inoculation Eradicates Long Endemic Typhoid in Certain City District. (Une expérience de vaccination antityphique en champ clos.) E. Briau.

March 22, No. 12, pp. 633-680

- 42 *Pathogenesis and Etiology of So-Called Idiopathic Hypertrophic Myocarditis. J. Paviot. Commenced in No. 11.

42. **Myocarditis and Hypertrophy.**—Paviot describes in detail two cases of large hypertrophied heart, without valvular lesions, with no sclerosis of the cardiac muscle and without any primary lesion of the kidneys. This so-called idiopathic myocarditis is a slow and long continued inflammatory process caused in the two cases described by tuberculosis but it may be due to other diseases, particularly syphilis.

Presse Médicale, Paris

March 25, XXII, No. 24, pp. 229-236

- 43 *Tropical-Germ Carriers. (Importateurs de maladies exotiques.) L. Landouzy and R. Debré.

March 28, No. 25, pp. 237-244

- 44 Cancer in the Appendix. (Tumeurs endocrines de l'appendice.) A. Gosset and P. Masson.
- 45 Tardy Bone Disease from Inherited Syphilis. P. V. Badin.
- 46 Congenital Absence of Sacrum. (Bassin rétréci par absence de sacrum.) P. Desfosses.

43. **Importers of Germs of Tropical Diseases.**—This communication was summarized in the Paris Letter, p. 1267.

Revue de Médecine, Paris

March, XXXIV, No. 3, pp. 161-240

- 47 *Hyperchlorhydria and Hyperthyroidism. G. Marañon.

47. **Hyperthyroidism and Hyperchlorhydria.**—Marañon says that certain cases of functional gastric complaints are caused by disturbances in internal secretion. Hyperchlorhydria is frequently found associated with symptoms indicating excessive functioning of the thyroid gland. Hyperthyroidism includes many cases that do not show the classical symptoms of Basedow's disease. They are the mild or abortive cases, the *formes frustes* of the French authors. He calls these the vagotonic cases; and it is they, rather than the typical exophthalmic goiter cases, that show hyperchlorhydria. He thinks that the excessive secretion of gastric juice is caused by stimulation of the pneumogastric nerve by the thyroid secretion.

Twenty case-histories are given. He concludes that in many cases now diagnosed as gastric neuroses there is a latent hyperthyroidism that is not discovered. This is confirmed by the fact that many of his patients in this group improved under antithyroid medication. It is this class of

patients with hyperthyroidism that are benefited most by thyroidectomy. The best drug remedy is atropin as it has an inhibitory effect on the pneumogastric.

Revue Médicale de la Suisse Romande, Geneva

February 20, XXXIV, No. 2, pp. 89-136

- 48 Infant-Welfare Work. (Puériculture élémentaire à l'usage des médecins, des sages-femmes et des mères de famille.). A. Montandon.
- 49 Experiences at the Balkan War. (2 mois en Serbie pendant la seconde guerre balkanique.) E. Bourquin.
- 50 Serious Serum Sickness after Injection of Antitetanus Serum Eleven Years after Injection of Diphtheria Antitoxin. P. Gautier.

March 20, No. 3, pp. 137-232

- 51 *Hemolytic Jaundice. (Les ictères hémolytiques.) M. Roch.
- 52 *Blunders in Diagnosing Extra-Uterine Pregnancy. L. Aubert.
- 53 *Intraspinal Injection of Magnesium Sulphate in Treatment of Tetanus. H. Vulliet.
- 54 *Injections of Oxygen in Treatment of Nervous and Mental Disease. M. Dardel.

51. **Hemolytic Jaundice.**—The special feature about this form of icterus is the intensity of the jaundice in contrast to the fine state of the health in general. Roch reviews the history and various questions connected with this type of jaundice, commenting on the enlargement of the spleen and the apparently normal functioning and behavior of the liver except that small concretions of pigment may develop calcium bilirubinate stones which may induce attacks of colic in the liver. The abnormal fragility of the red corpuscles is shown by adding a drop of the blood to each of six test-tubes containing from 60 to 70 drops of a 7 to 9 per thousand salt solution with enough drops of distilled water added to bring each to 70 drops. Each tube is centrifuged and the fluid turns pink or red proportionally to the resisting power of the reds. The serum does not seem to contain free hemolysins, but the spleen is very large and at times is painful. One patient has developed a pigmented retinitis, showing that the excess of pigment is not always an indifferent matter. Treatment of underlying syphilis, malaria or helminths should be supplemented by means to prevent hemolysis and stimulate regeneration of the blood, arsenic, calcium chlorid, organotherapy or cholesterin. The latter seems to be proving useful in checking hemolysis in pernicious anemia, hemolytic icterus and hemoglobinuria. It has not been used in a sufficient number of cases for a decisive judgment, but to date the results have been very encouraging. Splenectomy might also be considered in extreme cases; exposure to the Roentgen rays might answer the same purpose.

52. **Blunders in Diagnosing Extra-Uterine Pregnancy.**—Aubert tabulates the details of five cases in which a tubal pregnancy was mistaken for appendicitis, uterine abortion, perforation of an ulcer or twisted ovarian cyst. A delay in the menses for a few days to three months was found in all; one had no pain before the acute onset of trouble; another had had abdominal pains for a year; the cervix was hard in all but two cases. The right culdesac felt doughy and tender in one, a trifle tender in another; negative in a third, but in the three others a tumor gradually developed in the adnexa. The main point is to bear in mind that women sometimes deceive themselves, while others strive to deceive the physician, not only in regard to a pregnancy but any gynecologic affection. Even when abortion is diagnosed its extra-uterine location may be overlooked.

53. **Intraspinal Injection of Magnesium Sulphate in Treatment of Tetanus.**—Vulliet reports two cases of tetanus but only one patient recovered and this was not the one treated with magnesium sulphate. He warns that while this drug seems to be proving a powerful weapon in fighting tetanus, yet we must not forget that it is a two-edged sword, liable to do more harm than good. He injected into the spinal canal 0.06 c.c. of a 15 per cent. solution repeated two days later. The boy's leg had been cut by a cart and a physician had disinfected the wound and coaptated the lips with clamps. It healed promptly but symptoms of tetanus developed in two weeks.

54. **Injection of Oxygen in Nervous and Mental Disease.**—Dardel was encouraged by the success of Toulouse in this line to try subcutaneous injections of 300 to 500 c.c. of oxygen

in various nervous and mental affections, and here reports the results in twelve cases. The procedure seems entirely harmless, he says, and brought apparently natural sleep to persons long suffering from insomnia or restlessness. It seems to act like a sedative and enables drugs to be dispensed with. Even in the cases of chronic mental disease the sedative action seemed beyond question.

Revue Pratique d'Obstétrique et de Gynécologie, Paris

March, XXII, No. 3, pp. 67-92

- 55 Pelvic Neuralgia of Genital Origin. (Les névralgies pelviennes d'origine génitale chez la femme et leur traitement.) M. de Lepinay. Commenced in No. 2.
56 Conservative Treatment of Inversion of Uterus. M. Vautrin.
57 Management of Ovarian Tumors during Delivery. P. Puech and J. Vanverts.

Semaine Médicale, Paris

March 25, XXXIV, No. 12, pp. 133-144

- 58 The Pulse in the Inferior Vena Cava and the Dance of the Jugulars in Severe Anemia. L. Bard.
April 1, No. 13, pp. 145-156
59 Cortical Ataxia from Automobile Accident, Falling on the Head; Localization by Segments. F. Rose.

Archiv für klinische Chirurgie, Berlin

March 24, CIV, No. 1, pp. 1-300. Last indexed March 28, p. 1055.

- 60 *Early Operative Treatment of Exophthalmic Goiter. (Die Frühoperation des Morbus Basedow.) E. Liek.
61 *Interposed Fat Flaps in Operations on Nerves and Tendons. (Die autoplastische Fettransplantation zur Neurolysis und Tendolysis.) R. Eden and E. Rehn.
62 Primary Sarcoma of the Gall-Bladder. K. Iwasaki.
63 *Traumatic Perforation and Peritonitis in a Case of Walking Typhoid. R. Carnelli.
64 *Importance of Testing Heart Functioning before Operations. (Funktionsprüfung des Herzens und ihre praktischen Ergebnisse für die Chirurgie.) W. Hofmann.
65 *Habitual Dislocation of the Shoulder. E. O. P. Schultze.
66 Supravescical Femoral Hernia. Gontermann.
67 *Operative Treatment of Wandering Kidney. H. Scheuermann.
68 Cartilage Tumors at Cartilage Joints. (Gelenkchondrome.) R. Eden.
69 Omentum to Arrest Hemorrhage in Liver. (Anwendung des isolierten Netzes zur Stillung der Leberblutung.) N. Beresnegowsky.

60. **Early Operative Treatment of Exophthalmic Goiter.**—Liek has operated in 28 cases of exophthalmic goiter in the last four years; in all but 6 the disease was of a severe type. This experience and review of the literature have convinced him of the vital necessity of educating general practitioners to realize the importance of an early operation in every case of exophthalmic goiter, as soon as the diagnosis is made. This puts an end to the excessive thyroid functioning before the resulting products have irreparably damaged the heart, kidneys, liver, lymphatic system, etc. The thyroid tissue is firmer and easier to operate on at this early stage and the heart is in better condition. The results are prompt and permanent; especially noticeable is the rapid and complete subsidence of the exophthalmos. He says that the insurance companies are realizing the advantages of an early operation and now send to the surgeon at once every case of Basedow, having found that this restored the earning capacity without further delay. These are all early-stage cases and it is in this group that the most striking benefit is realized. Liek had two fatalities, both in old Basedow cases; the patients were terribly frightened and both died before the operation proper was commenced. He now refuses to operate when the patient is in such fright. Those with vagotony seem in a more precarious condition than others, as also those at the height of intoxication—evident in the excitement and muscular weakness while the more rapid pulse after slight exertion and a trifle of dyspnea are signs of beginning exhaustion on the part of the heart. In normal conditions there is a difference of from 0.1 to 0.3 degree Centigrade between the temperature in the axilla and rectum; when there is a difference of a whole degree this suggests chronic weakness of the heart. At the same time he emphasizes that extreme excitability seemed to have a greater influence on the outcome than the condition of the heart in his experience.

61. **Interposition of Fat Tissue in Operations on Tendons and Nerves.**—Considerable clinical and experimental research is here reported, all confirming the advantages and lack of drawbacks of the method of protecting nerves and tendons,

at points exposed to special danger from adhesions or pressure by wrapping them in an autoflap of fat tissue. The foreign body irritation is slight and the flap retains its structure and regenerates so that it ensures permanent protection. The flap healed smoothly in place even in infected cases.

63. **Walking Typhoid.**—Carnelli relates that an apparently healthy man chasing his dog hit his abdomen against a milestone and experienced such pain that he could not rise. Laparotomy the same day disclosed that he was at the third week of typhoid. The contusion burst one of the typhoid ulcers and peritonitis followed, but thanks to the prompt laparotomy the man soon recovered.

64. **Testing the Functional Capacity of the Heart.**—Hofmann discusses the various methods in vogue for this purpose and lauds Katzenstein's procedure as the simplest and most reliable while it does not weary the patient. The pulse and blood-pressure are recorded several times and then both femoral arteries are compressed with the fingers just below the inguinal ligament. The compression is kept up for at least two and a half minutes, and then pulse and blood-pressure are recorded anew. The way in which the heart reacts to this obstacle to the circulation shows conclusively to what extent it can be relied on. With a functionally capable heart the blood-pressure rises while the pulse remains unmodified or grows slower. With a weak heart the blood-pressure does not go up and generally goes down while the pulse becomes accelerated. Some have said that this puts too much of a strain on a weak heart, but in the numerous cases in which the method has been applied in Katzenstein's service no by-effects have been observed except a slight syncope in one patient anemic from gastric hemorrhages. The method is applied as a routine procedure before a major operation and the particulars are tabulated in twenty-eight stomach or duodenum cases; in thirty intestine, gall-bladder or hernia cases; in six breast cases; ten heart and goiter cases, and in twelve miscellaneous cases. Hofmann advocates applying this test several times before attempting a serious operation and reiterates that the procedure is harmless. In his one case of slight syncope all disturbances ceased at once when the compression was stopped.

65. **Habitual Dislocation of the Shoulder.**—Schultze gives an illustrated description of twenty-three cases and presents clinical and anatomic evidence to show that the accident causing the dislocation in the first place had not caused a lengthwise tear in the capsule but had torn the capsule loose from its attachment to the humerus or scapula. The retracted, jagged edges were unable to coaptate spontaneously and connective tissue grew into the gap. This answered the purpose in some cases but in others the least overstrain tore the connective-tissue bridge and the dislocation returned. This explanation of the causes of habitual dislocation is sustained by the frequent relapses after treatment by the most approved methods, operative or otherwise, had been applied to twenty-six shoulders (twenty-three patients) as he describes in detail. One patient, a man of 60, had had the dislocation return eleven times; an injection of blood into the joint warded off recurrence for eighteen months at one time. Schultze declares further that the changes in the bones, etc., are all secondary to this tearing off of the capsule from the bone. The proper treatment, he says, is to expose and examine the joint from the axilla, at the lower margin of the pectoralis. If there are no pathologic changes the capsule can be effectually closed by a suture. If the capsule stump has retracted and shriveled, he draws it down and sutures it, thus making the capsule cavity smaller and then over the suture nails to the bone a well-fitting flap of fascia. This technic has been applied to date only on the cadaver but it proved extremely simple and the joint afterward effectually resisted all attempts to dislocate it anew.

67. **Operative Treatment of Movable Kidney.**—Scheuermann reviews the experiences in 189 cases of wandering kidney in which Rovsing's method was applied, nearly a hundred pages being devoted to the report which has no illustrations. He gives a historical sketch of the subject of

wandering kidney and the measures that have been tried to relieve it. Experience has finally taught, he says, that decapsulation in connection with suture of the capsule proper is the most reliable procedure while it makes the least demands on the patient. The kidney is drawn up into the incision; the latter skirts the margin of the erector spinae, from the tenth rib to 2 cm. below the twelfth, where it turns forward at a sharp angle for 6 or 8 cm. The drawn up organ is cleared from all adhesions with scrupulous care and the true capsule is incised along the convex margin of the kidney with a short transverse incision at each pole. The capsule is then turned back on each side, leaving a rectangular opening. A stout silk thread (No. 4 English) is then carried around the lower pole of the kidney weaving it in and out of the true capsule beyond the area of the incision. This suspends the lower pole as in a sling and the kidney is then restored to place. The ends of the silk are brought out separately each side of the incision in the skin.

When the kidney is thus pushed and drawn up into its normal place, with room for normal play, the patient is turned on his back and is not allowed to get up for four weeks. The threads are removed the third week. In the uncomplicated cases all trouble was permanently at an end after the operation in 85 per cent.; adding to these the improved cases, 95.4 per cent. of the patients were cured or materially benefited. The decapsulation ensures adhesions which anchor the kidney firmly in place to the transverse fascia, and not to fat tissue. The parenchyma is left intact. The necropsy in a few cases after death from intercurrent disease and in animals confirmed the reliable outcome. The cases in which symptoms recurred are analyzed seeking for the cause. One of the patients died from peritonitis, suppuration occurring along the course of the silk. This is the only one of the four deaths for which the operation can be held responsible. It suggests that silk impregnated with silver nitrate might be preferable.

Berliner klinische Wochenschrift

March 30, LI, No. 13, pp. 581-628

- 70 Progress in Treatment of Syphilis. J. Citron.
- 71 *Pathogenesis of Pernicious Anemia. A. Cederberg.
- 72 Prophylaxis of Cholera in Servia, 1913. Aumann.
- 73 *Operations to Relieve Pressure on Sciatic Nerve. (Druckentlastende Operationen bei Ischias.) B. Heile.
- 74 *Optic Estimation of the Blood-Pressure. (Die Lehre vom Blutdruck und die optische Blutdruckmessung.) S. Federn.
- 75 Keratohyalin. (Zur Chemie der Zelle. V.) P. G. Unna.
- 76 Origin of Cancer. (Entstehung des Krebses.) A. Theilhaber.
- 77 Powder Treatment of the Vagina. (Zur Puderbehandlung des weiblichen Fluors.) H. Oppenheim.

71. **Causes of Pernicious Anemia.**—Cederberg presents evidence to sustain his view that pernicious anemia is the result of a kind of anaphylaxis which is brought about by the products of break down of protein getting into the blood by seeping through a constitutionally inferior intestinal wall. We know this to be the cause of the anemia when certain helminths render the intestinal wall permeable and we know that the patients recover when the helminths are expelled. In the essential form the intestinal walls become naturally permeable and the blood suffers from this continuous parenteral supply of the products of protein metabolism. He elaborates this theory and shows how it explains numerous phenomena. The practical conclusions are the necessity for restricting to the lowest possible minimum the intake of alien albumin. The intestines may be able to take care of a small amount and assimilate it completely, leaving none to get into the parenteral circulation. It may be possible further to supply the needed albumin in a form which is free from the dangers of the ordinary forms now used.

73. **To Relieve Pressure on Sciatic Nerve.**—Heile discusses the preferable technic for operative relief of pain from pressure or traction on the sciatic nerve, after failure of internal measures. He has found acute sciatica, especially sciatica developing after an accident, much easier to cure than moderate sciatica in patients with a familial tendency to rheumatism. When severe sciatica persists unmodified by persevering internal treatment, he injects 100 or 200 c.c. salt solution directly into the nerve. This loosens up the fibers

and may break up adhesions that have formed between the fibers and the sheath of the nerve. He makes the injection just as the nerve emerges from the sacrosclatic foramen, at the center of a line drawn from the superior posterior spine to the tuberosity of the ischium. In four exceptionally severe cases of years' standing in which no measures had given but transient relief, he cured the sciatica at one stroke by the following operation, the interval since up to fifteen months. He exposed the nerve where it pierced the pelvis, opened the outer sheath and separated a network of adhesions inside. He ran his finger into the foramen to learn if there was any pressure on the nerve beyond and found it necessary in one case to excise the arteria comitans or the piriform muscle as they seemed to press on the nerve. He concluded by injecting salt solution into the nerve beyond the point he could reach. The nerve thus carefully isolated was buried between the fibers of the gluteal muscle, drawn apart for the purpose. The results in these desperately chronic and agonizing cases were so surprising that he does not wait for fur-

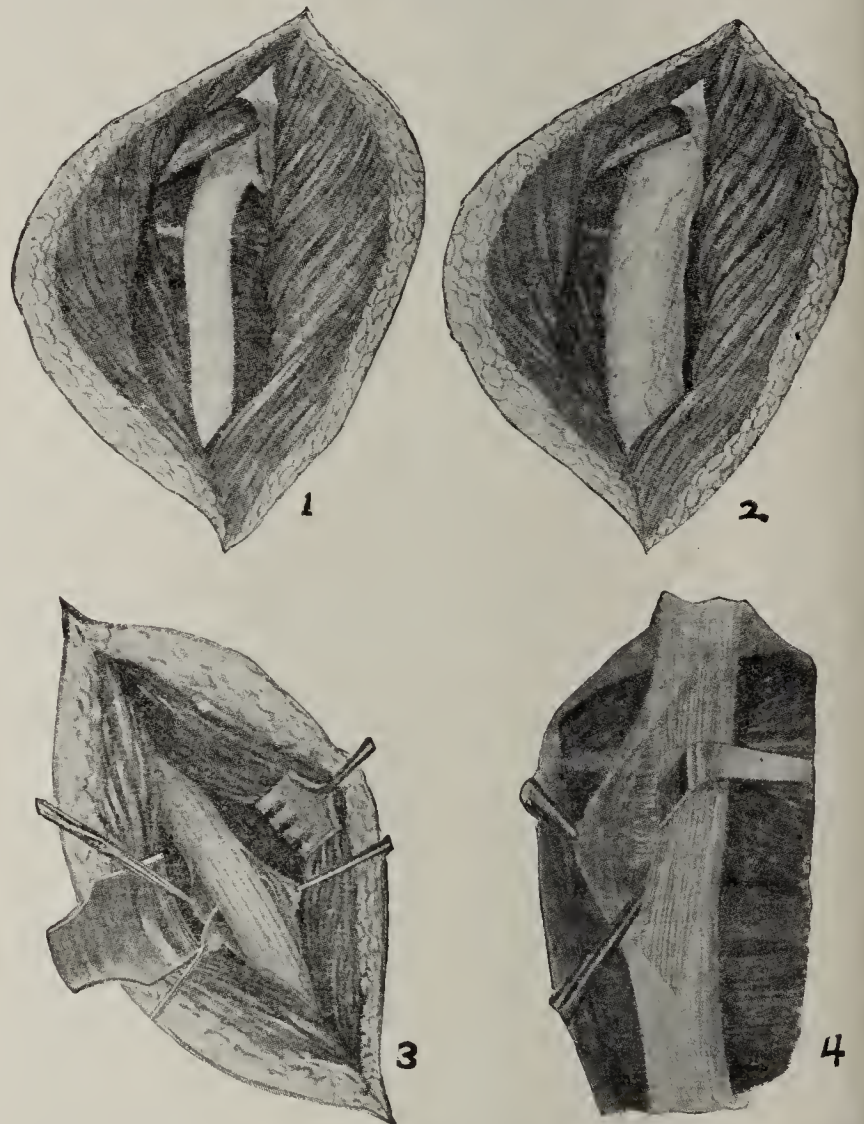


Fig. 1.—Sciatic nerve as it emerges from the sacrosclatic foramen unmodified.

Fig. 2.—Sciatic nerve after intraneural injection of salt solution.

Fig. 3.—Sciatic nerve after stripping off the perineurium, without adhesions.

Fig. 4.—Sciatic nerve with adhesions extending to the perineurium.

ther confirmation to publish the method. When a preliminary injection relieved pain, even temporarily, this indicated that mechanical factors were involved, and the case seemed promising for permanent operative relief in this way. The same principle can be applied to other nerves. There were never any symptoms suggesting impairment of function of any of the fibers of the nerve afterward.

His experiments on the cadaver show that this skeletonizing of the nerve, as he calls it (*Skelettierung*), is very simple and easily done, the perineurium stripping off readily. It seems to be thicker than usual in the sciatica cases—further testimony to preexisting inflammation. In the four cases reported there was "trunk sciatica" in one, and in two others plus irritation in the lumbar plexus which he regards as evidence of "root sciatica," plus scoliosis and tenderness in the crest of the ilium. In all the cases he removed the

outer sheath entirely and stripped off as much as possible of the tissue binding the fibers together. The separate bundles of nerve fibers then lay entirely isolated, connected only by the anastomosing nerve fibers. He removed only such parts of the membrane as could be stripped off easily.

74. Optic Estimation of the Blood-Pressure.—Federn expatiates on the importance of the state of the blood-pressure, insisting that this is as important for internal medicine as infection for surgery, and that only when this is generally appreciated will we be able to utilize to the full the recent achievements in the medical sciences. He published his first article on the subject in 1894, but his statement that the blood-pressure varies materially at different points in the body seemed so revolutionary that no one took the trouble to control his statements. But he declares that time has only confirmed the importance and value of his findings and he has been all these years perfecting a method within the reach of every practitioner and requiring only good eyesight. All methods of estimation of the blood-pressure which depend on compression of a large area, as with the Riva-Rocci cuff, render anemic the capillaries in this large area and thus modify the local blood-pressure and render the findings variable and unreliable. This source of error is avoided with the Basch bulb which compresses merely the artery alone. A straw stuck to the skin at the point where we usually palpate the pulse moves with the pulse. The pulse is thus rendered evident to the eye; the straw responds even more sensitively than the finger can feel the pulse. He measures the blood-pressure in a small artery over the tibia, and in the superior anterior intercostal artery, in addition to the arteries ordinarily examined. The pressure in this intercostal artery shows at once the functional capacity of the heart while the artery in the tibia shows the curve in the blood-pressure from one menses to another, and often gives notice when conception has occurred. It may be necessary to examine the straw index through a magnifying glass, one mounted like a telescope, to detect its movements. The straw index is fastened to a disc of paper or cork, 5 to 6 mm. in size, and this is stuck to the point where the pulse is felt. Then pressure is applied to the artery above with the Basch sphygmomanometer. When the flow of blood through the radial artery, for instance, is arrested by pressure from the Basch bulb, the straw indicator stops moving. But soon it starts up again to move, and no amount of pressure on the artery above can stop it, and this occurs just the same whether the indicator is glued to the point where the radial pulse was formerly perceptible or on regions near by where no pulse could be detected previously. The compression of the artery has altered conditions in the local circulation so that pulsation is evident where there is no artery, merely capillaries in the region. His optic method of determining the blood-pressure is thus based on the pressure in the capillary system, and he asserts that the findings are constant and instructive, with a precision beyond that of any other method to date. The article is not illustrated.

Deutsches Archiv für klinische Medizin, Leipsic

CXIII, Nos. 5 and 6, pp. 441-632. Last indexed April 4, p. 1127

- 78 Multiple Myeloma with Bence-Jones Albuminuria and Metastasis in the Right Tonsil. H. Schütz.
79 *Too Much Importance Attached to Lymphocytosis in Diagnosis. G. Huhle.
80 *Blood-Pressure and Energometer Examinations at High Altitudes in Cardiovascular Disease. P. Schrumpf.
81 The Venous Pulse. E. Veiel and W. Kapff.
82 Aphasia in the Japanese. T. Asayama.
83 The Production of Meat Intoxication in Dogs with Eck's Fistula. F. Fischler.
84 Influence of the Vagus on the Human Heart. H. v. Hoesslin.
85 Sugar Content of the Blood. H. T. Bing and B. Jakobsen.
86 Effect of Internal Secretion on Dentition and Development of the Hair. A. Josefson. See editorial, p. 1334.
87 Drug Tests of the Vegetative Nervous System. M. Wentges.

79. Lymphocytosis.—Huhle examined the blood in 110 cases of nervous disorders in some of which there were also organic diseases, including disease of the liver and heart muscle, infectious diseases, blood disorders and disturbances of metabolism. Aside from the cases in which lymphocyto-

sis was to be expected, he found it present in forty-five cases without any apparent reason. He thinks entirely too much importance is attached to it in diagnosis. In a non-febrile adult with repeated examinations we should pay no attention to a lymphocytosis of less than 35 to 40 per cent. This would exclude many cases now regarded as lymphocytosis, and a new basis would have to be established for the evaluation of the condition.

80. Effect of High Altitudes in Disease of the Heart and Vessels—Schrumpf considers altitudes only up to 7,000 feet. It is generally assumed that it is dangerous to send patients with any form of heart disease to a high altitude, and this is based on the belief that blood-pressure is increased at such altitudes. Schrumpf shows by tabulated findings in a number of cases that pathologic blood-pressures are improved, that is, high pressures are reduced and low ones increased, together with an improvement in the general condition. He says that a high altitude is actually indicated in some forms of heart disturbance, such as those in anemia, sclerosis, too rapid growth in adolescence, general asthenia, toxemias, the uric-acid diathesis, mild arteriosclerosis, fatty heart, nervous arrhythmia and vasomotor neuroses. Compensated valvular lesions and mild cases of myocarditis were also favorably influenced in his experience by high altitudes. The mountains are directly contra-indicated in uncompensated valvular lesions and particularly in coronary sclerosis. In all cases care should be exercised in changing from a low to a high altitude, the change should be gradual, with repose at first for a day or two.

Deutsche medizinische Wochenschrift, Berlin

March 26, XL, No. 13, pp. 625-680

- 88 Treatment of Acute Threatening Sinusitis. (Nebenhöhleneiterungen.) O. Kahler.
89 *Acute Leukemia. J. Citron.
90 *Professional Injury from Radio-Active Substances. F. Gudzent and L. Halberstaedter.
91 Technic for Serodiagnosis. (Einfluss des Blutgehaltes der Substrate—Organe—auf den Ausfall der Abderhaldenschen Reaktion.) A. E. Lampé and G. Stroomann.
92 Combined Electrocardiography and Sphygmography. E. Veiel.
93 *Pernicious Anemia in Pregnant Women. (Perniziöse Anämie und Gestationsvorgänge.) A. Wolff.
94 Leukocytosis in Small-Pox and after Vaccination. (Das Blutbild bei Pocken und Impfpocken. II.) E. Erlenmeyer and E. Jalkowski.
95 Epithelial Nodules in Palates of Young Children. (Funktionelle Bedeutung der sogen. Epithelperlen am harten Gaumen von Feten und Kindern.) K. Peter.
96 Ejaculation Impotency. (Seltene Potenzstörung.) G. Flatau.
97 Friedmann's Comment on the Fatality after His Remedy; Reply. (Zur Frage der Giftigkeit des Friedmannschen Tuberkulosemittels.) F. F. Friedmann, O. Vulpius and K. Laubenheimer.

89. Acute Leukemia.—Citron reports the case of a previously healthy and well-to-do man of 50 who developed acute leukemia with hemorrhages from the mouth and death from progressive weakness in six months. The man had been a vegetarian for many years and scorbutus had been the diagnosis at first until examination of the blood showed typical micromyeloblast leukemia. In a second similar case nothing but examination of the blood gave the clue to the clinical picture. Citron draws the important lesson from his study of these cases that leukemia is unmistakably an infectious disease and that acute leukemia develops when the virus attacks a person constitutionally inferior, such as with the thymic-lymphatic status or an organism that has been artificially placed in a condition analogous to the thymic-lymphatic status by exposure to the Roentgen rays. The mobilization of leukocytes is the response of the organism to the invading virus, and we are on the wrong track, he declares, when we attempt to destroy the leukocytes unless they are mobilized to such an extent as to be directly mechanically injurious. Until we learn what the virus is, and can thus treat leukemia understandingly, it is better, he declares, to acknowledge our helplessness rather than to cradle our patients in illusions of therapeutic measures which go counter to what we already do know.

90. Professional Injuries from Radio-Active Substances.—In six of the twelve cases reported the patients were connected with the radiotherapy department of the Charité hos-

pital at Berlin; the others were physicians using radio-active substances or employees in industrial establishments where they were produced. The disturbances were in the form of changes in the blood picture and impairment of the genital glands, lassitude, drowsiness, headache, attacks of vertigo, slight syncope, etc. In two cases the menses were retarded. Lymphocytosis was marked in all while the neutrophils dropped off. Characteristic changes also developed in the skin, paresthesia and loss of finer sensitiveness in the fingers, pain on grasping articles, and in the severe cases spontaneous and sometimes very severe pains in the fingers. The skin grows smooth and leathery, horny deposits develop around the nails, the fingers do not sweat and the nails tear at the tip and become deformed. To date none of these changes is serious, but the experience with Roentgen-ray burns warns of the necessity of caution. The radium and radio-active substances should be handled only with long tongs or forceps, never letting the fingers touch them. The specimens should be mounted with a rubber handle whenever possible. Work-rooms should be thoroughly ventilated to get rid of the emanations, and the work-table should be covered with metal to protect the worker's body. The workmen should be changed about often so that the hours at such work should be short and alternate with other work. Those working on radio-active substances should be under repeated medical supervision and have their blood examined at least twice a year.

93. **Pernicious Anemia in Pregnancy.**—Wolff states that he has been able to find on record only twenty cases of pernicious anemia developing during pregnancy in all Germany since 1872. He recently encountered a case of the kind in a previously healthy woman of 22. The pernicious anemia came on during the second half of her first pregnancy and after delivery spontaneously retrogressed to a considerable extent. In fifteen of the cases on record the pregnancy was interrupted, hoping thus to arrest the pernicious anemia, but twelve of these women died. Transfusion of blood has rendered good service in a number of cases, and there is always hope that the anemia may subside after spontaneous delivery so that expectant treatment seems the best under the circumstances as a rule. In eleven cases the children were alive at last accounts.

Medizinische Klinik, Berlin

March 29, X, No. 13, pp. 529-572 and Supplement

- 98 *Slow Endocarditis. (Endocarditis lenta.) E. Stadler.
- 99 Lead-Poisoning from Water-Pipes. (Bleivergiftungen durch Wasserleitungen.) H. Klut.
- 100 Pregnancy Serous Meningitis. (Eine durch die Schwangerschaft bedingte schwere Hirnerkrankung.) G. L. Dreyfus and M. Traugott.
- 101 *Treatment of Peritoneal Adhesions. F. Kirchberg.
- 102 The Electric Pocket Lamp in Diagnosis of Frontal Sinusitis. A. v. Sarbo.
- 103 Syndrome Resembling Unilateral Paralysis. Agitans. G. Mingazzini.
- 104 Topography of Brain and Skull. (Der fehlende Ausgleich der Schädelmasse bei anatomisch bedingten Funktionsstörungen des Gehirns.) L. Wolfer.
- 105 Bronchial Disease in Children. L. Jehle.

98. **Protracted Endocarditis.**—Stadler remarks that this disease always terminates fatally notwithstanding its comparatively mild course. The only hope seems to be in attacking it early with both serum and vaccine. Grip, tonsillitis or bronchitis is generally the precursor, a miscarriage or difficult delivery. Slight pains in the joints and general depression are the first symptoms, and the rapid enlargement of the spleen suggests impending trouble. In the case described in detail eight months elapsed between the first symptoms and death. The *Streptococcus viridans* was cultivated from the blood during life. The clinical picture varies from day to day, now high fever with lung and brain symptoms and again nothing but splenomegaly and anemia, but always signs of an old valvular defect. The patients with endocarditis lenta are generally distinguished further by extreme optimism, like the euphoria of consumptives, which renders the physician's task much easier.

101. **Suction-Pressure Treatment of Peritoneal Adhesions.**—Kirchberg reports good results in breaking up adhesions,

inducing local hyperemia, etc., in the abdomen by alternately aspirating a certain area into a big vacuum bell and then applying pressure with compressed air. He gives illustrations showing how the viscera can thus be drawn about, lifted up and down, the circulation and peristalsis stimulated and promoted, adhesions diagnosed and broken up, even flat adhesions over a considerable area. His glass bell is worked in connection with a tank of oxygen or compressed air, and it is proving exceptionally effectual also in lumbago, the patient lying prone. He has found it best to cover the entire abdomen at first with a big glass, and follow with a smaller bell for the special area in question.

Monatsschrift für Geburtshilfe und Gynäkologie, Berlin

March, XXXIX, No. 3, pp. 269-458

- 106 Negative Effect of Gynecologic Treatment in Psychiatry. E. Siemerling.
- 107 *Effect of Radium and Mesothorium Treatment of Carcinoma of Uterine Cervix. W. Lahm.
- 108 Causal Treatment of Uterine Hemorrhage. G. Schickele.
- 109 Intravenous Injection of Arthigon in Gonorrhea in Women. S. Moos.
- 110 Case of Congenital Opening of the Anus into the Urthra. P. Kreiss.

107. **Effect of Radium and Mesothorium Treatment on Carcinoma of the Cervix.**—Lahm gives a detailed histologic description of the tissue of a carcinoma of the cervix treated by irradiation, and concludes from it that the effect of radium and mesothorium on such tumors is indirect. Increased numbers of leukocytes are brought to the part and they destroy the cancer cells by phagocytosis. There are cholin and lecithin combinations in the cancer cells which attract the action of the leukocytes and antiferments in the normal body cells which protect them. As the cancer cells are digested by the proteolytic ferments in the leukocytes, they are carried into the blood-stream and gradually bring about immunization by autovaccination.

Münchener medizinische Wochenschrift

March 24, LXI, No. 12, pp. 633-688

- 111 *The Importance to Science of the Paranoiac Wagner. R. Gaupp.
- 112 Diagnosis of Paranoiac States. T. Becker.
- 113 Roentgenoscopic Diagnosis of Type of Pulmonary Tuberculosis in Children. (Anatomische Typen der kindlichen Lungentuberkulose.) E. Rach.
- 114 Pathology of Trichinosis. G. B. Gruber.
- 115 *Fever in Infants after Saline Infusion. Rietschel, Heidenhain and Ewers.
- 116 *Hydraulic Method for Artificial Separation of the Placenta. J. A. Gabaston.
- 117 Potent Elements in Antigens for the Wassermann Reaction. W. Klein and E. Fränkel.
- 118 Case of Atypical Tubercle Bacilli. V. F. Moller.
- 119 Operative Treatment of Severest Forms of Flat-Foot: Severing Ligaments Alone May Suffice. (Plattfuss.) F. Berndt.
- 120 Impalment Injuries; Eleven Cases. (Pfählungsverletzungen.) K. Lexer.
- 121 Mechanism of the Absorption of the Lens in the Eye. (Abbau und Resorption der Linse und ihrer Abbauprodukte.) M. Goldschmidt.
- 122 Case of Retinal Hemorrhages after Calomel-Salvarsan Treatment. (Netzhautblutungen nach Kalomel-Salvarsanbehandlung.) F. Morpurgo.
- 123 *Boas' Extra-Anal Treatment of Hemorrhoids. Müller.
- 124 Nomenclature for Radiotherapy and Dosage. (Zur Massbezeichnung der Strahlendosis bei der Radium- und Mesothoriumtherapie.) G. Klein.

111. **Psychology of the Wagner Case.**—The scholarly, kindly, highly esteemed and happily married principal of a school in Germany shocked the world last September by cutting the throats of his wife and four children, then hurrying to a town where he had formerly lived, setting fire to it in four different quarters and shooting down the people as they ran out of the houses. He thus had killed thirteen persons and seriously injured twelve others and two cows before he was overpowered. The assumption of acute mania was disproved by his diary which showed that the paranoiac brain had planned this series of events years before and kept it constantly in mind and carried it out in every detail except that it did not reach its planned conclusion which was the burning of still another village and his own final suicide.

The diary is a unique psychiatric document as it mirrors the workings of a paranoiac brain over a period of twelve years, portrayed by a fluent and scholarly writer. The very

inception of the paranoia can be traced and the preponderant influence of emotions. The pathologic element is the intensity and the permanence of the special emotions, not the cause of the emotions.

115. Fever after Saline Infusion in Infants.—Evidence is here presented that traces of copper from the vessels in which the water is distilled are responsible for the rise in temperature sometimes observed after injection of salt solution in infants.

116. Injection of Fluid into the Placenta to Aid in Its Separation.—Gabaston injects physiologic salt solution through the umbilical vein into the placenta when it is not spontaneously cast off. Study of the way it works on an expelled placenta shows that the fluid distends the big vessels and the placenta straightens up and spreads out; finally the delicate vessels at the rear burst and the injected fluid pours out of the uterine aspect of the placenta. With the placenta still clinging to the uterus wall, accumulation of fluid behind must gently pry it apart from the wall, while the size of the placenta thus in erection, as it were, stimulates the motor function of the uterus. The fluid seeking to escape from the uterus will help in the expulsion of the afterbirth. The procedure, he says, proved harmless and ideally effectual in the one case in which he has had occasion to apply the method to date. He injected under pressure from a rubber bulb 2 liters of warm salt solution into the placenta when the uterus of a primipara had shown total atony for an hour and a half. The olive tip of the cannula was tied in the vein. In seven minutes a vigorous contraction of the uterus was apparent, soon followed by others and in twelve more minutes the afterbirth was expelled intact.

123. Extra-Anal Treatment of Hemorrhoids.—Müller writes to express his gratitude for the way in which he cured himself of severe hemorrhoids by following Boas' instructions to the letter for the extra-anal treatment. (It was described in *THE JOURNAL*, 1912, lviii, p. 742.) The principle seems to contradict all that has been taught in regard to treatment of hemorrhoids, but what matters theory? The one essential is that the patient is cured.

Wiener klinische Wochenschrift, Vienna

March 12, XXVII, No. 11, pp. 261-288

- 125 *Edema and Hemorrhages from Poisons; Toxins of Intestinal Origin. L. Hess and H. Müller.
126 *The Tuberculin Contrast Phenomenon. W. Egert.
127 Paralysis Agitans in Man of 38. G. Stiefler.
128 Serodiagnosis of Cancer and Helminthiasis. (Die Abderhaldensche Fermentreaktion bei Karzinom.) G. M. Fasiani. (Abderhaldensches Dialysierverfahren bei Helminthiasis.) E. Manoiloff.
129 Torsion of Uterus from Myoma with Supravaginal Auto-Amputation. L. Ruppert.
March 19, No. 12, pp. 289-308
130 Chemistry and Toxicology of Dysentery Toxin. P. Kirschbaum and S. Fränkel.
131 *Regeneration of Long Bone from Bone Implant. (Zur Knochen-plantation im Defekte von Röhrenknochen.) Korencan.
132 Operative Treatment of Pancreas Cysts. V. Roic.
133 Acute Tuberculosis without Tuberculous Focus. (Zur Typhobazillose Landouzy's.) A. Krokiewicz.
134 Statistics in Regard to the Profession in Austria. (Ärzte in Oesterreich, Ende 1913.) O. Klabauer.
March 26, No. 13, pp. 309-356

- 135 Tonic Innervation. A. von Tschermak.
136 New Light on Kidney Diseases. (Zur Klinik der Nierenerkrankungen im Lichte der neuen funktionellen Prüfungsmethoden.) R. Bachrach and R. Löwy.
137 Technic for Wassermann Reaction. (Wasserfehler.) R. Matzenauer and M. Hesse.
138 Determination of Residual Nitrogen in the Blood. (Vergleichende Bestimmungen des Retentionstickstoffes im Blute nach Yvon u. nach Kjeldahl.) R. Hertz.
139 Heart on the Right Side. (Dextroversio cordis.) J. H. Botteri.
140 Weight of the New-Born in Relation to Mother's Circumstances. S. Peller.
141 Overcrowding in the Medical Schools. (Einschränkung des Zudränges zum Studium der Medizin.) Hochenegg.

125. Toxic Anemia.—In this third communication on anemia due to the action of poisons, Hess and Müller describe extensive research on rats by intravenous injection of various aromatic and other substances. The most striking result was obtained with phenyl-oxyphenylamin or imidazoethylamin. Injections of these substances induced anemia of the pernicious type. They accept this as evidence that the intes-

tinal mucosa under the influence of the bases formed in it under certain circumstances, belongs among the blood-destroying organs. Pyrocin and toluylendiamin injured the capillaries to such an extent that pronounced edema resulted. The amins caused both edema and hemorrhages, while the substances like putrescin, derived from the body, induced severe anemia.

126. The Tuberculin Contrast Phenomenon.—Egert calls attention to the difference between the local reaction at the point where Pirquet's skin test is applied and at the point where the subcutaneous injection is made. With active tuberculosis in younger children the skin reaction is pronounced while there is scarcely any reaction at the point of the subcutaneous injection. But as the child recovers, the findings become reversed; the subcutaneous local reaction becoming marked while the skin reaction is minimal. This may help in the prognosis; at present he does not know how to interpret this "contrast phenomenon."

131. Regeneration of Long Bone.—In Korencan's case a piece of the femur, 11.2 cm. long, had to be resected on account of periosteal sarcoma on a boy of 9. The shaft was cut away leaving merely a strip of periosteum 2 cm. wide on the sound side of the bone. A corresponding piece of the boy's fibula with its periosteum was implanted in the gap, but fistulas developed and the necrotic implant had to be taken out. Its periosteum was evidently left in place, and bone tissue proliferated so rapidly that in the course of a few months the boy was using his leg normally and freely. Four years later the femur presents an approximately normal structure and shape except that it is bent somewhat. There even seems to be a marrow cavity.

Zeitschrift für Geburtshilfe und Gynäkologie, Stuttgart

LXXV, No. 3, pp. 493-820. Last indexed February 14, p. 580

- 142 The Electrometrogram of Animals. E. Blumenfeldt and A. Dahlmann.
143 *Alcohol Alone Possesses the Property of Seeping Deep into the Skin. (Der Kernpunkt in der Frage von der Bedeutung des Alkohols bei der Händedesinfektion.) F. Ahlfeld.
144 *The Hydrorrhea Question. T. H. van de Velde.
145 *Bacteriologic Findings in 200 Cases of Post-Partum Fever. P. Werner and J. v. Zubrzycki.
146 *Recent Reexamination after Extraperitoneal and Transperitoneal Cesarean Section. W. Rohrbach.
147 Etiology of Endogenous Puerperal Infection. S. Seligmann.
148 Sarcoma of Uterine Cervix. (Zur Kenntnis der heterologen mesodermalen Neubildungen des Gebärmutterhalses.) W. Beckmann.
149 *Puncture as Curative Measure in Gynecology. (Probepunktion als Heilmittel.) N. M. Kakuschkin.
150 Histogenesis of Ovarian Cystoma. (Sogen. Struma ovarii.) E. Bauer.
151 Action of Extracts of Thyroid, Ovary and Placenta on Isolated Rabbit Uterus. J. Frchs.
152 *Myomas of Uterine Cervix and Technic for Removal. G. Schickele.
153 Physiology and Technic for First Breast-Feeding. H. Rietschel.
154 Intervals between Feeding the Newly Born. (Zahl der Mahlzeiten beim Neugeborenen.) R. T. Jaschke.

143. Alcohol in Sterilization of the Hands.—Ahlfeld reaffirms that alcohol owes its unique efficacy in local sterilization to its power of penetrating deep into the tissues and thus being able to destroy the superficial and the deep germs. Others admit this deep diffusion but think there is no bactericidal action unless the alcohol carries some disinfectant with it.

144. Hydrorrhea.—Van de Velde distinguishes between leakage from the fetal membranes and flow of fluid from the gravid uterus elsewhere. His experiments with intramuscular injection of methylene-blue confirmed this distinction.

145. Bacteriology of Puerperal Fever.—In the 200 cases examined a number of different germs were found but none seemed to induce a special syndrome. Consequently bacteriologic examination is of little practical value in general except when an operation is contemplated. Then the discovery that the blood is swarming with germs renders the outlook less favorable. Veit takes this as his guide; if he finds quantities of bacteria in the blood on repeated examination, independent of rises in temperature or chills, he regards the bacteria as too virulent to permit recovery from the sepsis. On the other hand, if the blood is sterile

or only isolated germs are found in the blood during a chill, he unconditionally advocates an operation.

146. **After Cesarean Section.**—Rohrbach states that cesarean section has been done in 117 cases in Küstner's service since 1908, and reports the findings on recent reexamination of 38 of the women. There were no disturbances in bladder functioning, no interference with the earning capacity and the scar in the cervix with the extraperitoneal technic does not seem to jeopardize future childbirths. No adhesions had developed afterward and the uterus was found in normal position in 82 per cent. and in the other cases the displacement was readily corrected as the uterus was not held by adhesions. All the children were delivered alive, and 81.5 per cent. were living months or years later. The classic technic was applied in only six cases; in all the others the extraperitoneal. Development of hernia later is a possible drawback to all cesarean section operations, whatever the technic. It occurred in about 7 per cent. of the above cases, the extraperitoneal technic showing the smallest proportion to date.

149. **Curative Influence of Exploratory Puncture in Gynecology.**—Kakuschkin refers in particular to old inflammatory exudates in the pelvis, advocating for them systematic puncture with aspiration of some of the fluid. This alters conditions in the region, circulation is improved, the trauma from the puncture and the aspiration stimulates repair in general, and very often the exploratory puncture is followed by a drop in temperature and reabsorption of the products of inflammation. In case of a recent exudate, with virulent content, the temperature may not be modified or it may even go up under the influence of the puncture. The therapeutic effect can be counted on only in the older cases. As an example of what can be accomplished in this group he reports its success in a case of acute flaring up of an old bilateral inflammation of ovaries or tubes. There was high pus fever for several weeks and the inflammation caused a large tumor to form. The tumor was punctured but no pus came, and he proceeded to aspirate the contents at various points puncturing through the posterior vaginal roof, keeping up the aspiration by piston suction for a minute or two at each of the six punctures at a sitting. The temperature ran up at once to 104 F., but the next day it began to go down and reached normal in five or six days.

He uses an ordinary syringe and punctures through the roof of the rear of the vagina, with rigorous asepsis and care to avoid puncturing in the side. The needle is introduced under the guidance of the fingers through a short speculum. The pain from the puncture is sometimes sharp but it is briefly transient. He ascribes the benefit in the main to the local hyperemia induced by the trauma. The details of a dozen cases are given and the method of therapeutic puncture and aspiration commended for all torpid chronic gynecologic processes. He has found it more convenient to have the piston moved by a thumb-screw than by pulling out the handle, and a long tube between the syringe and needle adds to the convenience of the procedure.

152. **Myoma in Uterine Cervix.**—Schickele gives thirty-one illustrations of cervical myomas and the best technic for operative removal.

Zeitschrift für Kinderheilkunde, Berlin

X, Nos. 5 and 6, pp. 353-508. Last indexed April 18

- 155 Plethysmograph not Adapted for Determining Volume of Blood in Children. R. Hess and S. Gardin.
- 156 Importance of Water in the Nutrition and Pathology of Children. R. Lederer.
- 157 Eosinophilia not a Symptom of the Exudative Diathesis. E. Aschenheim.
- 158 Eosinophilia a Symptom of the Exudative Diathesis. H. Putzig.

Zentralblatt für Chirurgie, Leipsic

March 28, XLI, No. 13, pp. 545-584

- 159 Clamps to Hold Stumps after Fracture. (Klammerung als Methode zur Koaptierung der Bruchenden mit Verschiebung.) F. v. Fink.
- 160 Improved Technic for Operative Treatment of Tuberculous Spondylitis. (Zur Albee'schen Operation beim Spondylitis tuberculosa.) K. Vogel.
- 161 Fascia Sling in Treatment of Prolapse of the Rectum. A. T. Jurasz.

Zentralblatt für Gynäkologie, Leipsic

March 28, XXXVIII, No. 13, pp. 465-504

- 162 Experimental Study of Effect of Radium. (Protektive Wirkung der Radiumemanation auf die sekundären Sexualcharaktere der Tritonen.) J. Halban.
- 163 Prophylaxis of Peritonitis in Operations in the Small Pelvis. No Contact with Gut Allowed When It Slides Down. E. Haim.
- 164 Overlooked Sponges. (Zur Kasuistik in der Bauchhöhle vergessener Gazekompressen.) O. Gerich.

Policlinico, Rome

March 22, XXI, No. 12, pp. 409-444

- 165 *Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis; Eighteen Cases. U. Carpi. Commenced in No. 11.
March 15, Surgical Section, No. 3, pp. 105-152
- 166 Appendicitis with Mechanical Intestinal Obstruction. (L'ilco meccanico da appendicite.) N. Loetta.
- 167 Megacolon Plus Appendicitis; Two Cases. O. Cignozzi.
- 168 Tuberculous Process in Tendon Sheath. (Caso tubercolosi pseudoneoplastica delle guaine tendinee.) G. Beccherle.
- 169 *Intestinal Invagination from Ascarides; Two Cases. N. Novaro.
- 170 Adhesions Binding Cecum and Colon. (Le aderenze pericecali e pericoliche.) N. Loetta.

165. **Artificial Pneumothorax.**—Carpi states that the pulmonary tuberculosis progressed to a fatal termination in 3 of the 18 cases in which he made a therapeutic pneumothorax. One of the other patients was completely cured after a three years' course of treatment; 3 are clinically cured now in the second or third year of treatment; 2 are clinically cured although the pulmonary process was complicated by an intestinal tuberculous affection; 5 others are apparently clinically cured; 1 patient had a spontaneous pneumothorax which was kept up by artificial means, and 3 other patients with tuberculous processes in both lungs were materially improved by compression of the lung most seriously affected. The results were thus extremely gratifying in all but 3 of the total 18 cases.

169. **Invagination from Ascarides.**—One was a child of 5, one an infant of 14 months and both required an operation. The older child had swallowed a hat pin, which could be seen in the cecum on roentgenoscopy. The invagination was a surprise; the intestine was packed with ascarides.

Upsala Läkareförenings Förhandlingar

XIX, Nos. 2-3, pp. 99-215. Last indexed January 10, p. 174

- 171 *Production of Light by Living Organisms. (Ljusproduktion hos levande organismer.) G. F. Göthlin.
- 172 New Views on Etiology of Pulmonary Tuberculosis. (Nyare åskådningar angående lungotens uppkomstsätt.) R. Friberger.
- 173 The Muscle Sense. (Det s. k. muskelsinnet.) H. Ohrvall.
- 174 *Non-Tuberculous Hip-Joint Disease in the Young. G. Söderlund.
- 175 The Connective Tissue and Smooth Muscle Apparatus of the Orbit. (Orbitans bindväfsapparat och glatta muskulatur i normalt tillstånd hos människan.) C. Hesser.

171. **Light-Producing Living Organisms.**—Göthlin reviews what has been written on this subject and gives an illustrated description of the principal living organisms that generate light, comparing the solar spectrum with the spectrum of the light generated by the *Pyrophorus noctilucus*.

174. **Deforming Juvenile Osteochondritis.**—Söderlund adds three cases to the few on record of this affection to which Perthes seems to have been the first to call attention last year. He had then collected twenty-one cases. Roentgenoscopy shows a characteristic picture, a loosening up of the abnormally small and flat epiphysis. There are islands of cartilage in the spongiosa of the head but there are no signs of inflammation. Tuberculosis does not seem to be involved, and the process gradually heals so that no active measures are needed for it. The limping, the absence of pain, the restriction to one side and the impossibility of abduction in the hip joint are the main features of the affection. Söderlund attributes it to some anomaly in the upper end of the femur, and this entails or is supplemented by some developmental disturbance, possibly abnormal ossification of one or both of the epiphyses. As this trouble is proving unexpectedly frequent, he urges systematic Roentgen-ray examination of the hip and other joints in a large number of children between 3 and 10, even when all is apparently normal. The practical importance of the above affection is that it may not be mistaken for a tuberculous hip joint process. (See abstr. 141, April 18, 1914, p. 1294.)

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THE MEDICAL DEPARTMENT IN THE CIVIL WAR*

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I propose to deal briefly with the place our great profession held morally and technically in the war of the sixties. It is a record to be proud of, or I should not so willingly revert to it. If you look for that story in the histories, they are silent; if you search for it in the countless autobiographies of soldiers great or small, these too are mute except as to what the soldier did. A few forgotten books by surgeons are personal or technical, and tell us little more than the baldest story of the individual. What else there is may be found scattered through the huge volumes on the medical history of the war. We gain nowhere a sense of the immensity of the task which as a profession we dealt with. We hear little or nothing of the unequalled capacity with which we met the call on energy and intelligence, or of the extraordinary power of the trained American to deal with the unusual. Of course, as individuals, we took our sides North or South, but the attitude of the profession as a whole was peculiar, and to deal with it properly involves some brief preconsideration of the national feeling in regard to an unbroken Union.

One of the privileges of age is the ownership of a library of personal memories. Time occasionally borrows them as material books are borrowed, and does not return them; but enough are left to enable me to take down half-forgotten volumes from the shelves of remembrance and with their aid talk to you—even gossip for you—concerning the share we took in what some of us old fellows who are still unreconstructed call the “War of the Rebellion.” Indeed, it is technically so named in our war histories; but to forget a little were wise and kindly considerate. Mr. Lincoln once reproved a general for calling the soldiers of the South *Rebels*. He said, “Labels, General, do a lot of harm, and hurt people; call them *Confederates*.” These labels still have their sting!

The struggle of the sixties was in fact a civil war. The seeds of discord were sown long years before the day when Washington wrote, “I wish that the officers of the army from Connecticut or Virginia would forget they came from separate states and remember only that they are Americans.” No radical differences of opinion *within* a country were ever settled without the stern surgery of the sword—arbitration will never

here be of any use. The war of the sixties was historically inevitable.

When on April 12, 1861, we heard that the flag had been fired on at Fort Sumter, a universal sense of insult roused the North. The churches North and South fell apart and the pulpit knew no more the charity which covers a multitude of sins. Even the old patriotic society of the “Cincinnati” lost its unity. Officers of the army and navy made their choice with which section they would stand, and it may be strange to you to learn the little-known fact that of West Point Southern graduates nearly 50 per cent. remained loyal to the flag as men of the North read loyalty, at what cost of family affection lost and of broken friendships you can easily imagine. It was very long after the war before these wounds were healed and innumerable family differences passed away. Alas, in some cases sectional hatreds were carried unsettled to another world than ours.

Not without reason have I made this digression. The ancient guild of physicians alone remained an unbroken organization—the offspring of Science and Charity, faithful to a creed centuries old when Christ was born. In hospitals and on the field of battle, where the surgeon ruled, there was the truce of God; and Letterman, the able surgeon-in-chief of the Army of the Potomac, merely put conduct into words when he said, “The wounded man ceases to be an enemy.” I despair of making you realize through statistics the vastness of our task. Large figures only bewilder the imagination and do not fully assist it to realize how perfect was our achievement through those years of disaster and final triumph,

Which blazoned duty's stainless shield
And set a star in honor's sky.

How were we prepared to meet the demands of war? The old medical department of the army consisted of thirty surgeons and eighty-three assistants. Of these, twenty-four resigned to take part in the rebellion and three were dismissed for disloyalty; thirteen were natives of the South, but stood true to the flag. Soon after the beginning of the war it was found necessary, owing to age, to permit the surgeon-general to retire. Owing largely to pressure made by the Sanitary Commission and the profession, his place was filled by raising from the rank of assistant surgeon Dr. William A. Hammond. He fell at once into a tremendous business spreading over great spaces of country, increasing in perplexity, and making fresh demands every week, and at last so large that there was expended for ice alone in one year more than the whole amount of money which in peace sufficed for the entire medical service of the army. The organization also demanded complete revision, and, in fact, as the

* Address delivered before the Physicians' Club of Chicago, Feb. 25, 1913.

† As our readers of course remember, Dr. Mitchell died Jan. 4, 1914.

new surgeon-general said, there was not an aspect of his work which was not "foggy with embarrassments."

Whatever else may be thought or said of William A. Hammond, nothing is more sure to me than that he duly saw and used a great opportunity; that he served his country as few could have done; that he created the Army Medical Museum; that he saw the need for and advised the foundation of the Army Medical School; that he pointed out the men who were to direct the army museum and the medical library. Until the end of his army career he was the unfailing friend of scientific study, and created special hospitals for diseases of the heart, lungs, and neural maladies.

He had, however, defects of character which were increased by the applause which greeted the success of his radical measures to meet the demands of a war which ruined so many reputations. He was impulsive and self-confident. Thus, when he desired to deal with the excessive use of calomel by volunteer surgeons, he issued an order forbidding all use of calomel. He was, of course, disobeyed. Calomel was in those days a therapeutic saint to which when in doubt the average country doctor confidently appealed. When at last Hammond fell out with Stanton, the efficient and despotic secretary of war, he was tried by a court martial, broken, and, I think unjustly, removed from the army after a service of unequalled value. But this was late in the war—his work was well advanced and the successor's task easy.

WAR HOSPITALS

How we dealt with the demands of this war I am to endeavor to tell you, and first I wish to talk about the hospitals of the war to which the graver cases of wound or disease came soon or late from battlefield and camp. Early in this contest, at a loss, we seized on churches, factories, barns, even large private houses, as homes for the wounded. These soon proved insufficient. The earliest substitute was built at Parksburg, Virginia, by Surgeon Dunster, under Letterman's order, and consisted merely of closed sheds with open ridge ventilation. Then deserted barracks were used, and very soon we built those immense pavilion-hospitals near the great cities, some of which were, I believe, planned originally and built by John S. Billings, that man of many competencies. I think that his original idea was to erect one-story wooden pavilion wards of sixty beds radiating from central administration offices. There were other interesting plans, but all, I think, grouped the pavilions around a central building. These hospitals each held from one thousand to six thousand patients, and you may gather some idea of our task when I tell you that by and by they sheltered thirty thousand beds in and around Washington, and that near Philadelphia we had twenty-six thousand, about twenty thousand of these being in neatly constructed pavilion-ward hospitals.

By degrees the service in these immense temporary homes of the sick became admirable, and the American physician, quick to learn, profited by their vast clinical opportunities. When finally at times they became too small for the care of abrupt additions from remote battles, we pitched tents around them holding eight or ten cots, and quickly learned a new lesson, for it was found that patients with wounds and fevers did far better in these tents than in our best wards. The

hint was readily taken, and elsewhere there arose hospitals composed of nothing but tents, large or small, sheltering in one instance fifteen hundred inmates.

You have rediscovered lately what in those days we knew perfectly well, that even pneumonia and bronchitis did best in tents no matter how bad the weather. My own little paper on "Camp Cure" dates from 1872. I believe now that a tent-hospital without permanent wards is a thing of the near future and will be quite well worth trial for small communities and as an addition to larger permanent hospitals. If I were required to erect a small hospital near a country town in a temperate climate, I should try this very rational experiment. It should have electric underground wires and the best drainage—all laid as if for a built hospital, and over this should be placed well-floored tents.

There were things seen in the surgical wards which you will, I trust, never see, or only in jars in the surgeon-general's museum. A slight flesh-wound began to show a gray edge of slough, and within two hours we saw this widening at the rate of half an inch an hour, and deepening, until in some horrible cases arteries and nerves were left bare across a devastated region. You will never see it. It was what we called "hospital gangrene." Instant removal to the open air of tents, etherization, savage cautery with pure nitric acid or bromin, and dressings of powdered charcoal enabled us to deal with these cases more or less well, but the mortality was hideous—at least 45 per cent.

I am not here to lecture fully on the medicine of war, but I cannot help recalling to your attention another scourge—erysipelas. This moved with strange rapidity from bed to bed in the ward, generally following the direction of the wind as it blew through the room. It was rare—very rare—in the great tent-hospitals, and was a formidable malady.

In isolated armies, as at Chattanooga, scurvy was another enemy, and a sad addition to the gravity of wounds.

The question of housing the wounded near the battle-lines also very early contributed its lesson. It was found that the injured men did badly in houses, better in barns, and best of all in tents. At the close of the war, or rather in January, 1865, there were in all 201 general hospitals. No matter how remote they were, these were subject to frequent ruthless inspections, when a trained man unexpectedly appeared at midnight or in the day, spent twenty-four hours in seeing everything in the hospital, and then with praise or blame sent to the surgeon-general reports which spared no one high or low.

I am perfectly satisfied that even the best of our city hospitals would be the better for these sudden inspections by watchful physicians, not of the staff or by ignorant lay managers. Such inspections should fulfil all the exactions of Dr. Billings' admirable little handbook of hospital management. I saw the experiment tried in Philadelphia in a great hospital. It was not very much liked, but to the bewilderment of a previously well-satisfied board of clergymen, it brought before them nine pages of humiliating revelations as results of an unexpected visit.

The detail of the management of these immense establishments soon became a marvel of efficiency,

and I should like to linger over a story which I must abbreviate. The ration was so liberal that money saved from it was set aside to be used for luxuries for the patients. There were also other additions to this fund, which became in some of the hospitals very large. Flour-barrels, bones and fat were eagerly bought. All the coffee-grounds were carefully kept and sold to the highest bidder. These were mixed with browned buckwheat or rye, or better than all with sweet potatoes, and then ground up and sold for coffee. A great many persons did not taste coffee except in this shape for two or three years of the war. Tea-leaves once used were also sold and greedily bought up. How they were served out anew to the public I have never been told. But above all the other available waste material in value were egg-shells. If you will reflect on this, you will understand that egg-shells are never saved up anywhere by households, and so, when you had the egg-shells of six thousand persons carefully treasured, there was eager bidding for them. The fact is that the egg-shell is a very pure form of carbonate of lime, and when it is calcined and ground up, it constitutes the base of all the finest face-powders which the ladies, I believe, still employ. There were also other sources of profit. The swill-barrel contents, which brought high prices, were promptly converted into pigs.

I ought to add that at the close of the war there were about \$80,000 of those unused funds turned in from the hospitals. The surgeon-general was allowed to use this money as a basis for the great library of medicine in Washington.

The war poured into these wonderful camps of the sick and wounded a continued flow of damaged humanity—sometimes more rarely the ghastly product of a single battle. Out of our gates went the dead and the men sent home to die or to profit by the journey, for again we learned to our surprise that the travel homeward was a tonic of power, and that typhoid patients might be transferred long distances without harm, and indeed with good results.

Of the special hospitals created by the surgeon-general, I shall speak later, and in these I hope presently to interest you.

In 1861 there were already in the army 2,109 regimental surgeons, 3,652 assistant surgeons, and in the hospitals scattered through the country 5,500 acting assistant surgeons. By degrees things took shape, and when General Grant crossed the Rapidan, the medical corps had become a body of well-trained men who had been well lessoned in the terrible school of war, it is to be feared at some cost to many wounded men. To meet the needs of field and hospital service, Surgeon-General Hammond created the grade of brigade-surgeon, and by using acting-assistant-surgeons in the city hospitals released younger men for active use in the field. These acting-assistant-surgeons included men of high class, such as Drs. DaCosta, Agnew, Morton, Stillé and Keen in Philadelphia, and many of the best in your own and other of our great cities. A third creation to meet our needs was that of the medical cadets, young men of character who had had two years' education in medicine. Of these were men like Curtis, Collins, Warren and Tyson. My brother Edward was of these cadets. He died of diphtheria in the Douglas Hospital—a young life of great promise, one of four brothers in army service.

FIELD SERVICE

The organization of the army in the field under Surgeon Letterman and such competent brigade-surgeons as John Brinton and William Thomson may perhaps interest you. Every regiment had one assistant-surgeon, who gave immediate care to the wounded in action, choosing some presumably safe place for his ambulance and orderlies, with their knapsacks of dressings, etc. When, as sometimes happened, the chosen place came under fire, the surgeon moved farther away. Dr. John S. Billings thus operated under fire back of Round Top at Gettysburg, and at his next move had again to retire under a rain of bullets. In some cases retirement was not possible, and many surgeons did at times operate for hours while occasional bullets were flying over them. In one case known to me a man on the operating-table was killed by a bullet while his wounds were being dressed. It was a noble test, of course—none, I think, could be greater. The assistant-surgeon very often preferred to go with the stretcher-bearers nearer the firing-line. The drift of injured men to the ambulance station and past them again to the more remote field-hospital tents during an action was often hard to handle, and at times became overwhelming. When defeat, as at Antietam and Gettysburg, left the wounded of both armies to be cared for by the victor, then indeed the 600 surgeons of the Army of the Potomac were too few and surgeons were hastily summoned from the cities. The three days' fight in and near Gettysburg left of wounded, Union and Confederates, 27,000 men. All were cared for, their wounds dressed and they were under shelter early on the fourth of July, twenty-four hours after the close of the three days' battle. For contrast, I may say that it was ten days after the battle of Waterloo before all the wounded had been cared for.

When the Confederates opened on our line at 1 o'clock, July 3, with 150 guns, the difficulty of finding safe shelter was sadly illustrated, since the shells fell, some of them, in hospital tents half a mile back of our line, and one into an ambulance loaded with wounded.

The tactics of sanitation were at their best in the Wilderness campaign remote from towns. There 8,300 wounded men were cared for in two days.

By the way, one hears in novels and sometimes in history of bayonet charges—of the cold steel. I never saw a bayonet wound, and of 25,000 wounds in Grant's battles, including the hand-to-hand struggle of the Bloody Angle, there were in all fourteen bayonet wounds; there were probably as many men severely kicked by mules!

Regiments took into the field and hospital service many physicians who had no experience in grave cases demanding capital operations. As a consequence, there was for a time much bad surgery, and the competent were overworked. The day of aseptic surgery, so securely perfect as to tempt the most timid operator, was far away in time. The condition of the soldier and the contrast between what you have in your leisurely operations explains our appalling mortality. Twenty-eight per cent. of amputations resulted in death; of the trephined, sixty-one of every hundred died. We groped for bullets with roughed porcelain-tipped probes, the mark of lead on the probe recording the locality of the ball.

These surgeons appeal to me as unrecorded heroes. I have known of men who dressed wounds and did the gravest operations until they fainted beside the operating-table or fell asleep to find in an hour of slumber strength to go on with their work.¹ In camp and in battle these noncombatants paid their share of the debt of duty. At Gettysburg thirteen were killed or wounded. During the whole war fifty-one were killed outright or mortally wounded, four died in prison, and 281 of disease incident to active service. I deeply regret that we have no such statement in regard to the Confederate surgeon, who did on his part the same noble duty far less well supplied with the means of helpfulness.

I look back on my memories of hospital nurses during the war with very mingled feelings. Our nursing orderlies became rapidly efficient as we trained men to the less exacting nurse duties of that day. Very soon the question of women nurses arose. There were women like the Schuylers, the Lowells and Miss Wormly, of whom I think with grateful remembrance. When we were in the neighborhood of great towns we had many volunteer women nurses. Some were terribly earnest, utterly ignorant and quite incapable of discipline. Others, if more efficient, were not punctual and came and went as they pleased. A large proportion were early credited in the papers for patriotic services, and were seeking that notoriety which is the motive force of so many of the aspirations—and shall I say of the exasperations?—of our own unrestful days.

Our best women nurses were the too limited number of Roman Catholic sisters. Their value for male patients was at its best in proportion to their being refined ladies of a caste to which few of the Roman Catholic sisters belonged. I observed that good-looking, well-bred, low-voiced women exercised a wonderfully great control over our soldiers—a very American tribute with a physiologic basis.

Early in the war all captured surgeons and a detail of those who stayed with their wounded were released, but in some cases there was needless detention or retaliation, as when the Confederate cavalry officer, General Forest, held surgeons as prisoners, whereupon Grant refused to parole the surgeons taken at Vicksburg. All of the eighty Confederates who were left with their wounded at Gettysburg were promptly sent home as soon as we could dispense with their services. Some time in 1865 a general order set free all surgeons captured. It was very irregular, however, and when in September of that year I inspected Fort Delaware, there were about thirty surgeons held with other officers and confined in the casemates on account of a plot to capture the island. These gentlemen complained bitterly of their detention, and of the mosquitoes, which did not regard them as non-combatants. All other prisoners were at large on the island, were well fed, and allowed to bathe daily in the river. The mortality was, however, something frightful, and the men were dying at the rate of eight or ten a day when I visited the island. I saw in this case an explanation of the fact that the mortality of our prisoners very nearly equaled that in the terrible Confederate prison pens of the South, for a large proportion of the men I saw came into our hands diseased and suffering from insufficient diet, malaria or acute dysentery, and

hence the mortality was very great. However that may be, at least in Fort Delaware I was able to report favorably as to food, water and everything else, except as to clothing. It was becoming cool in September, and these men were very lightly clad to meet a winter. My report puzzled the Department of War. Finally, as I learned later, an ingenious quartermaster suggested that the old clothing at the Schuylkill Arsenal be sent down to the island. On this, thousands of garments—musicians' and others—dating back to the War of 1812 and later, were drawn out of the stores of the arsenal and sent down to Fort Delaware. Our Confederate friends decided not to put on the grand uniform with the high collar and swallow-tailed coat of the U. S. musician of 1812. As the fall matured, however, the cold weather became singularly persuasive, and what with cutting off U. S. buttons and docking coat-tails they finally succeeded in clothing themselves; but I was told that for a time it was as good as a fancy ball.

PERSONAL EXPERIENCES

I have now to apologize for speaking rather more about myself than I have already done. Toward the close of the war the surgeon-general created what was called a "stump hospital" in Philadelphia, for all men who had lost a leg or arm. Why is there no technical name in Latin for the stump? These men came, as an old sergeant said, "got limbed," and were replaced by others. Usually there were from three to four hundred in this hospital. This chance was seized on at once with avidity, and the disorders of stumps studied and found extremely interesting. Especially so was the psychology of lost limbs—what I called "phantom limbs," a tempting subject. William James made a similar study far later, but confessed frankly that he could add nothing to my paper. It was a fascinating research, but the effect on the whole body of the absence of two, and in some cases of three members, is still open to physiologic inquiry.

I never can resist telling a story. While this subject was occupying my mind, a friend came in one evening and in our talk said, "How much of a man would have to be lost in order that he should lose any portion of his sense of individuality?" This odd remark haunted me, and after he left I sat up most of the night manufacturing my first story, "The Case of George Dedlow," related by himself. In this tale my man had lost all four limbs. I left this tale in the hands of a delightful lady, now long dead, the sister of Horace Howard Furness. Then I forgot it. Dr. Furness, her father, much amused, sent it to Mr. Hale, editor of the *Atlantic Monthly*. To my surprise, I received about three months afterward a proof and a welcome check for \$85—my first literary earnings and certainly not a contribution on my part, because I had nothing to do with the disposal of the paper and had not authorized its being put into print. This story has had a dreadful number of successors—the product of my lengthening summer leisure. Some of you may have read them to your cost. The unfortunate George Dedlow's sad account of himself proved so convincing that people raised money to help him and visited the Stump Hospital to see him. If I may judge it by one of its effects, George Dedlow must have seemed very real. At the close of my story, he—a limbless torso—is carried to a spiritualist meeting, where the spirits call up his lost legs and he capers

1. William Norris I remember told me of being at work for thirty-six hours continuously.

about for a glorious minute. The spiritualist journals seized on this as a new proof of the verity of their belief. Imagine that!

My service in hospitals began in the Old Armory Building, Sixteenth and Filbert streets, long since swept away. It may amuse you to know that the only account of that hospital is to be found in my first novel, "In War Time," written many years later. I began here to take interest in nervous disease, which so pleased the surgeon-general that finally, after some changes, a hospital for neural disorders was created at Turner's Lane, near Philadelphia, in August, 1862, and pavilions were built for four hundred men. One was assigned to Dr. DaCosta, and afforded him a chance for a study of exhausted hearts and for other valuable papers. Surgeon Alden of the regulars was in charge. Drs. Morehouse and W. W. Keen assisted me, and we were relieved by special order of the time-killing red tape of hospital business. Dr. Keen lived in the hospital. Morehouse and I at that time were in large general practice, on which we depended. A morning visit to the hospital about 7 o'clock disposed of the general routine, and late in the afternoon we came back and several nights of each week worked at note-taking often as late as 12 or 1 o'clock, and when we got through walked home a couple of miles talking over our cases. We three did all the work in person. There were no stenographers or any such help, and sometimes the inflow of cases of injuries after a serious battle tasked us sorely. I have worked with many men since, but never with any who took more delight in repaying opportunity by labor. The opportunity was indeed unique, and we knew it.

The cases were of amazing interest. Here at one time were eighty epileptics, every kind of nerve-wound, palsies, singular choreas, and stump disorders. I sometimes wonder how we stood it. If urgent calls took us back into town, we returned to the hospital as if drawn by a magnet. In fact, it was exciting in its constancy of novel interest. Thousands of pages of notes were taken. There were many operations, many consultations, and toward the close we planned the ultimate essays which were to record our work. Each of us took his share, but all three were mentioned on the title pages of our essays. There was a small book on nerve-injuries and an essay on reflex palsies, both of which I wrote. Dr. Keen contributed an admirable paper on malingering. I have, alas! to record here what was to us an immense calamity. Our notes of epilepsy were very full, and there were things recorded which I have never seen since or seen but once, which are worth a moment's pause to mention. In certain cases of epileptic status, and sometimes in others, we could bring on an epileptic attack by pressure on the upper subclavicular thoracic region or by pinching the skin in that locality. Now you will please to remember that this was exactly what Brown-Séquard found in guinea-pigs suffering from artificially induced epilepsy. Our notes and conclusions in cases of acute exhaustion and extreme myasthenic conditions would have entirely anticipated the delineation of those disorders which we now accept under the name of neurasthenia. Unfortunately the recording of these states fell to Dr. Morehouse, who delayed writing about them until an unfortunate fire in his library entirely destroyed these priceless records. To this day I cannot think of it without regret.

In this hospital, massage was used to restore action to limbs in which healing nerve-wounds left the muscles palsied, or for the rigidity of splinted cases.

Among the numerous other matters on which I may not linger were the influence of nerve-lesions on nutrition and temperature, the first record of wounds of the sympathetic nerve, and the study of reflex palsies. The victims of nerve-wounds were often men worn out from fever, dysentery and long marches; hence some of the symptoms of nerve-wounds we described have never been seen since in like intensity. The statements in regard to causalgia—burning neuralgia—were received in England with critical doubt. That hospital was, as one poor fellow said, a hell of pain. In one year over forty thousand injections of morphin were used. Time lacks here to redescribe cases of neuralgia of such intensity that the pain was increased by the vibrations of a band of music, by the rustle of dry paper handled, and by a loud footfall in the ward. I have seen men pour water into their boots to lessen the vibration which the friction of walking caused. I have never encountered such cases since, nor shall we again until we see diseased men the victims of wounds.

I permit myself to say that a few years ago Dr. John K. Mitchell reexamined all the survivors of nerve-wounds whose cases we had detailed in our papers who could be found. This difficult task added a valuable chapter to our knowledge of nerve injuries.

It became the custom to turn over to us the cases suspected of malingering. These were the scamps or cowards, and in some cases the victims of a strange form of psychic disorder. I could interest you long by our devices to trap these fellows, commonly by the use of an anesthetic.

Cases of nostalgia, homesickness, were serious additions to the peril of wounds and disease, and a disorder we rarely see nowadays. I regret that no careful study was made of what was in some instances an interesting psychic malady, making men hysteric and incurable except by discharge. To-day, aided by German perplexities, we would ask the victim a hundred and twenty-one questions, consult their subconscious mind and their dreams, as to why they wanted to go home and do no better than let them go as hopeless.

In June, 1865, our work came to an end. The new surgeon-general ordered that all our notes should be at once turned over to the department. As the cases yet unused by us were of value to us alone, we were much troubled. At once we copied or had copied this whole mass of records, and within a month or more turned over to the surgeon-general's office the original case-books, with the exception of those unfortunately lost when in Dr. Morehouse's possession. Long afterward Dr. DaCosta lamented to me that he had obeyed the order, and somewhere pigeon-holed are many of the valuable observations of that brilliant student of disease. We were told then that we had been insubordinate, but I remained pleased that for once in my life as an army surgeon I had disobeyed my superior.

NON-RECOGNITION OF THE SURGEON

I have detained you far too long, and come to a close with a sense of having failed to tell you fitly this story of eminent achievement. We had served faithfully as great a cause as earth has known; we had built novel hospitals, organized such an ambulance ser-

vice as had never before been seen, contributed numberless essays on disease and wounds, and passed again into private life the unremembered, unrewarded servants of duty. How far it taxed the average professional man of the cities—your city and mine—may be judged from the fact that in 1864 the living Fellows of the College of Physicians of Philadelphia were 174. Of these, 130 had been connected in one way or another with the service of the army or navy during the four years of that bloody struggle—certainly a record of honor. What has been our reward? The great leaders in war have been promoted and universally honored. Countless statues commemorate in Washington and elsewhere the popular heroes. Statues of generals are in every town, some of them memorials of men it were wiser to forget, some of whom history will judge severely. Every village has its statue to the private soldier. There is not a state or national monument to a surgeon. At Gettysburg, every battery site is marked with a recording tablet; every general who fell, Union or Confederate, is remembered in bronze or marble; but what of the surgeon who died? Nothing!

It is a relief to know that I have of late induced the Gettysburg Commission to mark with a bronze shield the site of every corps hospital, with the names of the surgeons who served in each. Please to fully realize the fact that this will be absolutely the *first national* recognition of the physician in the war. The situations of the Confederate division hospitals have also been marked. You will share with me the pride and pleasure all this has given me.

Has any one ever heard of the medal of valor being given to a physician? And what of the young surgeons who volunteered to test the fever-bearing bite of the mosquito—more deadly than the fang of the rattlesnake! Shall we be proud that the Republic asks of us, expects from us, every service, and has for us no honoring recognition in life and no memorial marble for those of us who died on the field of honor?

What, indeed, shall we ask for the surgeon who on the Isthmus of Panama made possible that gigantic piece of engineering surgery which, cleaving a continent in twain, made of it two vast islands and wedded sea to sea?

Ah, when I think of the risks some of us have taken, the laboratory problems to be solved at daily personal peril, I am proud of the silence of our courage. Contrast with the thunder of the reputations made in our tiny Spanish War the tranquil, modest efficiency of that more deadly war which Reed and his officers conducted against yellow fever. I conclude that perhaps after all our way is the better. We wage no kindergarten wars!

Let me close with what very long ago I said in forgotten verse far better than I can say it in prose. I wrote of the Goddess of Medicine:

Fair heritress of every human hope,
Rich with the marvels of time's widening scope,
However high may rise thy soaring wing,
Whatever change thy fuller days may bring,
Our ancient lesson will be ever new;
That priceless lesson will be ever true;
Time did not teach it; time will change it not;
This, this shall last though all our lore's forgot,
To give what none can measure, none can weigh,
Simply to go where honor points the way;
To face unquestioning the fever's breath,
The hundred shadows of the vale of death;

To bear Christ's message through the battle's rage,
The yellow plague, the leper's island cage,
And with our noblest "well to understand
The poor man's call as only God's command."
Ay, under every century's changing sky,
Shall the Greek master's triple signal fly—
Faith, honor, duty—duty calmly done,
That shouts no self-praise o'er a victory won;
One bugle note our only battle call,
One single watchword, Duty—That is all.

PALLIATIVE EFFECT OF ARTIFICIAL PNEUMOTHORAX IN TREATMENT OF PULMONARY TUBERCULOSIS *

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SAN FRANCISCO

Artificial pneumothorax or lung compression has assumed its place as an important factor in pulmonary therapy. Murrison Davies designates it as the greatest present-day advance in lung surgery. Phthisiotherapists, with a few ultraconservative exceptions, are beginning to look on it as the greatest addition to their armamentarium since Koch's discovery of tuberculin. So important has it become that several articles have appeared during the past three years as to who should be given priority for its discovery.

Forlanini, in a comprehensive monograph,¹ states that Carson (an English physician) in 1843, himself in 1881, and Murphy in 1898, each independently of the other's work, gave birth to the idea of placing a badly diseased lung at rest by compression with gas. Forlanini, as far as I can ascertain from a scrutiny of the literature on the subject, must be credited with the idea of performing artificial pneumothorax "medically" instead of surgically. Forlanini did not perform the operation until several years after his utterances of 1881.

Following the lead of Forlanini, the Germans seized eagerly on this method, and to Brauer and Spengler² belong the credit of stimulating world-wide interest by their celebrated report of 102 cases, representing operations performed at Davos, Switzerland, and in Hamburg, Germany, over a period of five years. They, however, changed Forlanini's method by creating the *Schnitt Methode* (incision method). They make a fairly large incision over the fourth, fifth or sixth intercostal spaces anteriorly, expose the intercostal muscle, and then force a blunt Salomon cannula into the pleural space. Brauer firmly maintains that his method is the only correct one, since it insures safety to the patient and absolute knowledge of the presence of the cannula in the pleural cavity. Still, Forlanini's method has become the one of choice among the majority who perform this operation (even the Germans), because it is far simpler and does not submit the patient to a surgical operation of considerable severity, and with improved technic and the more careful observation of the manometer, the accidents, particularly those occasioned by gas emboli, which occurred occasionally in the earlier operations, are to-day practically eliminated. Therefore, barring the cases of extensive pleural adhesions, the Forlanini, or

* Read before the St. Francis Medical Society, March 27, 1914.

1. Forlanini: *Therap. d. Gegenw.*, 1910, Nos. 5 and 6.

2. Brauer and Spengler: *Beitr. z. Klin. d. Tuberc.*, 1911, xix, 1.

puncture method, is applicable to all cases in which artificial pneumothorax is indicated, and the Brauer, or incision method, should be reserved for the former.

From the numerous reports pouring in, and from my own limited experiences in the past two years, I feel confident that Brauer's method will in future be very rarely employed.

Just exactly what are we trying to accomplish when we compress a tuberculous lung? Principally delay; time in which to allow our other methods of treatment to become efficacious. Rest is given the tuberculous patient to prevent auto-inoculation. What more rational than rest, direct and complete rest, to the diseased part which is generating toxins? Forlanini states that an artificial pneumothorax must place the lung at "absolute rest, and this must be maintained until absolute cure results."

The direct effect of compressing a diseased lung with nitrogen is sometimes most startling. I have seen a stubborn cough cease within twenty-four hours after complete compression; temperature drop to normal after a few days; sputum rapidly diminish, and a general all-round improvement result in the patient's condition. There can be no question that artificial pneumothorax has rescued many tuberculous patients who did not respond to other methods of treatment and who would have died otherwise.

The theories of the mechanism of healing by this treatment as generally agreed on are: (1) rest to the involved organ; (2) an ischemia of the lung because of the elimination of venous circulation; (3) a diminution of toxin absorption, and (4) ultimate scarring over of diseased tissue. Perhaps more theories will evolve to explain further why we sometimes obtain such remarkable results in hopeless cases, when all other methods have proved futile. The direct effect of nitrogen on the tissues may offer a fertile field for investigation.

The indications for performing an artificial pneumothorax have been concisely given by Zink³ in a report of 110 cases in which operation was performed at the Basel Sanatorium, Davos, as follows: (1) in all chronic destructive tuberculous processes (limited to one lobe) with a tendency to fibrous degeneration and cavity formation; (2) in all severe acute infiltrating and cheesy pneumonic forms; (3) in chronic infiltrating lesions without much destruction if they are of a progressive character or show no tendency to retrogression under prolonged treatment by other means, and (4) in uncontrollable hemorrhage. These indications are an amplification of those originally laid down by Forlanini and Brauer and Spengler.

The original warning not to compress a diseased lung when the other was involved has been modified. Reports of 104 cases, by Saugman, involving 5,000 inflations, Zink's exhaustive treatise, the recent further report of eighty-eight cases by Lucius Spengler, and the recent work of Dunham and Rockhill⁴ in this country prove that in bilateral cases in which there is not too much involvement of the "good" lung, the other may be successfully and safely compressed. Arsperger⁵ also reports excellent results in pleurisy with effusion, by early aspiration of the effusion, and introducing between the sheets of the pleura from 150

to 600 c.c. of nitrogen to keep them apart and check further production of effusion and adhesions. Incidentally he combines this method with autoserotherapy, that is, the subcutaneous reinjection of from 1 to 3 c.c. of the patient's own effusion.

Claude Lillingston, Herbert Rhodes, Robinson and Floyd, Rist, Maingot, Barnard in France, Sauerbruch and von Mural, and numerous others who have given more or less extensive reports of their work during the past three years, agree on these indications. Mary Lapham⁶ states as contra-indication (to lung compression), "any complication sufficient in itself to inhibit recovery and too great an involvement of the other lung." In short, in the reports of more than a thousand cases, representing many thousand inflations reported during the past five years by the best observers and workers in the field of pulmonary tuberculosis, there seems to be an agreement that artificial pneumothorax should be performed only when one lung at least is fairly sound; that it should be reserved for the case which does not respond to other therapy, and that it should be used only in cases in which, through its application, there will be a chance of arresting the disease.

In my own work during the past two years it occurred to me that in hopeless cases the patient who was constantly coughing and expectorating without relief might, through this method, end his days in comfort without the use of the large doses of morphin. I therefore attempted lung compression in three cases of very advanced tuberculosis with severe involvement of both lungs, in which, however, a large cavity could be diagnosed in one. These patients all had violent, persistent coughs and excessive purulent expectoration, the picture usually seen in terminal tuberculosis. They were selected because in each case a large cavity could be diagnosed in one lung, and on the rather dangerous assumption that the cough and expectoration was being formed in this cavity. At any rate, it seemed right to test the palliative effect of lung compression. The patient in each case was warned of the danger of the procedure and his consent and that of responsible relatives obtained. The report of these cases is briefly given below.

CASE 1.—F. O., army lieutenant, aged 34, seen at Letterman Hospital, Presidio, May 15, 1913, had had repeated attacks of high temperature for two years which had been diagnosed as malaria. Bacilli of tuberculosis had been found in sputum six months ago. The patient returned from the Philippines three weeks ago and had been in bed ever since. He had lost 40 pounds in six months, and was a much-emaciated man. The temperature ranged from 98 to 103. Examination of lungs showed extensive involvement of both lungs, most pronounced in the left, with a large cavity in the lower lobe of the left lung. The sputum measured from 8 to 10 ounces daily and showed numerous bacilli. Cough was persistent. The condition of the patient was very bad and the prognosis had been given of "exitus in about two weeks." The patient was removed at considerable risk to a private sanatorium, and on May 25 the first pneumothorax was performed, 100 c.c. nitrogen being admitted through the seventh intercostal space in the midaxillary line, under novocain (0.5 per cent.) anesthesia. The effect on the patient of even this small amount of gas was most distressing. He became quite cyanotic and was very dyspneic for about two hours. May 30, 200 c.c. nitrogen were admitted; June 7, 250 c.c.; June 14, 700 c.c., and June 28, 850 c.c. Subsequent inflations after the first were fairly well tolerated, and after the second the temperature became lower and the sputum started to decrease. After the fourth

3. Zink: Beitr. z. Klin. d. Tuberc., 1913, xxviii, 155.

4. Dunham, Kennon, and Rockhill, Charles S.: Therapeutic Pneumothorax as a Palliative Measure, Safeguarded by Stereoroentgenograms, a Report of Twenty Cases, THE JOURNAL A. M. A., Sept. 13, 1913, p. 826.

5. Arsperger: Beitr. z. Klin. d. Tuberc., 1913, xxviii.

6. Lapham, Mary E.: The Treatment of Pulmonary Tuberculosis, THE JOURNAL A. M. A., Sept. 14, 1912, p. 866.

inflation, June 14, 1913, the patient's cough had practically disappeared, the sputum never reached more than $\frac{1}{2}$ ounce in twenty-four hours, his weight had increased about 10 pounds, and in all respects he was greatly improved. June 29, after his fifth inflation, he left the sanatorium and went to Fort Bayard, N. Mex. It had been his great desire to go to the latter place, but his weakness prior to pneumothorax treatment had been so intense that the removal was interdicted. He made the two days' trip without mishap. Advices from Fort Bayard, September 26, showed that he had received two further inflations and was improving. His improvement continued until very recently, when he became rapidly worse and died March 7, 1914.

I feel certain that lung compression in this case prolonged the patient's life for nearly ten months, most of it in comfort.

CASE 2.—P. V., referred by Dr. John Gallwey, with a very advanced, hopeless case of tuberculosis of five years' duration, was a much-emaciated man, with extensive infiltrations of both lungs, with a large cavity in the middle lobe of the right lung. The cough was constant and painful, and the dyspnea at times most distressing. Sept. 20, 1913, 100 c.c. nitrogen were admitted into the seventh interspace, right midaxillary line. September 22, 400 c.c. nitrogen were admitted. After this inflation the patient became very cyanotic and dyspneic. September 23, the patient left the sanatorium and went to his home feeling better. For one month after this the patient, although there was no change in his general condition, almost entirely lost his cough. He died about six weeks after the second inflation.

CASE 3.—G. S., first seen Aug. 5, 1913, had a history of slight cough, and a loss of 5 pounds in weight. One brother and several relatives on both the father's and mother's side of the family died of tuberculosis. There was a slight lesion in the apex of the right lung. No bacilli were found in the sputum. Von Pirquet was positive. Dietary treatment, rest and tuberculin were resorted to and the patient improved rapidly, gaining twelve pounds in weight and entirely losing the cough. November 28, he appeared at my office very much frightened, as he was having an extensive hemoptysis. He was immediately put to bed and kept quiet until the hemorrhage had partly ceased. November 29, the sputum, which had been free from tubercle bacilli, showed large numbers of the latter. December 5th, the hemoptyses had stopped but the temperature ranged from 100 to 104, and examination revealed an extensive cavity in the middle lobe of the right lung and beginning infiltration of the left lung. This condition can be accounted for only on the theory that the right lung must have been centrally undermined so that no physical signs were apparent. A sudden rupture into a large vessel caused the hemorrhage and opened up the cavity. The patient's condition becoming rapidly worse, pneumothorax was applied December 17 (Forlanini method), by admitting 350 c.c. of nitrogen into the sixth interspace right midaxillary line. December 18, 400 c.c. were admitted. December 27, 800 c.c., and January 17, 1,000 c.c. The patient's cough became greatly improved, "blood-spitting" following the hemoptyses ceased, and the temperature dropped to 99.5. February 1, he was suddenly seized with pneumonia, and died Feb. 4, 1914.

This was undoubtedly an acute, progressive tuberculosis, and the prognosis was in doubt from the start.

These three cases, all different in type but progressive, advanced and hopeless, were selected for lung compression to relieve cough and expectoration and not with a hope of arrest. In the former sense, the procedure must be looked on as successful.

I should, therefore, like to add to the indications usually given for lung compression the following: Hopelessly advanced cases in which after careful examination it is ascertained that cough and expectoration is being produced from a large cavity in one lung even though the other is badly infiltrated.

The technic of artificial pneumothorax is simple. I use a Hawsmann modification of the Forlanini apparatus and a trocar 2 inches in length. I formerly used a larger trocar of wider caliber, but have found the shorter one more satisfactory in most cases, as with it there is little danger of penetrating the lung. Great care should be exercised in avoiding damage to the lung-tissue. As careful a sepsis should be used as in any operation. I use as an anesthetic 0.5 per cent. novocain, and apply it first deeply and then superficially. In this way I believe that the so-called eclamptic attacks due to a pleural reflex, and cases of nervous shock can be, to a great degree, avoided.

Much has been written recently by Sillig⁷ and Orlowski and Jofanno⁸ on pleural reflexes, which are now believed to be responsible for such conditions as laryngospasm, slowing of the pulse, vertigo, cough, sudden paleness of the face and fainting. These conditions heretofore have been attributed to gas emboli.

I always use the Forlanini method and pass the trocar in the sixth or seventh interspace in the midaxillary line whenever possible. Careful physical examination controlled by roentgenography should guide the operator as to the best space for entrance. When adhesions prevent going into the space of choice, an attempt may be made higher up in the fifth or fourth interspace anteriorly. Several punctures are sometimes necessary before arriving in a free pleural space.

The real success in applying artificial pneumothorax lies with the manometer. One is sure that he is in the pleural cavity by the manometer registering negative pressure. The manometer tells us, by not registering at all or by registering positive pressure, whether we are in lung tissue, in a blood-vessel, in the pleural wall, or whether our needle is obstructed. Brauer calls negative pressure a pneumothorax symptom. Sometimes when no fluctuation of the manometer is obtained, a small amount of nitrogen—from 25 to 50 c.c.—may be cautiously admitted. If small adhesions are present, these will be broken and the manometer will then register.

Considerable has been written on the reading of the manometer. The number of millimeters negative or positive pressure is immaterial. The rule which I have established for myself is never to allow gas to flow until the manometer registers free and full fluctuations, and immediately to stop the flow when the pressure changes from negative to positive. I do not measure the exact amount of the latter, because I never on first inflation allow more than from 300 to 400 c.c. to enter, and sometimes stop with 100. On the following day from 300 to 500 c.c. are given, then an interval of two or three weeks is allowed to elapse, when from 600 to 800 c.c. are admitted, depending on the manometer. After the third inflation, compression is performed every few weeks and sufficient nitrogen admitted to maintain positive pressure, not to exceed 1,000 c.c.

Robinson and Floyd in this country give 1,000 c.c. as first injection. Originally Forlanini, Brauer and their disciples gave as high as 2,000 c.c. at an inflation, obtaining the highest possible positive pressure. Subsequent observers have shown this to be not only unnecessary but absolutely dangerous, causing such complications as emphysema, dislocation of the heart

7. Sillig: Rev. médicale de la Suisse romande, 1913, No. 7, excerpt Internat. Centralbl. d. Tuberc. Forsch.

8. Orlowski and Jofanno: Beitr. z. Klin. d. Tuberc., 1914, xxx, No. 1.

and rupture into the opposite lung. The best results to-day are accomplished by using just enough nitrogen to compress the lung sufficiently. This never should on first inflation exceed 400 c.c., and on subsequent inflations 1,000 c.c. Pressure should be tested after admission of each hundred cubic centimeters. If these precautions are taken, the numerous complications heretofore reported may be avoided. In my own work the only complication (in two cases) has been a subcutaneous emphysema which, although slightly painful, disappears in a few days.

The results in artificial pneumothorax have been uniformly good. Brauer and Spengler² in their 102 cases assert that accurate statistics of arrests by this method are not practicable, since (1) every case must be analyzed for itself; (2) in many cases we fail to produce a pneumothorax on account of pleuritic adhesions, and (3) cases in which we expect failure are often successful and vice versa. They conclude, however, by stating that they obtained results which could not have otherwise been accomplished.

Saugman⁹ reported 104 cases. In 30 per cent., pneumothorax could not be performed. In seventy-two cases, effectual compression was obtained. He reports good results.

Zink,³ in 110 cases, reports that he accomplished effectual compression in eighty-one cases.

Lucius Spengler¹⁰ reports eighty-eight cases, in which he obtained in twenty-three cases, or 26 per cent., permanent results in from six months to five years. Thirty-six patients, or 41 per cent., are under treatment but improving; ten cases, or 11 $\frac{1}{3}$ per cent., are improved, and nineteen cases, or 21 $\frac{2}{3}$ per cent., were unsuccessful. He reports a favorable result in 78 $\frac{1}{3}$ per cent. of all cases.

E. Grundt¹¹ reports twenty-eight cases, with success in nine.

L. Hamman and M. F. Sloan¹² report twenty cases with successful results.

Rothschild and Fehleisen¹³ report thirty-three cases with good results.

R. C. Matson¹⁴ reported sixteen cases with three arrests and five cases steadily improving.

Dunham and Rockhill⁴ treated twenty patients with good results. They dwell particularly on the value of Roentgen examinations.

H. M. King and C. W. Mills¹⁵ report sixteen cases. In two cases there was permanent arrest, in six temporary improvement, and in one case hemorrhage (which was controlled).

In six cases on account of pleural adhesions compression was unsuccessful.

Mary Lapham⁵ reports thirty-one cases with success in 40 per cent.

My own cases thus far number fourteen, covering a period of less than two years. The cases have been carefully selected from a large material, based on the indications as given above. The number is small because I am still of the belief that only those cases should be reserved for artificial pneumothorax which, after a fair test, do not respond to our other well-tried methods of treatment. In this series are those

advanced cases reported above. Of the other eleven, two patients could not be inflated, one on account of adhesions, the other on account of an old pleurisy with effusion. Three cases are arrested, one patient is rapidly improving, and four patients are progressing favorably, being inflated at intervals of four weeks. Two patients stopped treatment of their own volition. All cases were, whenever possible, controlled by roentgenograms before operation and before the second inflation. All compressions have been made by the Forlanini method, with 0.5 per cent. novocain anesthesia.

I cannot agree with those observers who assert that artificial pneumothorax should be performed only in a hospital or sanatorium. I have performed it at the clinic, at my office and at the patient's home. Whenever possible I perform the first inflation at a hospital, permitting the patient to leave the same day. When a pneumothorax is once established, subsequent inflations are simply and quickly performed if one's technic is correct. I agree with Lillingston¹⁶ who states that most cases of sudden death in the past have been due to faulty technic. As long as careful asepsis, careful anesthesia and careful reading of the manometer are observed, no accidents of serious import should occur.

I wish to thank Dr. George H. Hubbell for the valuable assistance rendered in the roentgenographic work in these cases.

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RADIUM TREATMENT OF CUTANEOUS EPITHELIOMAS BY SINGLE OR MASSIVE DOSES *

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Wickham and Degrais¹ have microscopically determined that "cancer cells, exposed to radium after a primary hypertrophy, disorganize, become soft, disintegrate and are probably eliminated by a phagocytosis. The connective tissue enveloping and separating the mass of cancer-cells, on the other hand, is stimulated and regenerated by the invasion of embryonic nuclei, which dissociate the groups of cancerous cells, finally replacing them. These modifications tend to a fibrous transformation of the tumor, producing, as we know, the unusually good scar that results with such a healing." That any one of the three so-called alpha, beta or gamma rays has an advantage in producing this effect I cannot affirm. I should rather believe that in the method I use the results are probably due to the great amount of rays to which the tissues are exposed, for I use no screen except a thin layer of mica which only filters out some of the alpha rays. The gamma rays constitute only 1 per cent. of the whole radio-activity and, while they are the ultrapenetrating rays and the only ones available for treating deep-seated lesions through the unbroken skin, they are in such a comparatively small quantity that most extensive exposures would seem to be necessary to get a sufficient effect. This in a measure can be overcome by the multiple source and cross-fire methods

9. Saugman: Internat. Cong. Med., London, August, 1913.

10. Spengler, Lucius: Internat. Centralbl., January, 1914.

11. Grundt, E.: Med. Rev., 1913, No. 6.

12. Hamman, L., and Sloan, M. F.: Johns Hopkins Hosp. Bull., February, 1913.

13. Rothschild and Fehleisen: California State Med. Jour., September, 1913.

14. Matson, Ralph C.: Northwest Med., January, 1914, p. 10.

15. King, H. M., and Mills, C. W.: Am. Jour. Med. Sc., 1913, cxlvi, 331.

16. Lillingston, Claude: Lancet, London, 1913, ii, 185.

*Read before the United Medical Society of New York.

1. Wickham and Degrais: Radiumtherapy, Funk and Wagnalls Co., New York, 1910.

of Wickham and Degrais, but the failure to get results often in the deeper-seated lesions would seem to be due to the inability to secure the penetration of the rays in sufficient amount to all parts of the tumor rather than to the character of the rays. A sufficient number of any one of the alpha, beta or gamma rays will, it has been demonstrated, produce a radiodermatitis. Beta rays have necessarily predominated in my exposures.

Masotti² pictures and reports several cases of epithelioma of the skin healed by radium. He remarks on the scar, the ease of the method, and states that he found it unnecessary to determine the variety of epithelioma, as radium was equally effective in the cicatricial, squamous, ulcerating or fungating variety, the length of exposures varying according to the depth of the lesion. He used the rays unfiltered or with only a very thin rubber layer between the tissues and ray source.

Dreyer³ in his little book reports and pictures cases of epithelioma of the cheek and nose healed by radium, and Bayet has resolved idiopathic sarcoma of the skin with two-hour applications every second day over a sufficient period. He emphasizes the accepted fact of the relatively greater effect of radium on sarcoma as compared with carcinoma and epithelioma.

Robert Abbe of New York in his various communications on radium and cancer has mentioned numerous cases of cutaneous epithelioma successfully treated with radium and he would seem unquestionably to give preference to radium in cutaneous epithelioma therapeutics.

Wickham and Degrais,⁴ who probably have had far greater experience with radium than any other observers, are most enthusiastic about their results in the treatment of cutaneous cancers. They report numerous cases, varying from beginning degeneration in warts or keratoses to rapidly growing, malignant, neglected and in some instances inoperable carcinoma beginning in the skin, in which healing has been effected with radium. Many of the patients have remained well after several years, and their photographs show uniformly a remarkably good cosmetic result.

Bayet has treated twenty-five cases of epithelioma. He uses for epithelioma practically unfiltered rays. Six sittings would after two weeks be followed by a strong reaction, a yellowish crusting on non-ulcerating epithelioma, and the formation of a sort of diphtheritic membrane on ulcerating epithelioma with a slow absorption of the diseased tissue under these coverings.

Williams and Ellsworth⁵ picture and describe twelve cases of superficial new growths healed with radium, some remaining well after five years. They used a cell of 50 mg. and advised from three to ten exposures, not more than two per week. They conclude that "the application of pure radium bromid in sufficient amount and properly used is a harmless, painless and efficient method of treating early superficial new growths, and particularly of the face because of the excellent cosmetic results.

Simpson⁶ has treated about a dozen cases of epithelioma situated on the face. Two of these were

of the lower lip, location which, to my mind, should contra-indicate any form of treatment but extensive surgery followed possibly by radium treatment. He compares his results favorably with those of the Roentgen ray and says that the indications and contra-indications are the same in both forms of treatment.

Dominici and Warden⁷ picture and describe some remarkable results in the treatment of malignant disease, mostly inoperable, among which were an epithelioma of the nose and one of the lip, both completely healed. He speaks of these results as chiefly interesting in the remarkable restoration of tissue—"the radium seeming to have the effect of singling out the malignant tissue and causing its absorption and of sparing the normal tissue and determining even a certain amount of healthy new growth."

Henri Audouy⁸ reports 25 cases of cutaneous epithelioma treated by radium and concludes that it has some sort of specific action on the cancer-cell—that it will heal even vegetating or ulcerating cutaneous epithelioma and that it is the least painful and gives the best cosmetic results. He advises using the composite rays rather than the ultrapenetrating rays and describes two methods: first, numerous short exposures without much reaction; second, two or three prolonged exposures producing considerable reaction and destruction of the cancer-cells. Several of his cases would seem to show that Audouy grasped the importance of a thorough destruction of the cancer-cells.

Pierre Petit⁹ in 1908 observed nine cases of cancer of the skin and mucosa successfully treated by radium. The method followed was after Dominici, using only the ultrapenetrating rays and filtering out the alpha and most of the beta rays by lead screens from 0.5 mm. to several millimeters in thickness. Naturally, it was necessary to make long exposures, for only a comparatively small percentage of radium rays are ultrapenetrating. Petit could produce a radiodermatitis if enough of these rays were used, but declared the advantage of the method was the non-production of radiodermatitis. The question arises, Did he get enough of any rays to the cancer-cells to destroy them completely? His cases were reported too soon after treatment to determine this fact. He reported three failures to influence, but these were extensive lesions of the lower lip and mouth, with glandular involvement.

The cases herein reported were all treated with a 10 mg. cell of radium from the Curie Laboratory, containing 2.55 mg. of pure radium bromid with a radioactivity of 1,300,000. No filter was used except the three-eighth- to one-half-inch layer of air space, the exposures being made at this distance from the lesion. Crusts, when present, were softened and removed. In no instance was a biopsy made because I am loath to open up any blood- or lymph-channels before the cells forming the lesion are destroyed. The diagnosis was usually easy and confirmed by the several dermatologists in my clinic.

Whenever possible, the single or massive-dose method was used because after a considerable experience in the Roentgen-ray treatment of cancer, extending over a number of years, I had become convinced that there were an infinitely smaller number of recurrences after the single- or massive-dose method.

2. Masotti: *Traitement des dermatoses par le radium*, Baillière et fils, Paris, 1910.

3. Dreyer, Albert: *Radium als Kosmetikum*, Bonn, F. Cohen, 1913.

4. Wickham and Degrais: *Radium and Cancer*, Hoeber, New York, 1913.

5. Williams and Ellsworth: *Treatment of Superficial New Growths by Pure Radium Bromid*, *THE JOURNAL A. M. A.*, May 31, 1913, p. 1694.

6. Simpson, F. E.: *Radium in Skin Diseases*, *THE JOURNAL A. M. A.*, July 12, 1913, p. 80.

7. Dominici and Warden: *Technique and Results of Radium Therapy in Malignant Disease*, *Brit. Med. Jour.*, Aug. 27, 1910, p. 516.

8. Audouy, Henri: *Traitement d'épithéliome cutané par le radium*, Paris Theses, 1910-11, ii, No. 13.

9. Petit, Pierre: *De l'application du rayonnement ultra pénétrant du radium au traitement des cancers de la peau et des muqueuses*, Paris Theses, 1908-09, No. 91.

Exposures varied from twelve or fifteen to twenty-four hours, depending on the depth and nature of the lesion. Where it was impossible to do this at one sitting, second or even third exposures were given as soon after the first as possible in order to approximate this method and time.

Clinically, there followed in from two to five days an erythema of the normal tissue—for a considerable area of normal tissue immediately surrounding the lesion was always included in order that any outlying cancer-cells might be destroyed—with the formation of a membranous crust on the lesion itself if ulcerating, or, softening, and breaking down with discharge beneath a rupial, soft crust, if it were a solid nodule. At the end of the third week the lesions began to dry and clean up with a diminution of the redness of normal tissue, and healing proceeded, under a dry scab often, with the formation of a thin, nearly level, pale scar in from five to eight weeks.

Clinically, to destroy the cancer-cell, while only producing a more or less pronounced inflammatory reaction in the healthy cells from which they can recover, has been proved to be quite practicable and I would estimate the margin of time-exposure between the destruction of the cancer-cells and up to a destruction of the normal tissue-cells adjacent, roughly, as about one-fifth of the whole time necessary to destroy the cancer-cells, which leaves a pretty safe working margin for any slight error in overexposure.

Granting, for the sake of argument, that more or less normal tissue is destroyed in our efforts completely to destroy all the cancer-cells, are we not better justified in a certain amount of scarring than in a probability of a recurrence? As a matter of fact, the cosmetic results in my cases compare most favorably with any form of treatment I have ever seen. None of the patients have complained of any considerable pain, such as I have observed after similar Roentgen-ray exposures. They have described their sensations as itching or slight stinging. All the lesions have healed kindly after these massive doses.

My idea has then been, I repeat, to give as long a single exposure as compatible with a return of the included healthy cells to normal, or at least, a large part of them, this latter being of considerable importance from a cosmetic point of view. I have adopted this method in the radium treatment of cutaneous epithelioma because it is, I have become convinced, the method to be used in the Roentgen-ray treatment of similar lesions. Time alone will verify the ultimate success of this method.

Its healing qualities are demonstrated in the following cases:

CASE 1.—H. B., American woman, aged 46. Two and a half years ago the lesion first appeared as a little pimple which slowly grew and after six or eight months ulcerated and scabbed. The scab would fall off and the lesion would bleed. For several months the lesion was burned with some kind of an acid every week or two. The ulcer apparently never healed, for when first seen, fourteen months ago, the patient presented on her left cheek a lesion the size of a five-cent piece with a typical, pearly, raised edge and a smooth base with one or two small pearly nodules in it. The patient was then given three comparatively short applications of radium at three-day intervals. The lesion, after six weeks, seemed entirely healed, but when seen six months later, there was a recurrence along the lower half of the original pearly edge. I then gave the patient one single massive dose of radium which was followed by the usual reaction and formation of a greasy-looking crust. The lesion completely healed under this

with a smooth, white and practically level scar, and now, after eight months, the patient is quite well.

CASE 2.—A. H., German man, aged 47. The lesion first appeared over the right maxillary region ten years ago, slowly grew and finally a little scab appeared on it, which would fall off. Each time the scab fell off bleeding would occur and the lesion would apparently have increased slightly in size. At intervals of from six to twelve months the lesion had been curetted and cauterized with silver nitrate followed by apparent healing, but with a relapse each time. Fourteen months ago, when first seen, the patient presented a typical, non-ulcerating epithelioma about the size of a quarter with scattered pearly nodules over its base and a typical, raised, pearly serpiginous edge. Six comparatively short applications of radium were made over a period of five weeks and, while the lesion apparently healed with little or no reaction, it showed signs of recurring along one edge some six months later. One massive single dose of radium was then given and the area, after the usual reaction, seemed completely healed. For eight months the patient has remained free of disease with a smooth, level scar at the site of the lesion.

CASE 3.—T. H., American man, aged 40. The lesion began three and one-half years ago on the left cheek and soon became a scabbed and bleeding superficial ulcer. It had never grown rapidly although it had increased in size, and when, seen, fourteen months ago, was a typical, superficial ulcerating epithelioma the size of a three-cent piece. Four comparatively short radium exposures were given and the lesion healed with little or no reaction, remaining well up to three months ago, when the patient presented himself with a recurrence of the ulceration at the site of the old lesion, and a red, indurated condition extending beyond the lesion for a quarter to a half inch. This patient was then given a very long application of radium at two sittings on successive days, as it was impossible for him to spare the time during one twenty-four-hour period and, after a very pronounced reaction with considerable crusting, the lesion after six weeks has healed and seemingly presents a perfectly smooth scar without any surrounding induration. The patient is apparently well.

CASE 4.—H. C., American woman, aged 60. Four years ago the lesion began as a pimple on the right ala of the nose. It slowly grew and when scratched, she says, would form a scab, which would fall off, when the lesion would occasionally bleed. It was then cauterized and healed. Three years ago she had a relapse of the condition and the lesion was curetted and cauterized with silver nitrate and again healed. Fifteen months ago there was again a relapse at the site of the old lesion and when the patient was seen she had an ulcer in the center of an old scar with hard, pearly, raised, typical edges and a smooth ulcerating base. The lesion apparently had not involved the deeper parts. The patient was given three comparatively long exposures on successive days amounting in reality to a single massive dose and the lesion promptly healed and now remains well after thirteen months.

CASE 5.—J. H., American laborer, aged 46. The trouble began eleven years ago as a little sore on the left cheek near the angle of the mouth. It slowly grew, in spite of treatment with salves and caustics, until four years ago, when it was curetted out and cauterized with silver nitrate. The lesion did not heal and was curetted again three years ago. The lesion never entirely healed and eighteen months ago it was again curetted and burned with silver nitrate and healed except a firm edge, which persisted. When first seen, fourteen months ago, the patient presented a serpiginous, non-ulcerating lesion with raised, pearly edges on a fairly deep, indurated base, with considerable scar-tissue and one or two other small pearly nodules scattered through it. After three comparatively long exposures with as short a space of time as convenient the lesion healed, after considerable reaction, and his doctor writes me that up to the time the patient died by accident, eight months later, there was no sign whatever of a recurrence.

CASE 6.—M. N., American woman, aged 70. Two years ago the trouble began on the left ala of the patient's nose as a little scab and when the patient was first seen, thirteen months ago, the lesion had spread so rapidly that it involved

the whole of the lower end, both alae of the nose, extended out on the left cheek and was a rapidly spreading, excavating ulceration with typical, hard edges and apparently a very malignant process. The tip and right ala of the nose were exposed to a massive dose of Roentgen rays and the left ala and a portion of the disease extending out on the right cheek, comprising an area a little larger than a quarter, was exposed to a massive dose of radium. This patient I have not seen, but her physician writes me that although her nose was very sore for nearly two months the lesion entirely healed with a smooth, white atrophic scar, giving the nose a small, pinched, drawn appearance. It has remained smooth and clean up to the present, a period of eleven months. This was certainly a malignant, rapidly spreading process, inoperable without great destruction of tissue, and is, I consider, a most excellent result for this method with both the Roentgen ray and radium.

CASE 7.—E. C., American man, aged 30. Lesion began between four and five years ago as a pimple on the left malar region. It slowly grew, would scab and occasionally bleed. The lesion was burned out two or three times but never entirely healed. When first seen, thirteen months ago, there was a typical, hard, pearly non-ulcerating epithelioma at the upper edge of an old scar about three-quarters of an inch in length and three-eighths of an inch in width. The patient was given four moderately long radium exposures, which were followed by a very moderate reaction, with healing of the lesion and a splendid scar. Three months ago the patient presented a slight recurrence at the site of the original lesion and a single massive exposure was given, followed by a considerable reaction and healing with as good a scar as was present before the large dose was administered.

CASE 8.—F. L., German man, aged 56. The lesion began about three years ago as a pimple in front of the right ear. It grew to the size of a large pea and was curetted and silver nitrate applied to the wound. One year ago the patient noticed a little lump again at the same spot, which has gradually grown and has sensations of heat and itching. When seen, there was a distinctly firm nodule the size of a large pea, pearly, waxy-looking, hard and non-ulcerating. It was a question whether this was a recurrence of the old trouble or a keloid, the result of the cauterization. Believing that either would be favorably influenced by radium, I gave him a moderately prolonged exposure and, while the lesion greatly diminished in size, there still presents, after nine months, a small, hard, white, waxy nodule which is under observation and which, I am quite convinced now, was originally a keloid. The condition was, however, benefited and no further scarring resulted from the radium application.

CASE 9.—W. R., American woman. Patient first noticed a little scab on the forehead four and one-half years ago. It gradually grew, ulcerated, and two and one-half years ago patient began having Roentgen-ray treatment. This she had off and on with some benefit, but the lesion never entirely healed under it. When first seen, six months ago, patient had a red patch, size of a half-dollar, with an elevated, hard epithelioma, finger-nail-sized, at the lower edge of the patch. Four very considerable exposures during a period of seven days were administered, practically amounting to a single massive dose, and the lesion promptly healed under the usual crusting. The patient now presents a level, soft, and not disfiguring scar.

CASE 10.—A. R., German woman, aged 50. Trouble first began as a pimple on the left cheek nearly three years ago. Patient would scratch it, a scab would form, fall off and the lesion would bleed. On two or three occasions the lesion had been curetted and cauterized with silver nitrate, followed by a fairly prompt relapse each time. When first seen, ten months ago, patient presented a scabbed superficial lesion with pearly, hard edges, size of a three-cent piece. The lesion healed promptly after a moderately long single exposure and after nine months the patient now is well with a splendid cosmetic result.

CASE 11.—M. T., German man, aged 50. The lesion first began as a pimple over right eye about twelve years ago, gradually grew and bled rather profusely at times. The lesion has been curetted and cauterized with silver nitrate four times

in the past nine years with a relapse in from twelve to eighteen months after each treatment. When first seen, ten months ago, patient presented a superficial scabbed epithelioma with typical, elevated, pearly, hard edges the size of a five-cent piece. After a moderately prolonged single application the lesion healed and now remains well after nine months.

CASE 12.—M. J., German woman, aged 60. Three and a half years ago patient first noticed a small pimple on her forehead which gradually grew larger. It was treated with the Roentgen ray. Nineteen months ago it was curetted and cauterized with silver nitrate. It began to relapse sixteen months ago and had gradually increased in size until, when seen, nine months ago, the patient presented two recurring nodules the size of large peas of typical pearly character, along the edge of an old scar. After several moderately long exposures with radium during as short a period of time as possible a considerable reaction resulted, followed by healing with a splendid soft level scar and the patient remains well after seven months. The massive dose was here approximated as nearly as possible.

CASE 13.—J. S., American man, aged 65. Lesion began about three years ago as a pimple on one of the cartilaginous edges of the lobe of the left ear, gradually grew and, when seen, eight months ago, was a typically firm, raised, pearly non-ulcerating epitheliomatous tumor, the size of a finger-nail. A single, prolonged application with radium was made and the patient was instructed to report from his home in the South at intervals. At the slightest sign of a recurrence he was requested to come for further treatment and, while I have not heard from him, I have reason to believe that his physician would have referred him back to me had he been in further trouble.

CASE 14.—J. McC., Irishman, aged 54. The lesion began as a small indurated lump over the cartilaginous roll at the back of his left ear fifteen months ago. When first seen, six months ago, the patient presented a considerably raised swelling, ulcerated at the top and scabbed, situated on the back of the lobe of the left ear, occupying practically the whole of the width of the lobe and extending an inch and a half along its long or vertical axis, distinctly pushing out the ear from the side of the patient's head as compared with the opposite side. Moderately long exposures were given to this mass at two different sittings as it was impossible to include the lesion entirely with one exposure. While the lesion after some reaction was greatly diminished in size and the ulceration healed, there still remained a very considerably elevated and active indurated condition. Five and one-half months ago the lesion was exposed to my radium cell for seventeen hours, and this exposure was followed by a complete disappearance of the mass after a considerable reaction. The scar can now barely be seen and represents apparently the ulcerating portion of the lesion. This was a malignant, rapidly growing epithelioma and, to my mind, represents at present an excellent result.

CASE 15.—American woman, aged 64. About fifteen years ago trouble began as a little speck, as patient describes it, on her nose, gradually grew, scabbed and bled occasionally. Seven years ago the lesion was burned out under ether but it broke out again three years ago and was then curetted and cauterized with silver nitrate. After this it healed but soon again broke out, and was again curetted and cauterized; a relapse followed, and when the patient was seen, eight months ago, the lesion had been present three years. On examination a cicatricial scar occupied an area the size of a half-dollar along the upper half of which there was a crescent-shaped, elongated, hard, pearly, raised, typical epithelioma. Eight months ago three moderately long exposures with radium were given without much reaction and, while the lesion improved, there still remained distinct evidences of it. Six months ago several prolonged applications within as short a space of time as possible, aggregating many hours, trying for the massive-dose effect—though it was impossible because of the patient's age and position to do this all at one or two sittings—the lesion was healed after a considerable reaction and now patient has a very perfect, smooth, soft, pliable, level scar.

CASE 16.—F. S., German woman, aged 40. Lesion began on the right malar region ten years ago, has been cauterized and curetted two or three times but relapsed regularly and now has been growing slowly for three years. When first seen, seven months ago, the lesion was a soft, fungating, cauliflower-like epithelioma with a firm, indurated edge and apparently considerable involvement of the underlying tissue. A single prolonged exposure was given the patient, with usual instructions to report, but I have been unable to hear of the patient since exposure.

CASE 17.—C. T., Irish woman, aged 67. Patient had had lupus erythematosus scattered over the face and forehead at varying periods for many years. Fifteen years ago she had an open sore cut out of her lip near the left ala of her nose. One and one-half years ago a pimple began to grow on her left cheek, grew rapidly into a soft granulating mass and then stopped; latterly it had been growing again. When seen, six months ago, it was a soft-looking, highly raised, granulomatous mass with rather deep induration of the base and a firm induration extending out into the surrounding tissue for about a quarter to three-eighths of an inch. At that time several prolonged applications were made within as short a period as convenient, with the idea of approaching the single, massive-dose method as nearly as possible, aggregating some twenty-eight hours. The lesion healed after rather pronounced reaction and at the present time shows a clear, level, pliable scar.

CASE 18.—C. T., an old Irish woman. For the past year patient had noticed a lump growing on the right side of her neck. It had grown more rapidly in the last two or three months. When first seen she presented a soft, fungating, raised epithelioma the size of a hickory-nut, on the right side of her neck. There was little or no induration extending out into the surrounding tissues. The lesion was given one very prolonged exposure to radium, healed promptly in the usual way and the resulting scar is at present everything that could be desired.

CASE 19.—T. C. S., American woman, aged 42. The past two years patient had had a little spot on the left side of her nose. A crust would form, fall off and the lesion would bleed. When seen, three months ago, the patient presented a typical, superficial epitheliomatous ulceration with pearly, hard edges about three-quarters of an inch in length by half an inch in diameter. Immediately surrounding this there was a seborrhic, crusted condition. The patient was given one prolonged massive dose of radium and her physician reported that everything had healed at the end of six weeks with an excellent scar.

CASE 20.—N. R., Irish woman, aged 50. Patient first noticed a pimple over the left temporal region six years ago. Some itching existed and when scratched the lesion would scab with bleeding when the scab fell. Lesion has been treated with various plasters and caustics during the last two years. When seen, six weeks ago, the lesion comprised an area a little larger than a silver dollar, the lower half presenting a fungating ulcerating mass the size of a quarter, with a firm, indurated, pearly edge and above this several scattered, raised indurated, pearly nodules forming a creeping edge, as it were, for in this way, the patient said, the lesion had spread. A single massive exposure to radium was given to the lower ulcerating part of this lesion and, after six weeks, the lesion is entirely healed, smooth and soft, though it still is slightly discolored—a faint red. The upper part of this lesion is now under treatment.

CASE 21.—B. R., Irish woman, aged 78. Twenty years ago, what were probably seborrhic warts began to be scattered over the patient's face. These have persisted and grown in several places. Two or three of them are now undergoing distinct degeneration, others still are in a simple seborrhic verrucous condition. One year ago a patch over the lower half of the nose began to be sore and the patient now has a superficial, raw, ulcerating lesion the size of a quarter with a tendency to bleed. Above this was a blackish-looking, raised, seborrhic wart the size of a five-cent piece, which was distinctly undergoing degeneration. On the left cheek also was a degenerated, seborrhic, scaly patch, ulcerated in the center,

crusted and bleeding, situated on a slightly indurated and inflamed base. Four, three and two weeks ago, respectively, single massive doses of radium were administered to these degenerated lesions and the patient now is going through the usual stage of inflammation with a thick impetiginous crusting, but with little or no discomfort.

CASE 22.—S. G. P., man aged 50. Lesion began several years ago on the right side of the nose about a half inch from the inner canthus of right eye. The lesion grew slowly, scabbed, and although the patient had had various forms of treatment, including Roentgen ray in small repeated doses and severe high-frequency cauterization, the lesion refused to heal. It slowly spread until, when radium treatment was begun, eighteen months ago, the lesion was a little larger than a quarter, had an ulcerated, raw center and distinctly raised, hard, pearly edges, forming a rather typical, crater-like ulcer. The lesion seemed firmly adherent to the underlying periosteum and had extended upward somewhat toward the inner angle of the eye. The patient having absolutely refused operative measures, radium was tried and short thirty-minute exposures at intervals of from three to five days were given over a period of six or seven weeks, and, although some reaction followed the later exposures that were given, very little healing effect apparently was produced and I refused to treat the patient further with radium.

I mention this case last because I am fairly convinced that had the massive-dose method of radium treatment been used on this patient instead of the small repeated-dose method, at least a healing would have resulted, whereas I am equally convinced that the small repeated-dose method, no matter how long persisted in, would not have influenced but perhaps might even have aggravated the condition. This was one of my first radium cases and, although I had abandoned the repeated-dose method of the treatment of cancer with the Roentgen ray and was then using only the massive-dose method, I did not feel that I was justified on a book acquaintance with radium in adopting that method at that time.

An analysis of these cases shows:

Three refused to heal entirely under the small repeated-dose method, even though numerous exposures were made and a slight reaction produced.

Three others recurred after short intervals when treated by the small repeated-dose method, though they had apparently entirely healed.

All the cases treated by the single or massive-dose method healed kindly without recurrence so far.

The cosmetic results in these cases have been all that could be hoped for, the scars being smooth, nearly level, pliable and showing a minimum amount of deformity.

CONCLUSIONS

1. Radium is an efficient and satisfactory means with which to attack these lesions if used in sufficient quantity.

2. The single or massive-dose method will probably prove to be the method of choice, as it has in the hands of some of us in the Roentgen-ray treatment of these lesions.

3. It is easier to estimate this single or massive dose because we are dealing with a stable remedy emitting a constant amount of rays, which is not the case with Roentgen rays, even with the pastiles now at our disposal.

4. The cosmetic results are at least equal to those of any other form of treatment of these lesions.

5. Its ease of application, comparative painlessness, even in the inflammatory stage, and harmless appearance recommend it to patients.

6. The length of exposures can be practically determined and depends on the amount of radium and the character of its container, its distance from the lesion, the location of the lesion, the character of the lesion—whether superficial or deep—and the age, state of health and susceptibility of the patient to other rays, such as the sun's.

7. Its two disadvantages are its high cost and the length of time of exposure in the single-dose method. This latter, however, is indirectly in proportion to the amount of radium employed.

38 E. Forty-Ninth Street.

CHOLESTERINIZED ANTIGENS *

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In a recent article,¹ Thomas and Ivy decry the use of cholesterinized antigens in the Wassermann reaction, asserting that many positive results are obtained by them in non-syphilitic cases.

Since Dec. 1, 1913, I have been using in my Wassermann work an antigen composed of human heart-extract plus 0.4 per cent. cholesterin as advocated by Walker and Swift.² Some of this was very kindly furnished me by Dr. Ralph W. Webster, while the remainder was prepared in my own laboratory.

In all I have used the cholesterinized antigen in 356 tests. While this number is somewhat small from which to draw definite conclusions, it is larger than that of Thomas and Ivy, and my results have been so uniformly satisfactory that I unqualifiedly endorse the use of this antigen, even over the heads of such authorities.

In beginning the use of the cholesterinized antigen I felt that a control should be used, which was done in the first fifty tests of this series. For this control an alcoholic extract of syphilitic liver was employed.

Of these fifty tests, thirty-nine were negative with both antigens. Three were 3 plus positive with both, one 2 plus positive with both. Six were 4 plus positive with the cholesterinized antigen, five of which were 4 plus positive with the syphilitic liver extract, while one was only 3 plus positive with this antigen. In one case the test was 1 plus positive with the cholesterinized antigen and negative with the syphilitic liver extract. This case was that of a very vigorously treated paretic which had before treatment given a 4 plus positive with the syphilitic liver extract.

The 306 tests in the remainder of the series were performed with the cholesterinized antigen alone. One hundred of these tests were made on known non-syphilitic persons (that is, those who denied syphilitic infection, medical students, physicians, nurses and others), soon after the appearance of the article by Thomas and Ivy. Every one of the hundred cases gave a negative reaction.

The remaining 206 tests of this series were those performed in the routine examination of suspected

or known treated syphilitics in the State Hospital for Nervous Diseases. Of these, twenty-seven were 4 plus positive, seventeen 3 plus positive, two 2 plus positive, and three 1 plus positive, while 157 were negative. The three 1 plus positive and the two 2 plus positive tests were made on vigorously treated syphilitics, who had previously given stronger tests with the alcoholic extract of syphilitic liver, while the other positives were in cases in all of which there were abundant clinical evidences of syphilis. Two cases, in particular, are striking, inasmuch as they were both cases of primary syphilis. The first test in each case was performed during the first week after the appearance of the chancre and in both was negative. In one of these cases the *Spirochaeta pallida* was demonstrated at the time the blood was taken for the Wassermann, while in the other this was impossible. Both cases, however, subsequently gave 4 plus positive Wassermann tests.

From the foregoing summary of cases I think it is evident that the use of cholesterinized antigen is not attended with the dire results indicated by the authors quoted above; at least this is not the case in this series.

I think that the discrepancy in the results of my work and that of Thomas and Ivy, and perhaps other investigators, may be accounted for in the titration of reagents.

In another article³ I have pointed out the method I employ in the titration of the Wassermann reagents, which briefly is as follows:

Absolute test conditions are imposed, that is, when complement, for example, is to be titrated, a series of tubes is set up, in each of which is placed 0.1 c.c. of a known negative inactivated serum, one unit of antigen, increasing amounts of complement, and sufficient salt solution to bring the total volume up to the required amount when amboceptor and corpuscles are subsequently added. The tubes are now incubated for half an hour at 37 C. (98.6 F.), after which one unit of previously titrated amboceptor and one unit of corpuscle suspension are added and the incubation continued one hour. The smallest amount of complement which produces complete hemolysis is determined and is one unit. In the actual test one unit and only one is used.

Amboceptor is titrated in a similar manner, and here again one unit and only one is used in the test.

In the titration of antigen the first requisite is that it must not produce hemolysis in an amount considerably in excess of the antigenic unit. The hemolytic value is determined by placing in a series of tubes increasing amounts of the antigen and adding to each, one unit of corpuscle suspension and sufficient salt solution to bring the total volume to the required amount, and incubating for one hour at 37 C.

The other factors to be determined are the anticomplementary value and the antigenic unit.

Two series of tubes are set up, and in each of one series is placed 0.1 c.c. of a known negative serum, and in each of the other series 0.1 c.c. of a known positive serum. Increasing amounts of antigen and one unit of complement are added and the tubes incubated for half an hour at 37 C. One unit of amboceptor and one unit of corpuscles are now added and the incubation continued for one hour. In the negative series the tube with the least amount of antigen which shows any hemolysis contains the anticomplementary dose, while in the positive series the tube with the least amount of antigen which shows complete inhibition of hemolysis contains the antigenic dose. The unit is the average of these two.

CONCLUSIONS

After using cholesterinized antigen in 356 tests, fifty of which were controlled by an alcoholic extract of

* From the Pathological Laboratory of the State Hospital for Nervous Diseases, Little Rock.

1. Thomas, B. A., and Ivy, R. R.: Use of Cholesterinized Antigens in the Wassermann Reaction, THE JOURNAL A. M. A., Jan. 31, 1914, p. 363.

2. Walker, I. C., and Swift, Homer F.: A Study of the Addition of Cholesterin to the Alcoholic Extracts of Tissues Used for Antigens in the Wassermann Reaction, Jour. Exper. Med., July 1, 1913.

3. Thompson, Loyd: Titration of Wassermann Reagents, Arch. Int. Med., to be published.

syphilitic liver, and one hundred of which were known negative cases, while of the remainder the positives were in cases which were clinically syphilitic, it is concluded that:

1. Owing to the ease of preparation of this antigen it is to be recommended.

2. It is slightly more delicate than other antigens, and is especially valuable in determining when a cure has been effected, as a positive with it persists after treatment for a longer time than with other antigens.

3. If the reagents are titrated properly, non-syphilitics will not give positive results.

Second and Sherman Streets.

HETEROPLASTIC TISSUE GRAFTING EFFECTED THROUGH ROENTGEN- RAY LYMPHOID DESTRUCTION *

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The relationship between the lymphoid tissue and the mechanism which causes the failure of heteroplastic tissue grafts has been considered in a recent report.¹ The chick embryo which lacks this defensive mechanism was shown to be an excellent host for the growth of a variety of tissues derived from foreign species.² These embryos, however, become as resistant as the adult if supplied with a graft of either adult chicken-spleen or bone-marrow.³ If the deductions from these experiments are correct, it should be possible to effect heterotransplantation in the adult by lessening the activity of the lymphoid tissue. As a matter of fact this has been accomplished up to the present by two distinct methods: (a) by the employment of subcutaneous injections of benzol (benzene, C_6H_6); (b) by the use of the Roentgen ray. The present preliminary report relates exclusively to the second method. As regards the use of benzol, it should be added that when the experiments succeed, which is by no means always the case, because of the toxic action of the drug, heterotransplantation of mouse sarcoma into the rat has been accomplished.

EXPERIMENTS

SERIES 1.—Twenty rats of the same size were selected, ten of which were exposed to Roentgen rays for five minutes daily for ten days. The twenty animals were then inoculated with grafts of the Ehrlich mouse-sarcoma. The mouse-tumor grew in the normal rats for the first few days, but growth ceased by the ninth to tenth day and retrogressed rapidly to complete absorption. The tumors in the animals treated with Roentgen rays continued to grow for some days longer. The period at which growth stopped varied considerably. Some ceased after the fourteenth day, others stopped at the fifteenth or sixteenth day. In one animal killed on the eighteenth day the tumor had attained the size of 1.8 by 1.3 by 1.2 cm. The microscopic examination showed the typical cells of mouse-sarcoma in an active state of pro-

liferation, with numerous mitotic figures. There was a total absence of the round-cell infiltration normally associated with a tissue graft in a foreign species. This tumor was reinoculated into ten mice and gave rise to rapidly growing tumors in all the ten.

SERIES 2.—Ten rats of the same age were selected, of which five were subjected to Roentgen-ray treatment, five minutes a day for two weeks. The ten were then inoculated with grafts of the Ehrlich sarcoma. In the untreated animals the tumors reached their maximum size of 0.7 cm. by the ninth day, after which they quickly retrogressed to complete absorption. Among the animals treated by the Roentgen ray, two tumors stopped growing on the twelfth day and one on the thirteenth day. One tumor was still in active growth on the fourteenth day when all but a small graft was removed at operation. The remaining graft continued to grow till the nineteenth day, when the animal died of an intercurrent disease. The portion of the tumor removed at operation was inoculated into five rats which had been treated for two weeks with daily doses of the Roentgen ray. The tumors grew well in all these animals till the thirteenth day, when there was some slowing down. Two of the largest of the tumors were removed at operation and inoculated into a third series of rats which had been subjected to the Roentgen ray as in the foregoing. It is now thirty-two days since the tumor was removed from the mouse and it is still growing actively in the third series of rats. Microscopic examination of specimens removed on the twenty-fourth and twenty-seventh days show the tumors to be composed of the typical and characteristic cells of the Ehrlich mouse-sarcoma. Numerous mitotic figures are present, together with evidence of vigorous tumor-growth and a total absence of the usual cellular reaction about a graft associated with the resistance to the growth of a foreign tissue in a normal animal.

The fact is well known that the Roentgen ray given in small amounts affects first and most pronouncedly the lymphoid system. The fact that heteroplastic tissues grow in animals treated with the Roentgen ray strongly suggests that it is the removal of the lymphoid barrier that makes this possible. The same conclusion was arrived at in connection with the experiments on heteroplastic tissue grafting into chick-embryos alone or with splenic or bone-marrow tissue.

COMPLETE BILATERAL ISOLATED PARALYSIS OF THE SEVENTH NERVE

DEVELOPING FOUR MONTHS AFTER THE PRIMARY
INFECTION OF SYPHILIS *

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When one recalls in what close proximity the sixth, seventh and eighth nerves emerge at the base of the brain, it is hard to conceive of a lesion involving one of those nerves without affecting the others, and it is astonishing to think that any disease process could pick out the seventh nerve on each side, cause paralysis of that nerve and leave intact all the others, even the eighth, which lies in contact with it. Yet this has occurred, and there is at present such a case in the Hospital of the University of Pennsylvania.

Present Illness.—The patient, a white man, aged 32, came to the hospital Feb. 20, 1914, complaining of inability to move the muscles innervated by the seventh nerve on each side. He gave the following history of his present illness: About Jan. 1, 1914, while the patient was eating, he suddenly became aware of a sensation of "stiffness," as he expressed it,

* From the Laboratories of the Rockefeller Institute for Medical Research.

1. Murphy, James B.: A Source of Defense to Heteroplastic Tissue Grafting, *THE JOURNAL A. M. A.*, Jan. 17, 1914, p. 199.

2. Murphy, James B.: Transplantation of Malignant Tumors to the Embryos of a Foreign Species, *THE JOURNAL A. M. A.*, Sept. 14, 1912, p. 874; Transplantability of Tissues to the Embryos of Foreign Species, *Jour. Exper. Med.*, 1913, xvii, 482; *Proc. New York Path. Soc.*, 1912, xii, 206.

3. A full description of these results is given in the forthcoming number of the *Journal of Experimental Medicine*.

* From the Neurological Department of the Hospital of the University of Pennsylvania.

in the left side of his face. He continued with his meal, but the sensation of stiffness persisted and in a very short time he found that he could not move the left side of his face. The next morning the stiffness and inability to move the left side of his face were unchanged, and in addition he felt dizzy when he stooped over or moved quickly. The patient could not see clearly at a distance, although he says that he could see objects close at hand and could read for a short time, but his eyes would soon "water" and everything would become blurred. There is a history of some dimness of vision in the right eye which has been present since childhood. Otherwise the patient felt perfectly well. Two days after the onset described above, while out driving, the patient became conscious of the fact that the right side of his face felt stiff and he found that he was then unable to move that side of his face. This condition of inability to move either side of his face persisted, and finally he received some sort of electrical treatment which did not affect the symptoms. After the onset the man worked for one week and then the dizziness on stooping caused him to stop work, and he has done no work since then until one week before admission. He has no pain in his face at present, nor has he had any such pain at any time during the present illness. From the onset he had a full, heavy feeling in his head, which he says felt like "something pressing down," and which lasted for one week. At the time of admission he had a dull, aching pain in the left parietal region. The patient is able to chew his food and to swallow perfectly, and fluids do not come out through his nose. There is a buzzing sensation of some sort in his left ear. He complains of no muscular weakness in any part of his body except in his face, and he says that he walks in the dark without difficulty and never stumbles, nor has he ever noticed any sensation of walking on something soft. There is no complaint of any urinary disturbance nor has he any gastrointestinal, renal, cardiac or pulmonary symptoms.

Previous Medical History.—About Sept. 12, 1913, he had what he calls a "pimple" on the penis, which was very slow to heal under both local and internal treatment prescribed by a physician. In the latter part of December, 1913, and the first part of January, 1914, he suffered with a sore throat and a sore tongue, but there were apparently no other secondary symptoms. He has had gonorrhea. Seldom does he use any alcoholic beverage.

General Physical Examination on Admission.—The man is large, well built, well nourished and his face attracts immediate attention because of its absolutely expressionless appearance. His lower eyelids are everted and there is marked lacrimation, while his mouth droops, giving him a very dejected appearance. There is no drooling of saliva. He is unable to wrinkle his forehead, and when asked to close his eyes the upper lids move down about half way and stop while the lower lids remain everted. If the patient pulls the upper lids all the way down with his fingers, he is then able to raise them again. There is a total inability to wrinkle either side of his face, he cannot draw up or depress either corner of his mouth, and he cannot smile or whistle or make any movement with his lips. When asked to blow out a match the only motion of his lips is that due to the expulsion of air, and he is unable to extinguish the flame. The lower jaw can be moved up and down and sideways easily, and the tongue is readily protruded in the midline and moved freely in all directions. He had no difficulty in chewing his food. The eyes are moved freely in all directions and there is no nystagmus or exophthalmos. The pupils are equal in size and react readily and equally to light and in accommodation. The sensations of touch and pain are normally acute in the face. The biceps and triceps tendon reflexes are normal in promptness and extent, and sensation to pain and touch is normal in the hands and arms. In the lower extremities the patellar and Achilles tendon reflexes are normal on each side, and there is no ankle-clonus or upward turning of the great toe when the sole of the foot is stroked.

The sensation of pain and of touch is normal in both lower extremities. When the patient stands erect with toes and heels together there is no swaying, and no ataxia is detected by the finger-to-nose test. His gait is normal. Nothing abnormal was found on examination of the heart, lungs and

abdomen. The urine examination has shown nothing abnormal.

Blood Examination.—The following condition was found: hemoglobin, 75 per cent.; red blood-corpuscles, 4,600,000; white blood-corpuscles, 12,800. The differential blood count was as follows: polymorphonuclear leukocytes, 84 per cent.; lymphocytes, 14 per cent.; large mononuclears, 0 per cent.; transitionals, 2 per cent.; eosinophils, 0 per cent. Feb. 21, 1914, the Wassermann reaction was tried on a specimen of the patient's blood-serum by Dr. John L. Laird and reported to be strongly positive.

Examination of the Eyes.—Dr. George E. de Schweinitz and Dr. Carl Williams reported the following findings: The pupils were equal and reacted normally to light and in accommodation. Vision in the right eye was slightly blurred for details and normal in the left eye. In the right eye is a faint corneal nebula. The fundus of each eye is healthy. Double orbicularis palsy was noted. Vision in the right eye is 4/150, in the left, 6/6.

Examination of the Ears.—Dr. Butler did not find any involvement of the eighth nerve. The drumheads were normal except for slight retraction of the left one. Before inflation hearing as tested by the tuning-fork on the right side was 9/14 and on the left side 8/14. Inflation, however, brought the hearing on the right side up to 13/14 and on the left side to 11/14. The Galton whistle was heard at 0.7 turn on each side, and ability to hear the C₄ fork was normal on each side. Low tones were heard at 3/4 on each side. Air conduction was found to be better than bone conduction. The Weber test was to the left and no involvement of the vestibular branch of the eighth nerve was detected by the revolving-chair test. Some congestion of the eustachian tubes was found, and this was thought to be sufficient to cause the slight diminution in acuteness of hearing. Dr. Butler concluded that there was no involvement of the eighth nerve on either side.

The Electrical Reactions of the Facial Muscles.—These were tested by Dr. J. W. McConnell, and it was found that the reaction to the galvanic current in the muscles of the right side of the face was in response to 5 milliamperes of current, while on the left side of the face 8 milliamperes of current were required to elicit reaction. On both sides of the face the reaction showed the vermicular, slow quality of degeneration. The serial reactions of galvanic current showed the anode closing contraction to be greater than the cathode closing contraction. There was no response on either side of the face to breaking the current. There was no reaction to stimulation by the galvanic current over the nerve. Taste sensation for sweet and salt is absent on the anterior two-thirds of the tongue.

This case, then, is certainly one of involvement of both seventh nerves below the nuclei and probably after the emergence of the nerves at the base of the brain. If the lesion were in the medulla we would find also some involvement of other tracts, but there is absolutely no evidence of such a condition. Both of the motor tracts have escaped, although almost always in syphilitic disease of both seventh nerves there is also an affection of one or both of these tracts. The sixth nerve, lying as it does quite close to the seventh, has escaped, and there is no evidence whatever to indicate that any other of the cranial nerves is involved. Even the eighth nerve, which is in absolute contact with the seventh at its emergence, has entirely escaped on both sides.

Such a paralysis as we have in this case would be very interesting if it affected the nerve only on one side, but here we have both seventh nerves involved, and they alone of all the other cranial nerves, and furthermore, each is affected in all of its branches.

As a rule, cerebral syphilis is an insidious condition, creeping on slowly; but in this case its onset was very rapid and the time of its appearance early, coming with

the secondary symptoms. Then again, the nerve on the right side was involved only two days after the paralysis of the left side, the whole clinical picture being complete in less than three days, and it had neither progressed nor receded up to the time of the patient's coming to the hospital. So this astonishing rapidity of onset and progression after the infection is one of the most remarkable features of the case.

Although such a precipitate onset is most unusual, yet it does occur, and indeed there is in the records of the dispensary for nervous diseases of the Hospital of the University of Pennsylvania and reported by Dr. William G. Spiller, another case showing just this feature. The history is in brief as follows:

The man, a negro, aged 22, on about Jan. 19, 1909, that is, two months before admission, had what he called a "chancre" on the penis. Here, as in the other case, the history of luetic infection is clear. Approximately one month after this "chancre" was acquired and while washing his face, he discovered that he could not close his right eye. On examining his face with the aid of a mirror he was surprised to find that his mouth was twisted to the left side. This paralysis seems therefore to have been quite as sudden in

faradic current when applied over the facial nerve or when applied over the muscles themselves, except a slight contraction of the frontalis muscle. There was no contraction of the facial muscles to stimulation over the nerves by a galvanic current, but a tardy response was obtained when applied over the muscles. Anode closing contraction was nearly equal to cathode closing contraction on both sides of the face.

In Spiller's case there was no history of secondary symptoms of syphilis, but one or two weeks before the onset of the paralysis a stiffness of the neck was noted. Of these two cases the first is the one to which I wish to call particular attention, not only because it presents a very interesting and uncommon clinical picture, but also because of the fact that under treatment there has been some return of power in the muscles affected.

Treatment in Author's Case.—Antisyphilitic treatment was begun Feb. 25, 1914, and since that time the patient has received two intravenous injections of neosalvarsan in doses of 0.45 gm. each. This was supplemented by inunctions of unguentum hydrargyri, 1 dram a day. March 16, 1914, the salicylate of mercury was substituted for the ointment and given by intramuscular injections in doses of $\frac{1}{10}$ grain every fourth day. The patient has now had three of these injections. Galvanic electricity is also being used daily over the muscles affected.

At present he is able to close his eyes more completely than when he was admitted, and can make slight upward motion at both corners of his mouth.

[Since the writing of this report the patient has had a further manifestation of secondary syphilis in an extensive loss of hair from his head. He has also had a remarkable return of power in his facial muscles and, at present, can draw up the corners of his mouth to almost a normal degree. He has well-marked nasolabial folds and can wrinkle his forehead very slightly. He has had a fourth injection of 0.45 gm. neosalvarsan.]

In this case I would call attention especially (1) to the clear history of syphilitic infection corroborated by the Wassermann reaction; (2) to the nice selection of each seventh nerve in all its branches, with the escape of all other cranial nerves, and of the motor

tracts which are almost always affected in syphilitic paralysis of the seventh nerve, and (3) to the rapidity of onset after the infection and the short interval that elapsed between the paralysis of the seventh nerve on the left and on the right side.

I am indebted to Dr. William G. Spiller for his aid in the study and preparation of this case.

3400 Spruce Street.

Our Duty to Others.—The lot of the laborer is still abandoned to the blindest individualism, and among the ruling classes the conviction has not yet penetrated that the decadence of the physical strength of the worker, the diminution of the capacity for work, the premature deaths, the degeneration of the race, the chronic diseases which require long periods of treatment in hospitals and asylums, cost the general economy of the country more than the expense which would be incurred in stamping out the evil.—Lugaro, Problems in Psychiatry.



Fig. 1.—Patient at rest.



Fig. 2.—Patient attempting to close his eyes and draw up the corners of his mouth before any effects of treatment were noticed.

onset and to have followed the initial lesion even more quickly than in my case. Ten days after the paralysis of the right side of his face he became aware that the left side of his face was similarly affected, and when he presented himself at the dispensary he was unable to wrinkle either side of his forehead and could not completely close his eyelids.

The involvement of the opposite facial nerve in this case was not so rapid as in my own case, but the paralysis was just as complete on both sides. There was an entire absence of the nasolabial fold on each side, and the man was not able to elevate either corner of his mouth, which hung open at all times. Food collected in both cheeks and also back of the lower lip. There was no loss of sensation for pain and touch in the face, nor any pain. The ocular movements were prompt and free in all directions and the pupils were equal in size and reacted readily and equally to light and in accommodation. Biceps, patellar and Achilles tendon reflexes were all found to be exaggerated on both sides, and a bilateral ankle-clonus was found. There was no upward turning of the great toe on the stroking of the sole of either foot.

Tested by the electric current there was found to be no contraction of the muscles on either side of the face to the

TREATMENT OF GONORRHEA AND ITS
COMPLICATIONS BY ANTIGONOCOCCIC SERUM

A PRELIMINARY REPORT OF TWENTY-FOUR CASES *

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CHICAGO

In 1907, John C. Torrey¹ of the Loeb Research Laboratory of New York, read a paper before the American Congress of Physicians and Surgeons in Washington, D. C. This was an original communication describing an antigonococcic serum, prepared by injecting dead and virulent gonococci into uncastrated rams. The indications for the application of the serum were the following:

- 1. Those infections arising by direct extension, that is, in the prostate, bladder and epididymis in the male, and in the uterus and fallopian tube in the female.
- 2. Those infections arising by extension through the lymphatics or the circulatory system. These include arthritis, iritis, endocarditis, pleuritis and meningitis.

* Read before the Chicago Medical Society, March 9, 1914.
1. Rogers, John, and Torrey, John C.: The Treatment of Gonorrheal Infections by a Specific Antiscrum, THE JOURNAL A. M. A., Sept. 14, 1907, p. 918.

The dose as recommended at that time was 2 c.c., given every three or four days, at the discretion of the physician. Later, Herbst,² Belfield³ and Schmidt⁴ of Chicago and Swinburne⁵ of New York reported their experience. All seem to have agreed in regard to the value of the treatment in rheumatism, but in regard to other complications, results were somewhat conflicting.

Previous to 1911, I had repeatedly given as large a dose as from 6 to 12 c.c. in two days, in cases of acute epididymitis, with surprising results. In 1911, I had a beautiful illustration of the application of this serum in a case of gonorrheal rheumatism accompanying prostatic infection: Case 15. At this time, 16 c.c. were given in three days. A complete cure was obtained in two weeks.

Stimulated by the work of Theobald Smith⁶ and Rufus Cole⁷ in antipneumococcic serum and George Weaver⁸ in antistreptococcic serum, in September, 1913, I made a careful survey of my cases already treated and determined to adopt a larger dose and

2. Herbst: Illinois Med. Jour., 1908, xiii, 689.
3. Belfield, Illinois Med. Jour., 1908, xiii, 689.
4. Schmidt: Therap. Gaz., 1909, xxvi, 609.
5. Swinburne, G. K.: Tr. Am. Urol. Assn., 1909, iii, 170.
6. Smith, Theobald: An Attempt to Interpret Present-Day Uses of Vaccines, THE JOURNAL A. M. A., May 24, 1913, p. 1591.
7. Cole, Rufus: Treatment of Pneumonia by Means of Specific Serums, THE JOURNAL A. M. A., Aug. 30, 1913, p. 663.
8. Weaver, George H.: Antistreptococcus Serum, THE JOURNAL A. M. A., Aug. 30, 1913, p. 661.

DETAILS IN TREATMENT OF TWENTY-FOUR GONORRHEA

| Case | Diagnosis | Duration | Previous Treatment | Gonococci Present | Symptoms | Urine Glasses * | Complement Fixation |
|-------------------|--|----------------|-----------------------------|-------------------|--|---|---------------------|
| 1. R. | Acute anterior and posterior urethritis. | 8 days..... | None | Yes | Frequent and painful urination. | I tr..... II tr..... | Negative |
| 2. C. | Same | 2 weeks..... | None | Yes | Same | Same | Negative |
| 3. J. P. | Same | 4 weeks..... | Hand injec'n. | Yes | Discharge | Same | Positive |
| 4. E. R. | Acute anterior urethritis... | 1 day..... | None | Yes | Discharge and painful urination. | I tr..... II cl..... | Negative |
| 5. E. McE. | Same | 4 days..... | None | Yes | Same | Same | Negative |
| 6. J. S. | Chronic urethritis with fistula. | 8 months.... | Yes | Yes | Infected sebaceous cyst.... | Same | Negative |
| 7. Dr. S. | Urethritis totalis with prostatitis. | 4 weeks..... | Yes | Yes | Discharge and severe stranguary. | I tr..... II bloody.. | Positive |
| 8. D. D. | Same | 18 months... | Yes | Yes | Discharge | I tr..... II tr..... III massage tr | Positive |
| 9. C. G. | Urethritis totalis prostatitis with stricture. | 2 years..... | Yes | Yes | Discharge | Same | Positive |
| 10. B. G. | Urethritis totalis and double epididymitis. | 3 days..... | None | Yes | Referable to epididymis.... | I tr..... II tr..... | Positive |
| 11. H. A. | Prestatic abscess..... | 2 days..... | Yes | Yes | Acute retention urine 28 hours. | I tr..... II tr..... | Positive |
| 12. W. S. | Epididymitis and rheumatism, acute. | 3 months.... | Yes | Yes | Discharge, epidid. Rheumatism right and left knee. | I tr..... II tr..... | Positive |
| 13. J. P. | Rheumatism, acute..... | 6 weeks..... | None | Yes | Rheumatism of right wrist and ankles. | I tr..... II tr..... | Positive |
| 14. G. D. | Rheumatism, acute..... | 2 weeks..... | Internal | Yes | Large swelling of left knee; discharge. | I tr..... II tr..... | Positive |
| 15. E. R. | Rheumatism, acute..... | 3 weeks..... | None | Yes | Severe pain in left hip; discharge. | I tr..... II cl..... III massage tr | Not made.... |
| 16. A. G. | Rheumatism, acute..... | 3 weeks..... | Yes | Yes | Discharge and swelling of right ankle. | I tr..... II tr..... III tr..... | Positive |
| 17. J. McG. | Rheumatism, chronic..... | 4 months.... | Yes | Yes | Knees and ankles quite tender; discharge. | I tr..... II tr..... III tr..... | Positive |
| 18. G. L. E. | Rheumatism, chronic..... | 6 months.... | Irrigations, mud-baths. | Yes | Pains in heels and toes; discharge. | I tr..... II tr..... III tr..... | Not made.... |
| 19. G. L. G. | Rheumatism, chronic..... | 4 months.... | Hand injections; mud-baths. | Yes | Pains in right shoulder and left ankle; discharge. | I tr..... II cl..... III massage tr | Positive |
| 20. J. G. | Rheumatism, chronic..... | 3 months.... | Bier hyperemia, injections. | Yes | Marked swelling right knee. | I tr..... II tr..... III tr..... | Positive |
| 21. J. H. | Endometritis, chronic..... | Indefinite ... | None | Yes | Leukorrhea for three or four years. | No bladder symptoms. | Positive |
| 22. M. S. | Endometritis, chronic..... | Indefinite ... | None | Not present.. | Leukorrhea | Same | Positive |
| 23. M. O. | Endometritis, chronic..... | 6 months.... | Yes | Yes | Leukorrhea | Same | Positive |
| 24. M. S. | Endometritis, salpingitis, chronic. | Indefinite ... | None | Yes | Pelvic pain; confined to bed; leukorrhea. | Same | Positive |

* tr. = turbid; cl. = clear. † Second and conclusive examination.

an intravenous administration as recommended by Cole and Weaver. As the complement-fixation test for gonorrhea is a reliable guide for systemic invasion, I selected this method of diagnosis as a key to the administration of the serum.

Of the twenty-four cases herein reported, three are from the service of Drs. Frank E. Simpson and Frederick G. Harris at the Cook County Hospital, and one is from the practice of my assistant, Dr. L. D. Smith. The other twenty are from my clinic at the Post-Graduate Medical School and my own private practice. The antigenococcic serum used here was obtained partly from the experimental department of Parke, Davis & Co., and from the open market. The two seem to be identical.

As suitable facilities for hospitalizing this class of cases were not available, no apology is offered for absence of temperature charts and complete blood-pictures. At the beginning of the work, a daily leukocyte count was made before, during and for a few days after the injections; but as the findings were of no actual value, the routine was abandoned.

As the proper management of every case of specific urethritis is controlled by daily microscopic examinations of the discharge, particular attention has been given to this valuable aid, as will be seen from the photomicrographs. The subsequent complement-fixation tests as a final conclusion as to whether or not

a cure has been effected, while not at all complete in the table, will be concluded as soon as it is possible to reexamine the cases.

Patients 1 and 2 are clinic patients whom I sent into the hospital under special arrangement. Each received 12 c.c. of antigenococcic serum administered intravenously on three successive days. There was no increase of leukocytes or temperature rise during their three days' sojourn in the hospital, and as far as I know there was no serum reaction. Likewise there was not the slightest improvement.

As complications in ambulatory patients were feared, the remainder of the injections were given deep in the gluteal region, intramuscularly. I believe, however, that the intravenous administration, when feasible, would be followed by a more rapid recovery with a possibility of using less serum.

The same conclusions were drawn from Cases 4 and 5, as the infection was confined to the narrow urethral domain with the absence of the complement-fixation test.

Case 6 (Figs. 1, 2 and 3), with a negative reaction, is the only other exception. This patient received 36 c.c. intramuscularly, and this passive immunity was stimulated by three injections of gonococcus vaccine with a prompt and complete cure. This patient presented an abnormality in the way of a sebaceous cyst at the junction of the glans penis and urethra, and

PATIENTS WITH ANTIGONOCOCCIC SERUM

| Antigenococcus Serum | Subsequent Symptoms | Serum-Sickness | Discharge | Complement Fixation † | Remarks |
|---------------------------|--|---------------------------|---|-----------------------|---|
| 36 c.c. intra-venously. | No improvement..... | None | No improvement. | Not made.... | Clinic patient. |
| Same | No improvement..... | None | No improvement. | Not made.... | Clinic patient. |
| 36 c.c. intra-muscularly. | No improvement..... | Marked | No improvement. | Not made.... | Hemorrhagic urticaria. |
| Same | No improvement..... | Marked | No improvement. | Not made.... | Serum-sickness mistaken for scarlet fever by family physician. |
| Same | No improvement..... | Slight | No improvement. | Not made.... | Treatment seemed to lower resistance. |
| Same | Rapid improvement with cure. | Marked | Disappeared | Not made.... | Patient confined to bed with arthritis and extensive itching. |
| 18 c.c. intra-muscularly. | Rapid improvement..... | Slight | Disappeared | Not made.... | Discharge returned with gonococci; dose too small. |
| 36 c.c. intra-muscularly. | Rapid improvement..... | Slight | Disappeared | Positive | Under treatment for 2 months previous to injection. |
| Same | Rapid improvement..... | Marked | Gonococci disap-peared..... | Negative | Opportunity for many examinations. |
| Same | Rapid improvement..... | Slight | Same | Negative | Saline irrigations given. |
| 12 c.c. intra-muscularly. | Rapid improvement..... | Slight | Gonococci disap-peared, then re-appeared. | Positive | Dose too small. |
| 36 c.c. intra-muscularly. | Marked improvement; epi-didymitis, rheumatism. | Slight | Gonococci disap-peared..... | Not made.... | Ward patient, Cook County Hospital, ready for dis-charge. |
| Same | Rapid improvement..... | Marked chill and vomiting | Not obtainable... | Not made.... | Symptomatically cured in three weeks; hospital patient. |
| Same | Extremely rapid improve-ment. | Slight | Gonococci disap-peared..... | Not made.... | Elevated railroad guard; went to work one week after injection. |
| 16 c.c. intra-muscularly. | Rapid improvement..... | None | Gonococci disap-peared..... | Not made.... | Patient completely cured in two weeks. |
| 18 c.c. intra-muscularly. | Marked improvement, but relapsed. | None | No improvement | Not made.... | Dose too small. |
| 36 c.c. intra-muscularly. | Marked improvement..... | Marked | Not obtainable.. | Not made.... | Patient symptomatically cured in two weeks; hospital patient. |
| 18 c.c. intra-muscularly. | Slow improvement..... | None | Gonococci disap-peared..... | Not made.... | Dose too small. Discharged at end of two months. |
| Same | Slow but complete disap-pearance. | None | Same | Negative | Dose too small. Discharged at end of two months. |
| Same | Slight improvement..... | None | Disappeared | Not made.... | Dose too small. Symptoms still present when patient left. |
| 36 c.c. intra-muscularly. | Discharge, only Gram-posi-tive. | Severe; con-fined to bed | Disappeared | Negative | Ideal recovery. |
| Same | None | Slight | Disappeared | Not made.... | Patient known to have infected another before treatment. Did not after treatment. |
| Same | Rapid improvement..... | Marked | Disappeared | Not made.... | Patient has not infected husband since treatment. |
| 45 c.c. intra-muscularly. | Rapid improvement..... | Very severe. | Greatly improved | Not made.... | Patient treated too recently for complete report. |



Fig. 1 (Case 6).—Appearance of discharge the day before injection. Absence of gonococci.

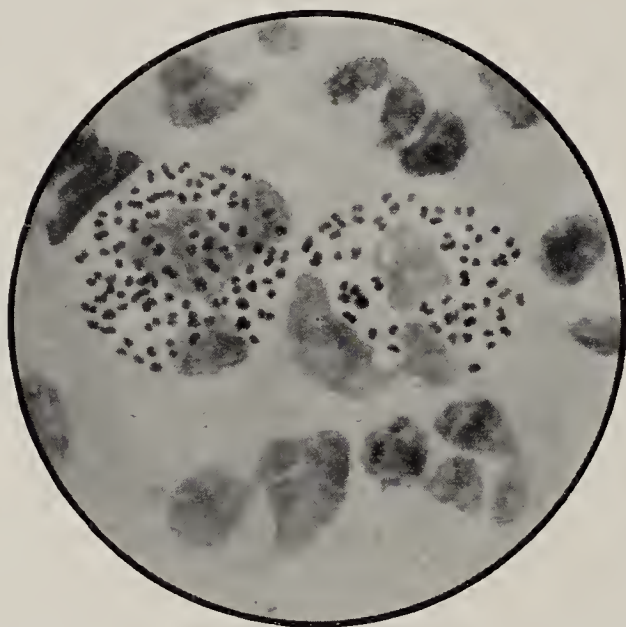


Fig. 2 (Case 6).—Appearance of discharge on the day following the three injections. Fourth day of observation. Gonococci present.

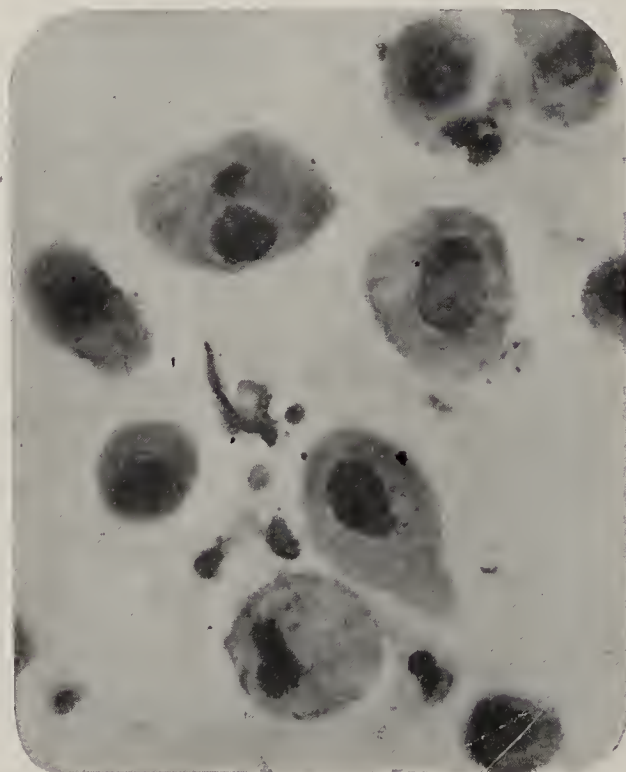


Fig. 3 (Case 6).—Appearance of discharge ten days later. Serum fortified by gonococcus vaccine, as suggested by Dr. Theobald Smith. Large number of epithelial cells, few leukocytes, no gonococci.

had been under observation nine months with a previous operation.

In all the rest of the series in which the quantity of the serum given has been 36 c.c. or over, the results have been prompt and very encouraging.

Invariably when the amount of serum injected was under 20 c.c., the improvement was slow or a relapse occurred, as shown in Cases 7, 11, 15, 16, 18, 19 and 20.

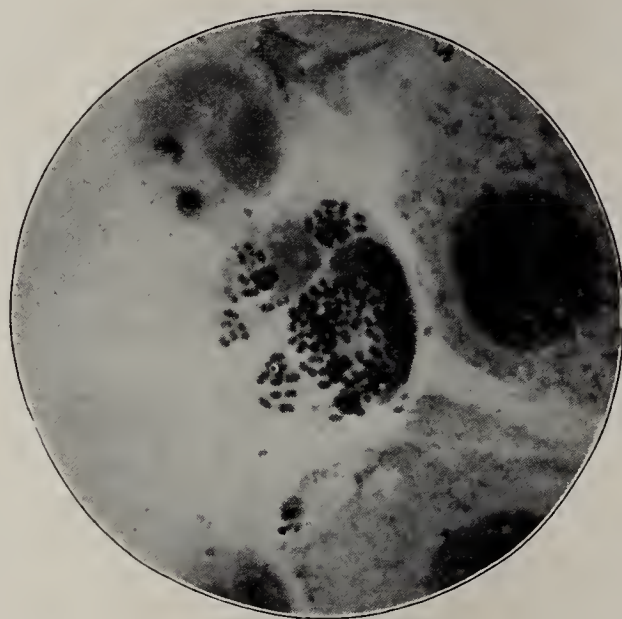


Fig. 4 (Case 9).—Appearance before injection. Large number of gonococci present.

Case 11 is most instructive, as will be seen by the photomicrographs. This patient received his first injection of 12 c.c., but through a misunderstanding did not receive the two subsequent injections. Later, the microscopic examinations of the discharge proved

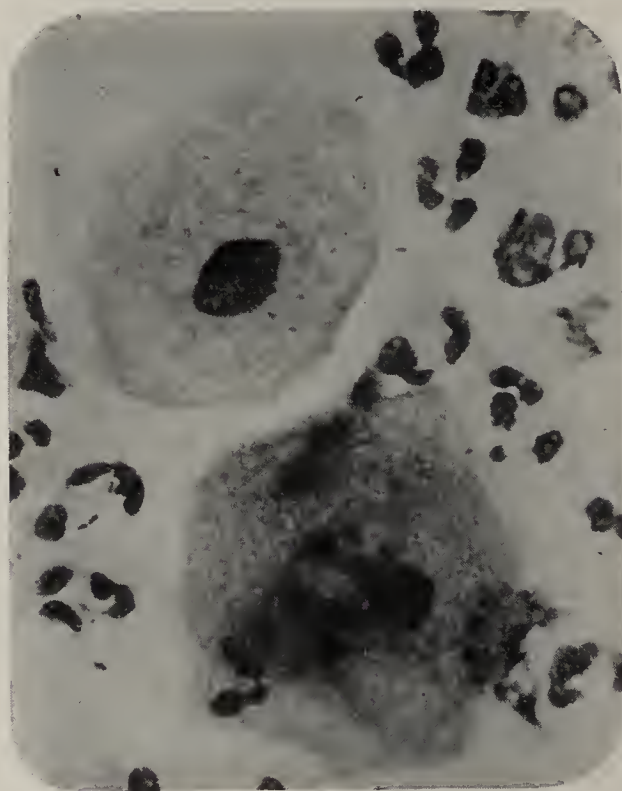


Fig. 5 (Case 9).—Appearance four days later. Epithelial cells and leukocytes. No gonococci.

so conclusively the value of the serum that they are herewith given in detail (Figs. 7, 8 and 9).

I thought that the one injection of 12 c.c. had cured the patient, but I was very much disappointed to note a recurrence, as seen in the last photomicrograph. I have not the slightest doubt that had the full 36 c.c. been given, the patient would have had a prompt and permanent result.



Fig. 6 (Case 9).—Appearance nine days later. Epithelial cells and mucus; no gonococci.

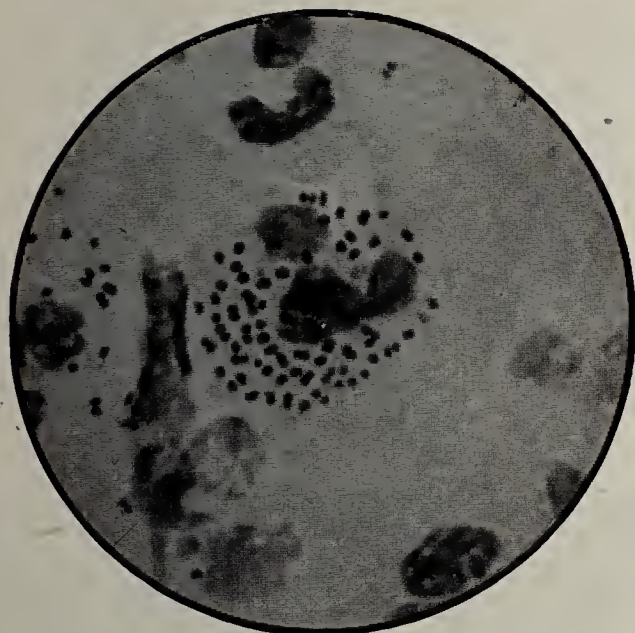


Fig. 7 (Case 11).—Appearance of discharge before injection. Gonococci present.

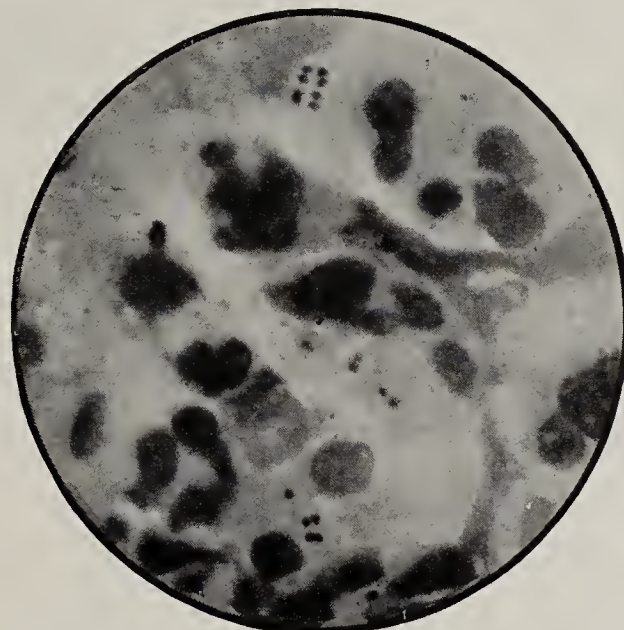


Fig. 9 (Case 11).—Twenty-one days later. Recurrence showing gonococci appearing again. Dose too small.

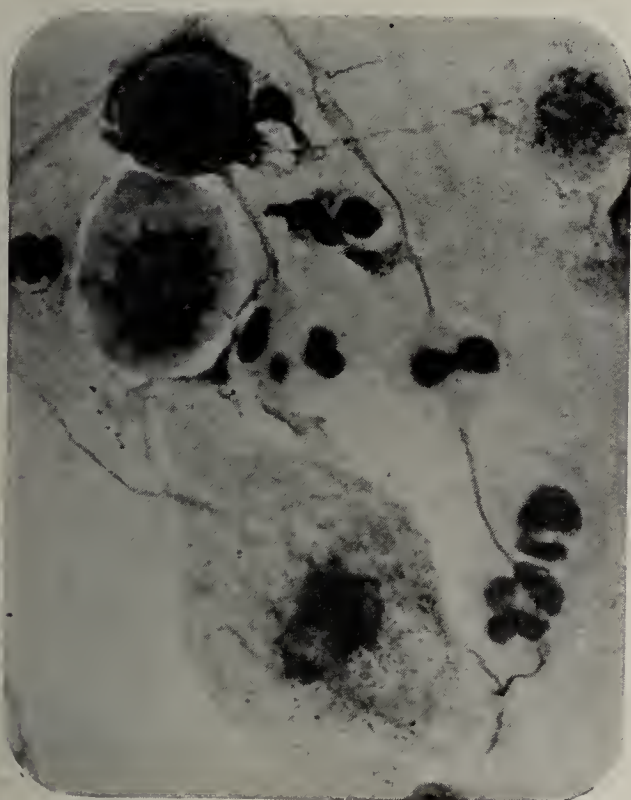


Fig. 8 (Case 11).—Three days afterward. Epithelial cells and leukocytes. No gonococci present.

Often patients who had been injected with 16 and 18 c.c. had shown marked improvement from the point of view of the discharge, but later invariably relapsed. My reasons for giving from 36 to 45 c.c. of serum as sufficient quantity to produce a curative effect are wholly arbitrary and based on my previous experience. In every case in which 36 c.c. or over have been given, no treatment has been instituted except prostatic massage and urethral massage over a sound. Case 10, however, was an exception, as the patient received cleansing urethral irrigations of normal saline solution.

For the serum-sickness, free catharsis, with salines, together with bland salves, was given on the slightest appearance of urticarial eruptions.

CONCLUSIONS

1. The complement-fixation test is a reliable guide in the administration of the serum. When the test is negative, the serum should not be used.

2. The intensity of the positive complement-fixation test offers a reliable guide as to whether or not the serum will be efficient, as the efficiency and intensity are in direct proportion.

3. The amount injected should be at least from 36 to 45 c.c., administered intramuscularly, from 12 to 15 c.c. a day, for three days.

4. Serum-sickness, if distressing, should not be alarming.

5. A negative complement-fixation test after two or three months shows a complete cure.

32 North State Street.

Report on Tuberculosis.—The annual report of the Association of Tuberculosis Clinics shows that there were 16,016 new cases of tuberculosis in Greater New York in 1913 and that the twenty-nine clinics of the association showed an attendance of 34,861. The records of the Department of Health show a more or less constant total of 30,000 registered cases, while its report for last year showed 22,761 new cases, including 6,000 not found. The number of children under clinic care increased from 1,780 in 1909 to 8,392 in 1913. In 1909 there were 41,870 visits of nurses and in 1913, 84,305. The report assumes that the gains in clinic work show a more complete and efficient working of the district system, recognition of the value of preventive work with children and that definite results have followed educational propaganda.

AN INVESTIGATION OF THE CAUSES
OF FAILURE IN COW-POX
VACCINATION

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This paper is the record of an investigation of the causes of failure in the cow-pox vaccination of per-



Fig. 1.—Vaccination equipment. On the stand in front of the gas-burner is a glass containing the scarifying chisels. The virus is kept in a vial in the bowl, which contains cracked ice. The covered dish contains sterile toothpicks, which are handled by means of the dressing-forceps. Dressings are shown on the table to the left of the stand.

sons entering the University of California with no visible evidence of a previous vaccinia.

VACCINATION PREVIOUS TO THE BEGINNING OF
THE INVESTIGATION

Regulations: All intrants not showing a vaccination scar were vaccinated. Failure to “take” resulted in a repetition of the vaccination twice during the first term, and once every succeeding term during residence at the university.

Technic: The arm was scrubbed with soap and sterile water, rinsed with alcohol and dried with cotton. An area about 5 mm. square was scarified with a dry vaccine point, which was then wiped on the serum exuding from the scarified spot. A gauze square was then applied to the wound and was secured by four strips of adhesive tape. Verbal instructions were given the person regarding the protection of the arm, and return for the renewal of dressings.

TABLE 1.—VACCINATIONS, ACADEMIC YEAR 1910-1911

| Result | Intrants | | | | | Old Students | | | All Vaccinated | |
|------------|------------|----|----|-------|-----------|------------------------|-------|-----------|----------------|-----------|
| | Insertions | | | | Per Cent. | Insertions 4th or Over | Total | Per Cent. | Total | Per Cent. |
| | 1st | 2d | 3d | Total | | | | | | |
| Take | 166 | 75 | 19 | 260 | 86.8 | 0 | 0 | 0 | 260 | 78.4 |
| Fail | 9 | 2 | 30 | 41 | 13.2 | 32 | 32 | 100 | 73 | 21.6 |

Results: Table 1 shows the result of vaccinations performed by this method during the academic year 1910-1911.

INVESTIGATION OF THE CAUSES OF FAILURE

The results shown in Table 1 are typical of the period previous to the beginning of the investigation. The opening of each semester brought a number of old students to be vaccinated before study lists could be approved for the ensuing period. As may be inferred, “takes” among these chronic “failures” were rare, and the administration of revaccination became more difficult with the steady growth of the university. In the absence of a scar, however, revaccination was continued in the hope of securing definite evidence of immunity.

With a desire to simplify the administration of revaccination, an investigation of the causes of failure was begun in August, 1911. This investigation was divided into three parts:

- 1. Development of a uniform technic.
- 2. Investigation of virus.
- 3. Investigation of alleged immunity against cow-pox.

1. Development of a Uniform Technic

Preparation: The arm was scrubbed with ether, which evaporated rapidly and eliminated the necessity of drying.

Scarification: An attempt was first made to follow the technic described by Pirquet,¹ which consists of rotary scarification by means of a rounded blunt vaccination chisel through a drop of virus placed on the skin. It was found more satisfactory, however, to scarify the skin by the rotation of a sharp square-cornered dental scaling-chisel, which removed a small circle of epidermis 2 mm. in diameter, without bruising the tissue.

Application of Virus: As it was found difficult to gage the depth of scarification through a drop of

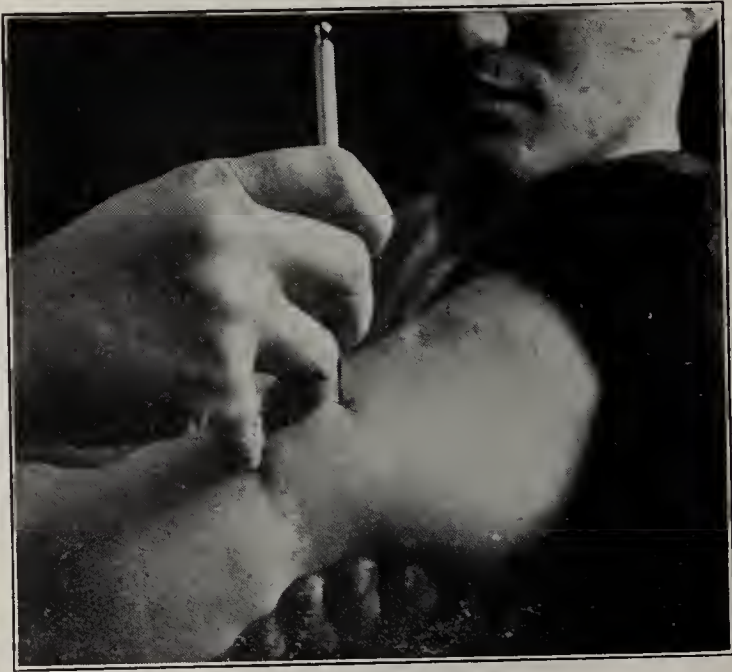


Fig. 2.—Rotary scarification by means of the modified von Pirquet scarifier.

opaque fluid, the virus was applied to the scarified spots by means of a sterile wooden toothpick. The amount adhering to a flat-ended toothpick dipped into glycerinated virus was sufficient for the inoculation of the three scarified spots constituting a vaccination.

Dressing and Subsequent Care: No change was made in the method of dressing except that the return date (five days after vaccination) was stamped

1. Pirquet: Klinische Studien über Vakzination und vakinale Allergie, Vienna, F. Deuticke, 1907.

on the adhesive tape. A printed card of instructions regarding the care of the vaccinia replaced the verbal directions formerly given. No antiseptics, salves or shields were used. On the tenth day, when area formation normally occurs, a few persons complained of soreness in the arm. This was much relieved by the application of a compress, kept moist with 50 per cent. alcohol. The inflammation subsided in twenty-four hours. In the absence of large scarified spots there were no "bad" arms.



Fig. 3.—Applying virus by means of a sterile toothpick.

Area formation on the tenth day is evidence that the growth of the colony of vaccine organisms has been arrested by the antibodies which have been formed by the stimulation due to the organism, or in other words that immunity has been established.

The practice, advocated by Dyer,² of destroying the colony by opening the vesicle and applying phenol (carbolic acid) before area formation occurs, naturally results in a reduction of the size of the dose of vaccine organisms. Immediate revaccination in the cases in which the dose has been insufficient would produce a vesicle. Revaccination when a condition of active immunity exists would only result in the reaction of immunity as hereinafter described.

Records: A card index was kept of all vaccinations, and notices were sent to those persons not reporting by the end of the tenth day following the vaccination. Disregard of the notices resulted in termination of the student's registration in the university.

Table 2 shows the results of vaccinations by the modified Pirquet technic during the first term of the academic year 1912-1913.

TABLE 2.—VACCINATIONS, AUGUST-DECEMBER, 1912

| Results | Intrants | | | | Old Students | | | All Vaccinated | |
|----------|------------|----|----|-------|-------------------------------|-------|-----------|----------------|-----------|
| | Insertions | | | Total | Insertions .4th or Over | Total | Per Cent. | Total | Per Cent. |
| | 1st | 2d | 3d | | | | | | |
| Take .. | 259 | 3 | 0 | 262 | 5 | 5 | 14.7 | 267 | 82 |
| Fail ... | 1 | 0 | 29 | 30 | 29 | 29 | 85.3 | 59 | 18 |

A comparison of Tables 1 and 2 gives the following points in favor of the modified Pirquet technic:

2. Dyer: The Way to Vaccinate, Am. Jour. Trop. Dis. and Prev. Med., 1913, i, 425.

1. The results are more uniform. On first insertion there were 95.8 per cent. of all takes as contrasted with 63.8 per cent. by the old method.

2. The percentage of failure is lower. There were 10.2 per cent. of failures for intrants and 18 per cent. for all vaccinated, as against 13.2 per cent. for intrants and 21.6 per cent. for all vaccinated by the old method.

In addition to the results shown by statistics there are certain other advantages.

1. Safety. Cross scarification, which is forbidden by law in Germany, favors the growth of anaerobic bacteria under the crust which forms on the area of abrasion, where the resistance is lowered by the action of the vaccine organism. The unsightly scars, and the tales of "awful" takes so common among the American vaccinated, are witnesses of appalling ignorance of this fact. The circular scarification gives absolute control of dosage and there is no tendency to confluence of the vesicles.

2. Economy. With 1 c.c. of glycerinated virus 285 vaccinations have been performed.

3. Absence of shock. Owing to the speed of scarification, the depressant psychic effect of the slow scratching by point or needle is eliminated.

A final change in the technic was made in August, 1913, by the use of chisel with a carbon steel point which could be dipped into alcohol and flamed without affecting the cutting edge. The dental chisels formerly used had been kept in compound solution of cresol and rinsed in sterile water before each vaccination, and it was believed that some of the failures might be traced to the antiseptic effect of a



Fig. 4.—Dressing of gauze and four adhesive tapes, one of which is stamped with the date for return.

residual quantity of compound solution of cresol adhering to them when applied to the arm. The use of alcohol for cleansing the arm was also resumed.

2. Investigation of Virus

The percentage of failure having been somewhat reduced by uniformity of technic, the next step was an investigation of the virus.

Following a visit to the Vaccine Laboratory of the New York Health Department, we adopted the sug-

gestion of Dr. F. S. Fielder of that institution that virus containers be kept in cracked ice. The New York Vaccine Laboratory produces a virus which is never more than four successive transfers from a human case of vaccinia, and is guaranteed for 100 per cent. of takes in primary vaccination. Through the kindness of Dr. Fielder, the university was supplied with three 1-c.c. vials of this virus for comparison with the product heretofore used. The vials of virus were shipped from New York in a vacuum bottle, and after removal from the bottle were kept iced until used.

In Table 3 the two New York vials No. 2180 and 2181 have been designated by the letter "N." The revaccinations were performed with New York vaccine No. 2182, which is designated "N. Y." A 1-c.c. vial of fresh virus produced locally was used for comparison. In the tables it is designated by the letter "C." A few vaccinations were performed with

TABLE 3.—COW-POX VACCINATIONS, JANUARY-MAY, 1913:
REACTIONS GROUPED ACCORDING TO CHARACTER-
ISTICS OF SCAR AND VIRUS USED

| | Virus | Vaccinia | | Vaccinoid | | Failure | |
|--------------------|-------|----------|-----|-----------|----|---------|----|
| | | No. | % | No. | % | No. | % |
| No scar: | | | | | | | |
| Never vac..... | C | 35 | 90 | 2 | 5 | 2 | 5 |
| | N | 3 | 100 | .. | .. | .. | .. |
| Vac. No scar... | C | 53 | 52 | 18 | 18 | 30 | 30 |
| | N | 12 | 24 | 12 | 24 | 27 | 52 |
| Age of scar: | | | | | | | |
| Under 10 years.. | C | 33 | 11 | 110 | 39 | 141 | 50 |
| | N | 16 | 43 | 11 | 30 | 10 | 27 |
| 10 to 20 years.. | C | 46 | 12 | 153 | 39 | 196 | 49 |
| | N | 15 | 31 | 18 | 37 | 16 | 32 |
| Over 20 years... | C | 34 | 29 | 33 | 28 | 49 | 43 |
| | N | 14 | 70 | 4 | 20 | 2 | 10 |
| Size of scar: | | | | | | | |
| Under 15 mm... | C | 58 | 14 | 152 | 35 | 220 | 51 |
| | N | 26 | 46 | 19 | 34 | 11 | 20 |
| 15 to 20 mm.... | C | 31 | 14 | 89 | 41 | 96 | 45 |
| | N | 9 | 35 | 9 | 35 | 8 | 30 |
| Over 20 mm.... | C | 19 | 17 | 44 | 39 | 50 | 44 |
| | N | 6 | 38 | 3 | 19 | 7 | 43 |
| Character of scar: | | | | | | | |
| Pitted | C | 22 | 10 | 82 | 36 | 125 | 54 |
| | N | 5 | 28 | 6 | 33 | 7 | 39 |
| Keloidal | C | 21 | 13 | 73 | 44 | 70 | 43 |
| | N | 11 | 50 | 6 | 27 | 5 | 23 |
| Smooth | C | 44 | 20 | 93 | 40 | 93 | 40 |
| | N | 22 | 47 | 17 | 36 | 8 | 17 |

| | | |
|-------------------------|--|-------|
| Observations completed: | | |
| Virus C..... | | 935 |
| Virus N..... | | 160 |
| Total..... | | 1,095 |

what is known as a "green" virus, being a more recent production than usually marketed. This virus is designated by the letters "C. S." These two viruses were originally derived from small-pox cases, though modified by several passages through calves.

A comparison of Viruses C and N in Table 3 shows that, with one exception, the percentage of reactions characterized by sufficient vesicle formation to be diagnosed as vaccinias is higher for the N virus, while the percentage of failure is correspondingly lower. The exception to this rule is found in the reactions of those persons having no scar though admitting previous vaccination. At first glance it appears that the N virus is here credited with a high percentage of failure. This percentage, however, is influenced by the fact that all unscarred old students who reported three or more failures in the university, and were usually highly immunized, were vaccinated with Virus N, while intrants giving a history of previous failures were vaccinated with Virus C.

Tables 4 and 5 show a reasonable consistency on the part of each virus under observation. The number of reactions secured by immediate revaccination of the C failures with N and N. Y. virus is a further favorable comment on the New York method of preparation, which as before stated consists essentially in permitting only four transfers from human vaccinia case to human vaccination subject.

TABLE 4.—COW-POX VACCINATIONS, JANUARY-MAY, 1913:
REACTIONS OBTAINED BY REVACCINATION OF PER-
SONS FAILING AFTER FIRST VACCINATION OF
THE SEMESTER

| PERSONS WITH NO SCARS | | | | |
|-----------------------|---------------------|----------|-----------|---------|
| Failing Virus | Revaccination Virus | Vaccinia | Vaccinoid | Failure |
| C | C | .. | .. | 1 |
| | C. S. | .. | .. | 4 |
| C | N | 3 | 5 | 9 |
| | N. Y. | .. | .. | 2 |
| N | N | .. | 1 | 3 |
| | N. Y. | .. | 3 | 9 |
| N | C. S. | .. | 3 | 3 |
| PERSONS HAVING SCARS | | | | |
| C | C | 1 | 1 | 12 |
| | C. S. | 1 | 3 | 17 |
| C | N | 9 | 32 | 88 |
| | N. Y. | .. | 6 | 6 |
| N | N | 1 | .. | 6 |
| | N. Y. | .. | .. | 1 |
| N | C. S. | .. | .. | 1 |

A summary of Tables 3, 4 and 5, with due allowance for twenty-four persons failing twice during the academic year, gives 15 per cent. of failure in unscarred persons vaccinated during the second semester, and an average of 16 per cent. of failure for the academic year 1911-1912.

3. Investigation of Alleged Immunity against Cow-Pox

By attention to the technic and virus, the failures in unscarred persons have been reduced from 21 to 16 per cent. There remains still the question of alleged natural immunity to cow-pox vaccination.

TABLE 5.—COW-POX VACCINATIONS, JANUARY-MAY, 1913:
REACTIONS OBTAINED BY THIRD VACCINATION OF
PERSONS FAILING AFTER FIRST AND SECOND
VACCINATIONS OF THE SEMESTER

| PERSONS WITH NO SCARS | | | | |
|-----------------------|---------------------|----------|-----------|---------|
| Failing Virus | Revaccination Virus | Vaccinia | Vaccinoid | Failure |
| N | C. S. | .. | 2 | .. |
| PERSONS WITH SCARS | | | | |
| C | C | .. | .. | 2 |
| | C. S. | .. | .. | 1 |
| N | N | .. | .. | 11 |
| | N. Y. | .. | .. | 1 |
| N | C. S. | .. | 1 | 3 |

The small-pox epidemic in Berkeley at the opening of the second term of the academic year 1912-1913, gave opportunity of observing the course of revaccination in persons with scars of various kinds who reported for vaccination "to be on the safe side."

The experience gained in over one thousand revaccinations observed at that time confirmed the observa-

tions of Jenner,³ Pirquet and others regarding the difference between a true primary vaccinia, and the condition produced by revaccination, which the French authors call "vaccinoid."

In general a vaccinia observed five days after vaccination is characterized by a yellowish vesicle surrounded by a narrow red areola, while the vaccinoid of the same age has a comparatively smaller vesicle surrounded by a wider areola. When no vesicle develops and the areola appears and subsides early we have the immediate reaction of Pirquet, which was first described by Jenner as "sudden efflorescence."

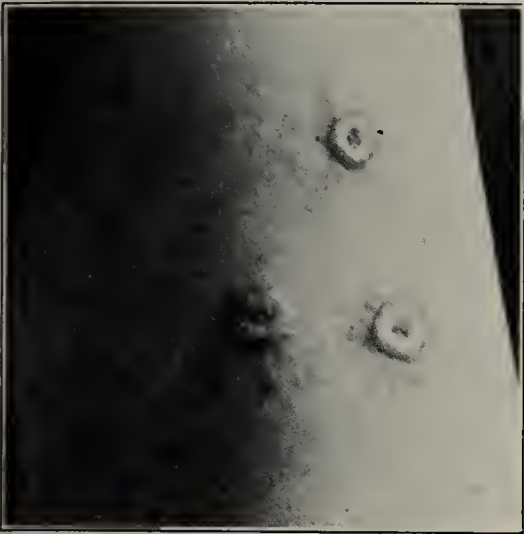


Fig. 5.—Vaccinia; sixth day; no previous take. Typical large vesicles with small areolae.

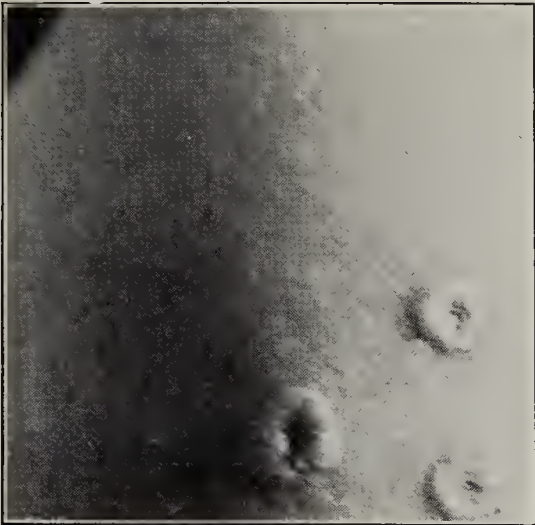


Fig. 6.—Vaccinia; eleventh day; no previous take.

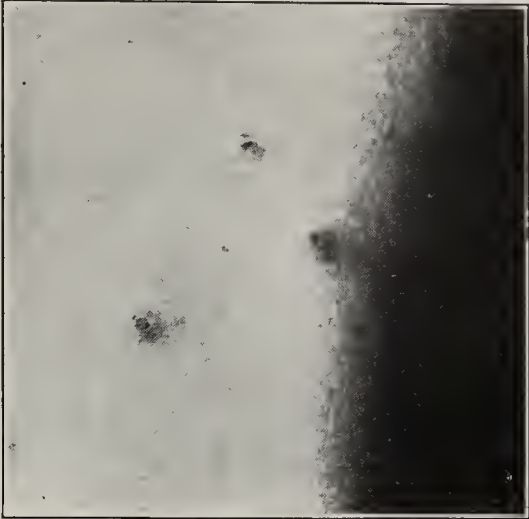


Fig. 7.—Vaccinoid; twenty-four hours. The upper point is a control and contains no virus. Note areolae around lower points which contain virus.

THE TEST OF IMMUNITY

During the course of some observations and measurements of these areolae of immediate reactions, it occurred to me that this reaction might be used as a test of those failures which persisted each year in spite of our best efforts with uniform technic and cold virus. In a previous paper⁴ some of the characteristic cases were described, but a general application of the test was not made until the opening of the academic year 1913-1914.

3. Jenner: An Inquiry into the Causes and Effects of Variolae Vaccinae, 1798.
4. Force, J. N.: The Skin Reaction after Cow-Pox Vaccination, California State Jour. Med., 1913, xi, 290.

Previous to January, 1913, only the unscarred intrants had been vaccinated. Certain changes in the state vaccination law caused the regents of the university to issue an order that, in addition to unscarred intrants, all other intrants showing a scar over seven years old must be vaccinated. This order gave an excellent opportunity for the following application of the test of immunity:

If a student had an old, or otherwise unsatisfactory scar, he was vaccinated in two spots on the arm, a control spot being scarified and rubbed with the glycerin diluent used in the preparation of vaccine.

Observations were made at twenty-four-, forty-eight- and seventy-two-hour periods after vaccination. If either of the vaccinated spots showed an areola of 5 mm. or over (with or without papule) at the end of twenty-four hours, which areola (or papule) had decreased at the time of the seventy-two-hour observation, it was considered a *reaction of immunity* due to the presence in the blood of the individual of antibodies against vaccine virus. The student was excused from further vaccination. If either of the vaccinated spots showed an areola at the end of twenty-four hours which developed into a small vesicle, maturing on the fifth or sixth day and then

TABLE 6.—COW-POX VACCINATIONS, AUGUST-DECEMBER, 1913; REACTIONS GROUPED ACCORDING TO CHARACTERISTICS OF SCAR

| | Vaccinia | | | | | Vaccinoid | | | | | Reaction of Immunity | | | | |
|--------------------------|----------|-----|--------------|----|-----|-----------|----|--------------|----|-----|----------------------|----|--------------|----|-----|
| | Intrants | | Old Students | | Out | Intrants | | Old Students | | Out | Intrants | | Old Students | | Out |
| | M | W | M | W | | M | W | M | W | | M | W | M | W | |
| No scar: | | | | | | | | | | | | | | | |
| Never vaccinated..... | 157 | 116 | .. | .. | .. | 93 | 10 | 7 | .. | .. | 6 | 3† | .. | .. | 1 |
| Vaccinated. No scar..... | 27 | 20 | .. | .. | .. | 54 | 6 | 5 | 3 | .. | 16 | 4 | 6 | 10 | 30 |
| Age of scar: | | | | | | | | | | | | | | | |
| Under 10 years..... | 5 | 17 | .. | .. | .. | 27 | 22 | 18 | .. | .. | 50 | 13 | 6 | .. | 23 |
| 10 to 20 years..... | 4 | 8 | .. | .. | .. | 12 | 27 | 26 | .. | .. | 52 | 10 | 26 | .. | 36 |
| Over 20 years..... | .. | 1 | .. | .. | .. | 5 | 4 | 5 | .. | .. | 52 | 4 | 4 | .. | 43 |
| Size of scar: | | | | | | | | | | | | | | | |
| Under 15 mm..... | 4 | 14 | .. | .. | .. | 26 | 18 | 15 | .. | .. | 49 | 6 | 11 | .. | 25 |
| 15 to 20 mm..... | 2 | 3 | .. | .. | .. | 8 | 13 | 20 | .. | .. | 50 | 14 | 13 | .. | 42 |
| Over 20 mm..... | .. | 1 | .. | .. | .. | 2 | 11 | 9 | .. | .. | 51 | 7 | 11 | .. | 47 |
| Character of scar: | | | | | | | | | | | | | | | |
| Pitted | .. | 1 | .. | .. | .. | 5 | 6 | 4 | .. | .. | 45 | 3 | 7 | .. | 50 |
| Keloidal | 1 | .. | .. | .. | .. | 3 | 10 | 7 | .. | .. | 53 | 8 | 7 | .. | 54 |
| Smooth | 8 | 23 | .. | .. | .. | 22 | 36 | 37 | .. | .. | 51 | 17 | 22 | .. | 27 |

Total observations completed..... 587
Left university 2
Total vaccinations 589

† One of these three had small-pox one year ago; one had chicken-pox three years ago.
* In this table, M means men, and W women.

rapidly subsiding, the reaction was considered a *vaccinoid*.

If there was no change until the third day, and then a small areola began to form, the case would be *vaccinia*. If there was no change by the fifth day, the failure was charged to technic and the experiment was repeated. If a case was not seen until the fifth day, and there were no signs of a recent local reaction, the vaccination was repeated, and daily observations were made, for all signs of the reaction of immunity may be gone by the fifth day.

Results of the Application of the Immunity Test.

Out of 589 persons vaccinated during the semester August-December, 1913, complete records have been

history of small-pox, one had a history of recent chicken-pox (which might have been small-pox) and the third denied having had either small-pox or chicken-pox.

2. Sixteen unscarred old students and ten unscarred intrants gave the reaction of immunity. This would imply the presence of antibodies against vaccine virus, due to repeated doses of a virus in each instance incapable of *growth*, but capable of producing immunity; that is, analogous to a bacterial vaccine made from a killed culture.

3. The highest percentage of reactions of immunity occurred in persons having well-pitted scars.

4. No natural immunity against vaccine virus was discovered. Such a person would have no history of

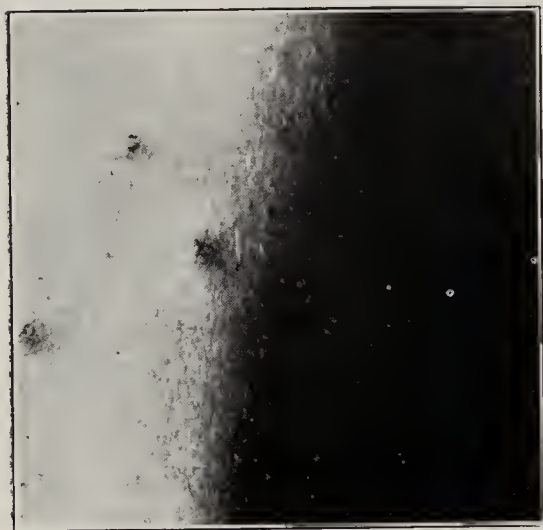


Fig. 8.—Vaccinoid; forty-eight hours. Note beginning papules on two lower points.

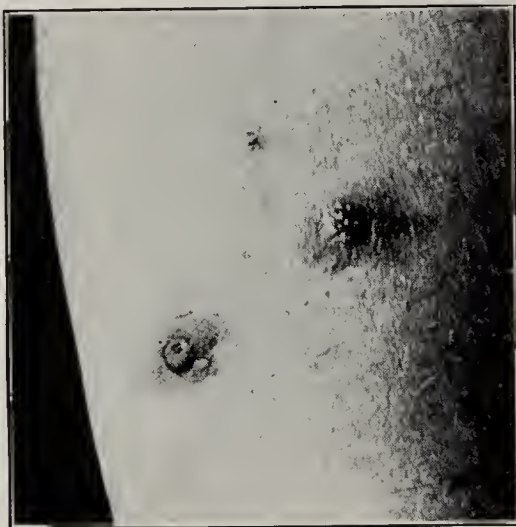


Fig. 9.—Vaccinoid; fourth day. Typical small vesicle on large areola. The area formation occurred on the fifth day, and the scab was removed on the seventh day. Subject had large keloidal scar from *vaccinia* twenty-six years before.



Fig. 10.—Reaction of immunity twenty-four hours after vaccination. The upper spot is the control. There are 5 mm. areolae around both vaccinated spots.

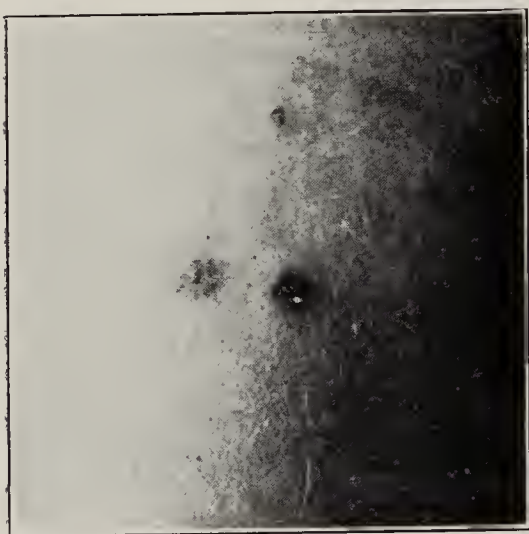


Fig. 11.—Reaction of immunity forty-eight hours after vaccination. The areolae have increased slightly and there is papule formation.



Fig. 12.—Reaction of immunity seventy-two hours after vaccination. The areolae are growing smaller and the papule is disappearing. By the fifth day there were only signs of trauma, and the vaccination would have been classed as a failure if the first observation had been made at that time.

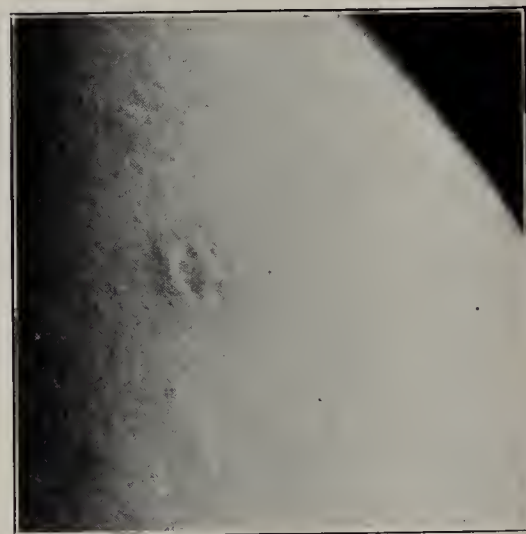


Fig. 13.—Vaccinia; completed scar; modified von Pirquet method.

obtained from all but two. In all doubtful cases a revaccination has produced one of the characteristic reactions.

Table 6 classifies the results of this series of vaccinations in terms of the attributes of the scars, as well as under the three reactions to vaccine virus: *vaccinia*, *vaccinoid* and the reaction of immunity.

A few points in this table are worthy of notice.

1. Of the three previously unvaccinated intrants giving the reaction of immunity, one had a definite

vaccinations nor would he give a *specific* reaction of immunity to vaccine virus.

The following cases serve to illustrate certain points which must be considered in the application of the test:

CASE 1.—G. R., intrant, vaccinated just before entrance with no result, was vaccinated Sept. 22, 1913.

September 26: No reaction.

September 29: Revaccinated with same virus, in two spots with a control scarification.

September 30: No reaction in vaccinated spot.
October 1: No reaction.
Jan. 5, 1914: Revaccinated with fresh virus in two spots with a control scarification.
January 6: No reaction in vaccinated spots.
January 7: Seven mm. areolae around vaccinated spots.

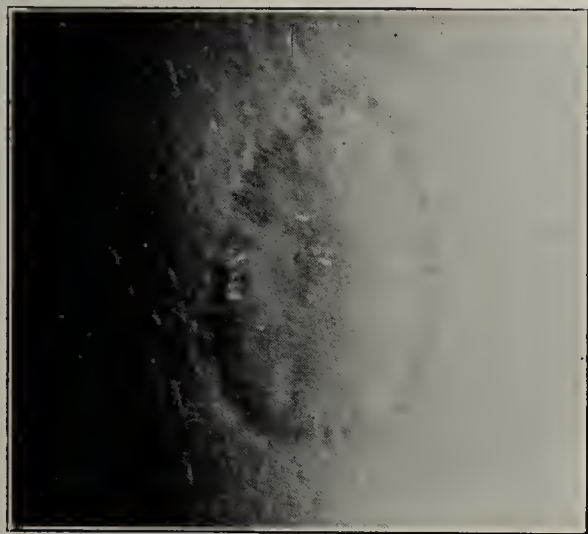


Fig. 14.—The ordinary type of vaccination scar.

January 10: Vesicle in vaccinated spots, but 20 mm. areolae in place of the ordinary small areola hardly larger than the vesicle.

CASE 2.—P. A., intransigent, never vaccinated, was vaccinated Oct. 1, 1913.

October 6: No reaction.

October 13: Revaccinated with same virus in two spots with a control scarification.

October 14, 15, 16 and 20: No reaction in vaccinated spots.

October 27: Revaccinated with a fresh virus, two spots, and a control scarification.

October 21: No reaction.

November 3: Vesicles on both vaccinated spots, but areolae larger than normal for primary vaccinia.

These two cases were stragglers vaccinated during the month following the general vaccination of intransigents. The repeated vaccinations with an inert virus probably served to sensitize them. This accounts for the large areolae occurring in conjunction with the formation of vaccinia vesicles.

CASE 3.—L. S. H., old student, vaccinated between ten and twenty years ago. Had scar 15 mm. in diameter very well pitted, the type of scar from which we obtain the highest percentage of immunity reactions. Vaccinated Nov. 19, 1913, in two spots with a control scarification, *the same virus being used which had failed twice with Cases 1 and 2.*

November 20: Areolae 10 mm. in diameter with slight papule around both vaccinated spots.

November 21: Same condition.

November 25: Areolae almost faded.

This case shows that virus incapable of growth may produce the reaction of immunity in a person well supplied with antibodies. It is suggested that repeated inoculation with a virus inactivated by heating, or sensitized by serum from an animal immune to vaccinia, might stimulate antibody formation without the necessity of first growing the colony of vaccine organism on the skin as a culture-medium.

If by the fifth day no reaction whatever occurs in a previously unvaccinated person, the virus is probably inert. Signs of activity produced by vaccinating a previously vaccinated person with the same virus should not be considered proof to the contrary. In the absence of natural immunity, one of the three reactions must occur.

CONCLUSIONS

1. Any one of the typical reactions against vaccine virus must be regarded as an evidence of immunity.

2. If antibodies against virus are present in the blood of the individual the immediate reaction occurs, characterized by the formation of an areola around the vaccinated spot usually within the twenty-four hours succeeding the vaccination.

3. If antibodies are not present but the power of forming them exists through previous vaccinations, the growing vesicle is aborted sooner than in a previously unvaccinated person, which accounts for the small size of the vesicle and the early appearance of an areola larger than in the case of a vesicle of the same age.

4. The technic described is an aid to exact observation subsequent to revaccination.

5. Physicians' certificates of immunity should be based on an observed reaction and not on the failure of two or three vaccinations, unobserved until the fifth day after the insertion. These "failures" may not have been due to immunity but to inert virus.

A NEW AID FOR THE DIAGNOSIS OF STRICTURE OF THE ESOPHAGUS

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Assistant Physician, Outpatient Department, Presbyterian Hospital, in Charge of the Stomach Class

NEW YORK

Having had negative Roentgen findings in several patients in my clinic with evident stricture of the

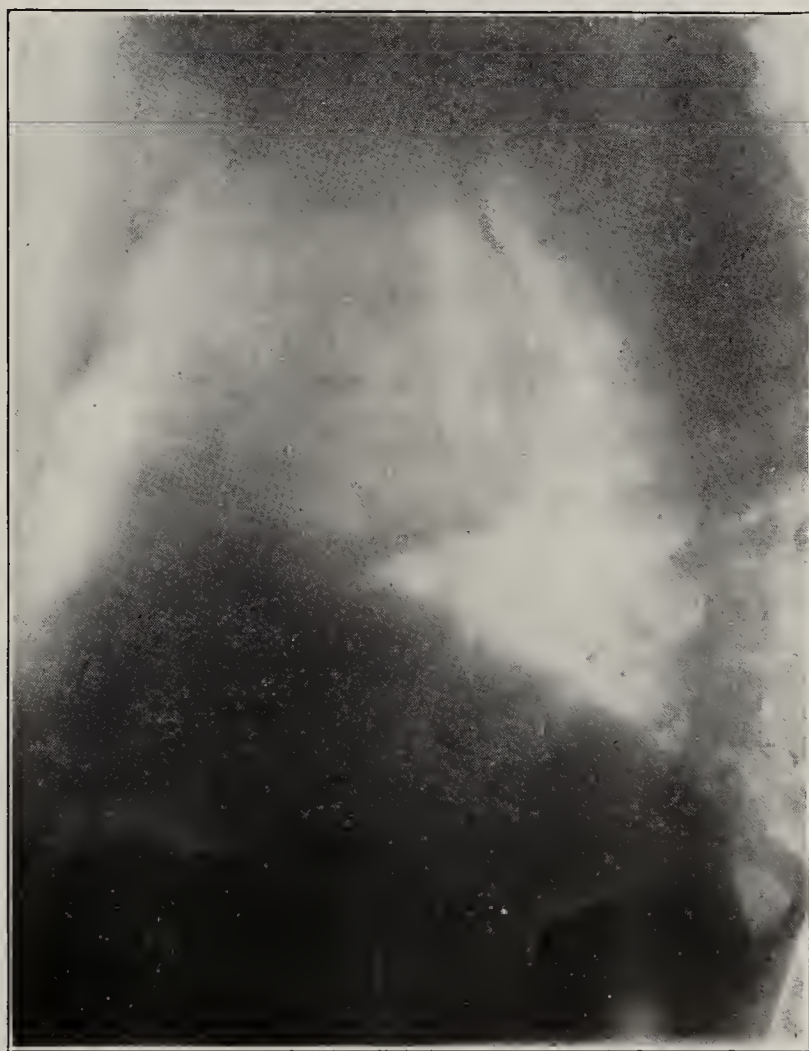


Fig. 1.—Epithelioma of esophagus; roentgenogram after wheat breakfast-food-bismuth subcarbonate mixture.

esophagus, as demonstrated by sounding, and knowing the importance of an early diagnosis in such con-

ditions, I shall report a method that will not only give a clear outline of the encroachment in malignant strictures, but also be a readily applied aid in the treatment of benign strictures. In the cases which I here report, the method as outlined by Bassler of blocking the cardia with a rubber bag was impossible because the rubber necessary for proper inflation was

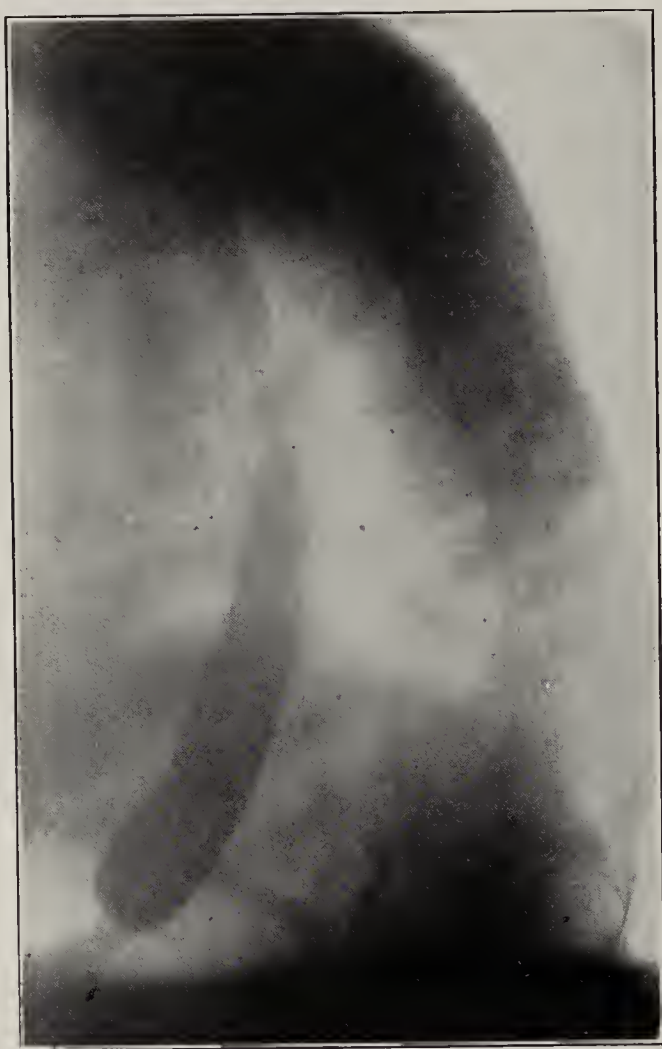


Fig. 2.—Same case as Figure 1 after skin method; smallness of caliber above stricture due to infiltration and contraction of esophageal wall.

too thick to be passed through the strictures in spite of repeated attempts. The wheat breakfast-food-bismuth subcarbonate mixture also gave negative results (Fig. 1). The rubber-bag method is a good one, but causes pain. The bismuth mixture as suggested by Steward will outline the proximal part of the esophagus, but give little idea of the distal.

The method which I wish to report consists in the use of sausage-skin or gold-beaters' skin. Gold-beaters' skin is preferable, as it is tougher, but it cannot at present be obtained in satisfactory lengths. (I am having these made for treatment of benign strictures to be used as a guide instead of silk thread. Report of this technic will be given in a later paper.)

Sausage-skin is the fibrous coat of the intestine of the hog and is obtained from the slaughter-house in the cleaned and prepared state as used for packing sausage. It is cut in lengths of about 50 mm., thoroughly washed inside and out and placed in jars of a solution of 1 per cent. liquor formaldehydi and 10 per cent. glycerin. One end, the distal, of a piece of skin is tied with silk floss so as to make a bag. The proximal or mouth end is slipped over a rubber ferrule large enough for the skin to fit snugly and tied.

The bag as it is now is only a string. Before giving this to the patient it is best to cocaine the pharynx and esophagus to prevent retching and coughing. This,

however, is not always necessary. The patient then swallows the skin with the aid of a little water. When the stricture admits a No. 15 French olive it is best to keep the skin straight by running it over a capillary rubber tube. This is easily done by first tying the upper end on the ferrule, holding the ferrule under a water-tap and allowing the water to carry the tube through. There should be a small metal tip on the end of the tube so that the skin can be tied without collapsing the rubber. The stomach contents can then be aspirated to show if the tube has passed into the stomach. It is surprising how easily a patient with the smallest stricture can swallow one of these skins and how readily it untwists itself on being filled.

After the skin is down, a thick bismuth mixture is allowed to flow in from an irrigator holding a couple of hundred cubic centimeters, 20 c.c. at a time. After the operator is sure that the bismuth is down, the skin is pulled up a little and allowed to drop back in order that any kinks that might possibly form may be untwisted. This method of filling and pulling until the bag is full to the pharynx is continued, a stopper is put into the ferrule and the patient given a couple of tablespoonfuls of bismuth mixture to swallow outside the tube, a teaspoonful at a time, to fill any irregularities or pockets not outlined by the bag.

There may be some difficulty in removing the bag in the smaller strictures, but this need not occasion alarm.



Fig. 3.—Annular stricture of the esophagus

The patient is placed face downward over the edge of the table and gentle but firm traction given the skin, the ferrule being held over some small vessel. The main thing is not to be in a hurry. Naturally, with a small stricture it will take a few minutes for the thick bismuth to pass the opening. The patient should be cautioned beforehand, so that it will not cause unnecessary alarm.

The advantages of this method are that the skins are easily obtained; the extent of involvement below as well as above is ascertained, and there is assurance of a good outline in an early as well as a late stage of the process.

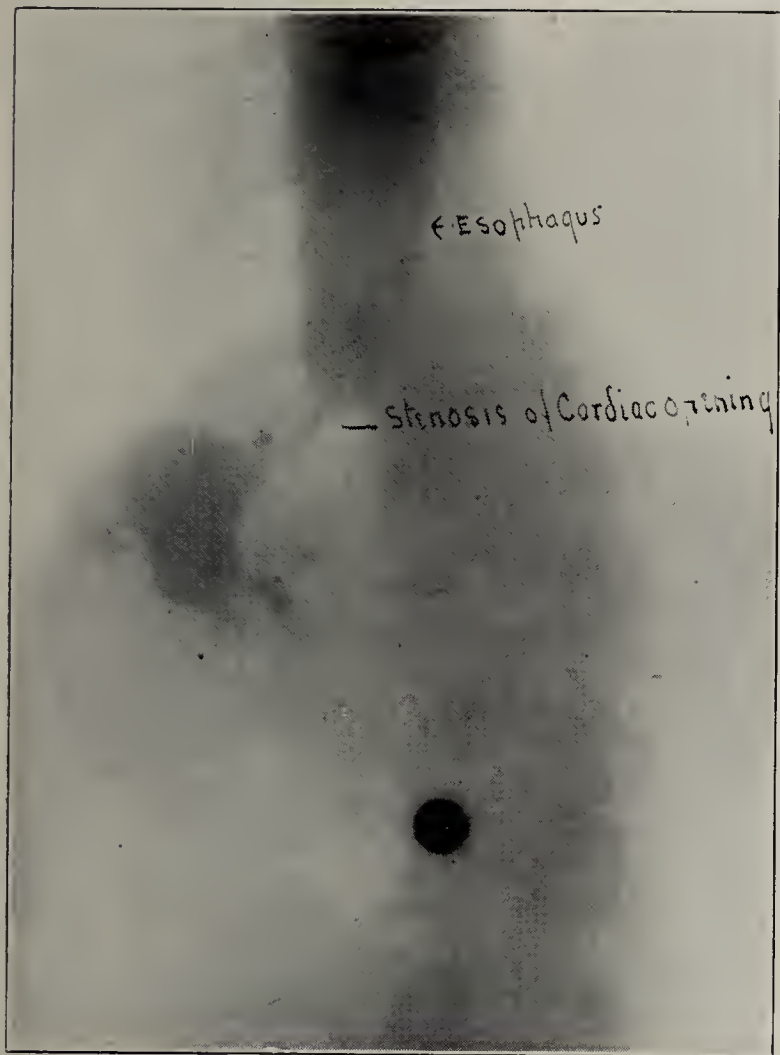


Fig. 4.—Carcinoma of the stomach. Entire stomach contracted. Skin in duodenum (proved at operation by Dr. Ellsworth Eliot).

My thanks are due Dr. Henry C. Thacher for suggestions in this work and also to Mr. I. L. Simms, roentgenographer of the Presbyterian Hospital, for his excellent pictures and his patience in helping me during the experimental stage.

20 West Fiftieth Street.

Acute Lymphatic Leukemia After Tetanus Serum Anaphylaxis.—Boy, aged 14, seen in consultation with Dr. W. P. Davidson of Sullivan, Ill., of previous good health, four weeks before had been given a prophylactic dose of antitetanic serum for a slightly infected nail puncture of foot; over two years ago he had taken a similar dose of antitetanic serum for a similar nail puncture of the foot. Within thirty-six hours after the second dose, he developed a violent urticaria with large wheals and erythema, with vomiting and fever; after a few days with decline of anaphylaxis a general adenitis of the cervical, axillary and inguinal glands was noticed, and the spleen and liver enlarged rapidly, the spleen, after two weeks, reaching the umbilicus; anemia became profound, fever of moderate grade ensued with great prostration, and death from hemiplegia occurred at the end of four weeks. The blood examination, one week before death, showed hemoglobin 35 per cent. and white cells 420,000, consisting of large lymphocytes 77 per cent., small lymphocytes 18 per cent., polynuclears 3 per cent., and eosinophilic polynuclears 2 per cent. Among the red cells there were numerous megaloblasts and poikilocytosis. A necropsy was not obtained. I record this case only with the idea that it might help to solve some of the problems of the relation of anaphylaxis to other diseases, and I do not pretend to assert that because the acute leukemia followed the anaphylaxis in a possibly sensitized subject, it was produced by the second dose of tetanus serum.—EVERETT J. BROWN, M.D., Decatur, Ill.

A METHOD OF STAINING AND MOUNTING SMEARS

HUGH S. WILLSON, M.D., MINNEAPOLIS

Time, expense and simplicity are large factors in laboratory work, especially when the practitioner does the work himself.

In the preparation of smears of gastric extract and feces I have been using, for some months, a method which not only fulfils the foregoing requirements, but also can be adapted to the staining and mounting of smears from many other sources.

The idea was suggested to me by Smithies' agar preparation, the disadvantages of which are that agar is very slow to put into solution and must be kept in a refrigerator to preserve for any length of time.

I have substituted ordinary powdered gelatin, which goes into immediate solution in boiling water.

A few pinches of gelatin powder are added to a small quantity of boiling water in a test-tube. For immediate use 2 or 3 c.c. are poured into a smaller tube and about one-third the volume of stain is added, or a sufficient amount to give the density of stain desired.

After smears have been fixed on a cover-slip, 2 or 3 drops of the gelatin stain are placed on the smear surface and the cover-slip inverted on a glass slide.

The gelatin stain hardens sufficiently to work with an oil-immersion lens and does the staining at the same time, making a neat stained mounting of sufficient permanency for ordinary work.

The expense element is modified by the fact that the used slides can be easily washed in hot water.

900 Nicollet Avenue.

Special Article

TYPHOID IN THE LARGE CITIES OF THE UNITED STATES

About a year ago¹ THE JOURNAL published statistics showing the prevalence of typhoid fever since 1906 in those cities of the United States having over 100,000 population. The cities so considered number fifty-one and include nearly one-fourth of the population of the country. The fact that sanitary improvements have been inaugurated in some localities as the result of the interest which has been aroused by the facts published in THE JOURNAL is sufficient justification for summarizing the typhoid conditions for 1913 in the same cities:²

TABLE 1.—DEATH-RATES FROM TYPHOID IN CITIES OF GROUP 1 (OVER 500,000 POPULATION)

| | Deaths from Typhoid per 100,000 Population | | Average 1911-1913 | Average 1906-1910 |
|----------------------|--|------|-------------------|-------------------|
| | 1913 | 1912 | | |
| New York | 7.0 | 9.8 | 9.3 | 13.8 |
| Boston | 8.4 | 8.1 | 8.6 | 16.0 |
| Chicago | 10.5 | 7.5 | 9.6 | 15.5 |
| Cleveland | 13.5 | 5.9 | 11.4 | 16.5 |
| Philadelphia | 15.7 | 12.5 | 14.1 | 42.1 |
| St. Louis | 16.9 | 10.4 | 14.2 | 16.1 |
| Pittsburgh, Pa. | 18.1 | 12.7 | 18.5 | 74.3 |
| Baltimore | 23.6 | 23.9 | 24.9 | 34.6 |

1. Typhoid in the Large Cities of the United States, special article, THE JOURNAL A. M. A., May 31, 1913, p. 1702.

2. The number of typhoid deaths has been sent to us by the local officer of health and the rates have been calculated on the basis of population estimates made according to the method of the U. S. Census Bureau. It may perhaps be noted that the figures kindly furnished us by the municipal officials include the deaths of non-residents as well as residents occurring in the city limits. In some instances this undoubtedly gives an exaggerated impression of the amount of typhoid fever in a community, but at present statisticians are agreed that "the attempt to eliminate the deaths of non-residents would often result in an understatement of the true mortality" (Bureau of the Census, Mortality Statistics, 1912, p. 13).

OUTBREAKS IN NEW YORK AND PHILADELPHIA

It is a matter for national congratulation that the largest city in the country has reached so satisfactory a condition in its typhoid death-rate (New York, Table 1), recording as it does in 1913 not only the lowest typhoid rate in its history (7 per one hundred thousand population), but also a rate that compares creditably with the typhoid rate in European capitals. It should be remarked also that this low rate in Greater New York was reached in spite of a milk-borne typhoid epidemic which involved several hundred cases in Manhattan during September and October. Even including this outbreak, the total number of cases between July 1 and November 1 was less in 1913 than in 1912.³ Philadelphia, like New York, suffered in 1913 from an unusual and highly instructive outbreak. Beginning about the end of April and continuing for several months, there was, in Philadelphia, an excessive amount of typhoid in the district served by the Torresdale filters. From 70 to 75 per cent. of all the cases in the city originated in the infected district. This localization of the typhoid excess in the region supplied by a particular source fixed responsibility very clearly on the water-supply, and the epidemiologic conclusions were confirmed by bacterial examination. Since the water on leaving the filter-plant was pure, the conclusion was drawn that infection occurred through leakage into the pure-water mains. It was then learned that a large number of manufacturing plants in the affected district maintained a dual piping system for fire protection or some other purpose—one set of pipes carrying the filtered city-water, the other connected with the first and containing the raw and highly polluted water of the Delaware River. It is clear that in such a system any defect of the valves or any accident to the separating devices might result in a calamitous mixing. Over 140 of these dual connections were severed by order of the Board of Health and the number of typhoid cases in the affected district has since greatly decreased. In spite of this rather serious epidemic the typhoid death-rate increase was slight compared with the former alarming prevalence of typhoid in Philadelphia.

The case of Cleveland seems to call for special comment in view of the fact that this city exhibits the greatest change in its typhoid rate of any city in the group, the 1912 rate being more than doubled in 1913. The increase is so great that there is reasonable ground for the concern felt in that city over the situation. As is well known, the Cleveland water-supply, which is at present derived from Lake Erie without filtration, is, in its raw state, more or less contaminated, and although the water is treated with calcium hypochlorite, there seems some question whether the amount of disinfectant used during part of 1913 was adequate for the destruction of all pathogenic organisms. It is not surprising that plans are on foot for a filtration plant.

AN INCREASE IN CHICAGO

A somewhat disquieting typhoid increase occurred in the fall of 1913 in Chicago. The lake water was held responsible by some writers, and facts recently brought to light seem to support the view that the public water-supply is still a factor in the typhoid fever situation in Chicago.⁴ Baltimore still leads this

group of cities in excessive typhoid fever, but maintained substantially the same rate in 1913 as in 1912, in the face of a typhoid increase in all the other cities of the group, excepting New York.

TABLE 2.—DEATH-RATES FROM TYPHOID IN CITIES OF GROUP 2 (300,000 TO 500,000 POPULATION)

| | Death from Typhoid per 100,000 Population 1913 | 1912 | Average 1911-1913 | Average 1906-1910 |
|------------------------|--|------|-------------------|-------------------|
| Cincinnati | 6.4 | 7.5 | 8.5 | 30.0 |
| Newark, N. J. | 7.9 | 7.1 | 8.4 | 14.6 |
| Milwaukee, Wis. | 11.2 | 25.3 | 18.6 | 27.0 |
| Minneapolis | 12.4 | 11.5 | 11.8 | 32.2 |
| Los Angeles, Cal. | 13.5 | 14.6 | 13.6 | 19.0 |
| Buffalo, N. Y. | 15.3 | 11.4 | 17.3 | 22.8 |
| Washington, D. C. | 16.4 | 21.2 | 19.5 | 36.9 |
| San Francisco | 16.7 | 14.1 | 15.5 | 27.3 |
| New Orleans | 16.9 | 14.0 | 20.5 | 35.6 |
| Detroit | 27.5 | 17.1 | 20.1 | 23.4 |

Cincinnati has succeeded in bettering a little its excellent record for 1912. Washington recorded the lowest typhoid-rate in its history, less than half its average for the years from 1906 to 1910 (Table 2). Remarkable improvement in 1913 is exhibited by Milwaukee. There can be little doubt that the Milwaukee reduction is due primarily to the persistent use of hypochlorite in the water-supply. It shows what may reasonably be expected in this typhoid-ridden city when the water-supply is permanently and thoroughly protected from sewage contamination. The water-supply conditions in Milwaukee have already been fully described in *THE JOURNAL*.⁵

The great improvement in recent years in New Orleans is worthy of remark and is perhaps due to the extension of a modern sewerage system in that city. Is there a lesson here for other Southern cities?

Minneapolis, which ranked eighth in the list in the period from 1906 to 1910, ranked third in the period from 1911 to 1913. It is instructive to note that the rate for 1913 (new filtration plant in operation since January) differs little from that for 1911 and 1912, when the unfiltered water was treated with hypochlorite.

THE HIGH RATE IN DETROIT

Detroit stands out in Table 2 with a conspicuousness that can hardly be pleasing to its citizens. The Detroit typhoid-rate for 1913 was the highest in the group and nearly double that of the next highest on the list. Only four other cities in the whole fifty-one had a higher rate than Detroit, and three of these are in the Southern states. There has been little disposition in Detroit to admit that the drinking-water might be responsible for the relatively high typhoid prevalence, and we note still a tendency on the part of some of the Detroit newspapers "to rebuke and refute the alarmists." Even within a few months one paper warns its readers editorially not to "take the international report on the water-supply of the Great Lakes too seriously," and follows its reassurance with the jaunty remark: "From what the scientists say we folks here must have all died from typhoid fever long ago." We do not believe that the citizens of Detroit will relish having the highest typhoid-rate, barring one, of any Northern city, or that they will subscribe without further question to the declaration that "as a matter of fact, typhoid fever is not even one of our grave menaces in this city." Why should Detroit shut its eyes to the facts?

3. Report on the Typhoid-Fever Epidemic in Manhattan, 1913, by the Central Council of Public Health of the City of New York, New York Med. Jour., Jan. 10, 1914.

4. Young, G. B.: Am. Jour. Pub. Health, April, 1914.

5. Typhoid Fever in Milwaukee and the Water-Supply, special article, *THE JOURNAL* A. M. A., July 16, 1910, p. 211.

TABLE 3.—DEATH-RATES FROM TYPHOID IN CITIES OF GROUP 3 (200,000 TO 300,000 POPULATION)

| | Death from Typhoid per 100,000 Population | | Average 1911-1913 | Average 1906-1910 |
|------------------------|---|------|-------------------|-------------------|
| | 1913 | 1912 | | |
| Seattle, Wash. | 4.9 | 7.4 | 7.3 | 25.2 |
| Portland, Ore. | 7.8 | 16.9 | 14.2 | 23.3 |
| St. Paul, Minn. | 8.3 | 10.2 | 9.5 | 18.0 |
| Providence, R. I. | 10.0 | 10.3 | 10.8 | 14.3 |
| Rochester, N. Y. | 10.2 | 11.8 | 10.8 | 12.4 |
| Jersey City, N. J. .. | 10.5 | 7.5 | 8.1 | 12.6 |
| Denver | 12.7 | 13.0 | 14.4 | 35.5 |
| Kansas City, Mo. | 21.6 | 12.8 | 19.4 | 35.6 |
| Louisville, Ky. | 21.7 | 18.9 | 21.6 | 52.6 |
| Indianapolis | 24.5 | 18.3 | 23.0 | 30.4 |

The figures for this group are certainly encouraging reading. Six out of the ten cities report a lower typhoid-rate in 1913 than in 1912, and all ten had a lower average for the three years, from 1911 to 1913, than for the years from 1906 to 1910, the reduction amounting in three cases (Seattle, Denver and Louisville) to more than one-half (Table 3). Seattle reported for 1913 the lowest typhoid death-rate of any of the fifty-one cities. The Kansas City rate for 1913, on the other hand, is so much higher than that for 1912 as to suggest inquiry.

TABLE 4.—DEATH-RATES FROM TYPHOID IN CITIES OF GROUP 4 (125,000 TO 200,000 POPULATION)

| | Death from Typhoid per 100,000 Population | | Average 1911-1913 | Average 1906-1910 |
|-----------------------|---|------|-------------------|-------------------|
| | 1913 | 1912 | | |
| Scranton, Pa. | 6.4 | 8.7 | 9.0 | 31.4 |
| Paterson, N. J. | 6.8 | 4.6 | 10.9 | 19.3 |
| Oakland, Cal. | 9.1 | 9.0 | 10.2 | 21.5 |
| New Haven Conn. | 11.3 | 24.5 | 19.4 | 30.8 |
| Worcester, Mass. | 12.3 | 6.6 | 8.5 | 11.8 |
| Syracuse, N. Y. | 13.0 | 16.8 | 15.2 | 15.7 |
| Atlanta, Ga. | 16.6 | 35.2 | 35.9 | 58.5 |
| Richmond, Va. | 19.2 | 16.2 | 17.6 | 34.0 |
| Columbus, Ohio | 19.2 | 20.2 | 17.7 | 40.0 |
| Memphis, Tenn. | 30.1 | 56.2 | 49.2 | 35.3 |
| Birmingham, Ala. | 36.0 | 38.0 | ... | ... |
| Toledo, Ohio | 41.8 | 33.0 | 32.5 | 37.4 |

Group 4 (Table 4), like Group 3, shows a lower death-rate in most cases for 1913 than for 1912. New Haven, in contrast to its previous bad record, reports the lowest death-rate in its history, less than half that of the preceding year. Its rate is still, however, twice that of the neighboring city of Bridgeport. Worcester, after maintaining a reasonably low record for a series of years, fell from grace in 1913 and recorded a higher typhoid-rate than the average for the preceding seven years. Atlanta and Memphis report a noteworthy decrease, Toledo an increase. Only one city (Memphis) has a higher average for the period from 1911 to 1913 than for 1906-1910. Two cities maintain about the same level (Syracuse and Toledo); all the others show a substantial reduction, especially marked in the cases of Scranton, Richmond and Columbus. Toledo continues to have a high rate for a Northern city.

TABLE 5.—DEATH-RATES FROM TYPHOID IN CITIES OF GROUP 5 (100,000 TO 125,000 POPULATION)

| | Death from Typhoid per 100,000 Population | | Average 1911-1913 | Average 1906-1910 |
|------------------------|---|------|-------------------|-------------------|
| | 1913 | 1912 | | |
| Bridgeport, Conn. | 5.4 | 7.4 | 5.5 | 10.2 |
| Omaha | 6.9 | 13.2 | 21.7 | 40.8 |
| Spokane, Wash. | 7.2 | 16.9 | 20.9 | 50.4 |
| Cambridge, Mass. | 9.2 | 2.8 | 5.6 | 9.8 |
| Lowell, Mass. | 10.0 | 9.2 | 8.6 | 13.9 |
| Fall River, Mass. | 10.5 | 18.8 | 15.0 | 12.5 |
| Hartford, Conn. | 11.5 | 12.7 | 14.7 | 18.9 |
| Dayton, Ohio | 15.1 | 17.9 | 17.1 | 22.4 |
| Grand Rapids, Mich. .. | 16.7 | 34.0 | 25.6 | 29.7 |
| Albany, N. Y. | 27.4 | 17.7 | 21.0 | 17.5 |
| Nashville, Tenn. | 36.1 | 30.1 | 39.4 | 61.2 |

Grand Rapids shows the greatest change in any city in Group 5 (Table 5), the typhoid rate being cut

in two in this the first year of operation of the new water filter. Fall River also shows marked improvement. Albany suffered in April, 1913, from the flooding of the slow sand-filtration plant with the polluted Hudson River water. From April 1 to May 1, 180 cases of typhoid were reported. Five deaths from typhoid were reported in April and seven in May or nearly one-half the year's record (28). But for this outbreak the Albany death-rate would have been apparently very close to that of 1912.

Nashville, Tenn., had a somewhat higher rate in 1913 than in 1912. Is there any real reason why Nashville should have a typhoid rate more than twice as high as New Orleans?

Only three cities had a higher average typhoid rate from 1911 to 1913 than from 1906 to 1910 (Memphis, Tenn., Fall River, Mass., and Albany, N. Y.).

Cities with an average typhoid death-rate in the years from 1911 to 1913 below 10 are New York, Boston, Chicago, Cincinnati, Newark, Seattle, St. Paul, Jersey City, Scranton, Worcester, Bridgeport, Cambridge and Lowell—thirteen cities as contrasted with one (Cambridge) having an average below 10 from 1906 to 1910.

NINETEEN THIRTEEN NOT A TYPHOID YEAR

The year 1913 has been widely spoken of as a "typhoid year," and it is known that several cities suffered more severely from typhoid in 1913 than for the two or three years preceding. But in the whole population group involved there does not appear to have been an increased typhoid prevalence.

TABLE 6.—TOTAL AVERAGE TYPHOID DEATH-RATE FOR 1912 AND 1913

| | Total Population (51 Cities) (Estimated by U. S. Census-Bureau Methods) | | Typhoid Deaths | Typhoid Death-Rate per 100,000 |
|------------|--|------|----------------|--------------------------------|
| | 1912 | 1913 | | |
| 1912 | 21,472,847 | | 2,731 | 12.72 |
| 1913 | 21,814,002 | | 2,775 | 12.70 |

In 1913, 26 cities had a lower typhoid death-rate than in 1912, and 25 a higher; 14 had a death-rate under 10 in 1913 and 15 in 1912. While not a "typhoid year" in the sense of an actually increased typhoid rate, it is evident that 1913 was not marked by any considerable typhoid reduction.

Comfort Stations.—Most American cities are insufficiently, or not at all, provided with public comfort stations, a short-coming in striking contrast with towns and cities abroad. The New York Association for Improving the Condition of the Poor has made a survey of the public and semipublic comfort stations in New York City, with a view of obtaining an idea of the extent of their use, their character, accessibility, equipment, sanitary condition, etc. The results of this survey are published in a pamphlet of the Bureau of Public Health and Hygiene of that association. Room for greater improvement has been found. More stations, with better accommodations and equipments are needed, for which many recommendations and specifications have been suggested. One of the recommendations is that the present subway stations should be more generally utilized for this purpose, and that in the extensions of the subway, provisions should be made for these public comfort stations. An interesting feature of the survey was the bacteriologic study of contacts within the stations in which the possibility of the transmission of disease was shown to be present. Parasites are also acquired in this way. It is said that no devices, however, elaborate or sanitary, are likely to be a success in public institutions unless their installation is accompanied by an active and direct educational campaign.

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THE SENSATIONS OF THE SKIN

Aside from its purely scientific interest the study of the cutaneous sensations has a direct bearing on the every-day experiences of practical medicine. Not long ago the essential function of the sensory nerves of the skin was conceived of as relating almost solely to the sensation of touch. Little by little our knowledge has been extended and it has been shown that these nerves mediate a number of qualities of sensation, such as pressure, warmth, pain, heat and cold. It is established to-day that the cutaneous senses are not distributed uniformly over the whole skin, but are associated with discrete points or spots. The warm and cold spots, for example, have a distinctly punctiform distribution. Not a little effort has been expended by physiologists in mapping this out; in measuring the delicacy of some of these senses in various regions of the skin; in determining the threshold stimulus and the localizing power, as well as numerous other factors which lie on the border between physiology and psychology. Cutaneous pains are not always referred to the actual point of irritation by all persons. The inaccuracies here involved not infrequently bring confusion to the physician. Reflected pains misreferred to the surface of the body, when in reality they involve visceral organs, may become an occasional cause of diagnostic error.

To the great mass of positive contributions on the sensory capacity of the normal skin, gained from an enumeration and analytic measurement of the various sensations and showing that function therein is distributed in, and limited to, minute and sharply localized spots, a newer group of negative or pathologic data has been added. This has involved the attempt to ascertain accurately the various forms of sensory loss shown by skin deprived of its nerve-supply. Anomalous changes in the anatomic distribution of the nerves or the perversions brought about by disease or injury have been subjected to critical examination in a considerable number of persons. The latter method, while affording a most valuable sort of corroboratory evidence in connection with the careful observations

of trained physiologists, suffers somewhat from the fact that the subjects of accidental division of or injury to the cutaneous or other nerves rarely possess the intelligence or training requisite for an advantageous and reliable interpretation of such subtle phenomena as sensations. It was, therefore, a great step in advance when Henry Head conceived the possibility of obtaining for investigation on the negative side a subject who could be selected for his known capacity as an observer rather than from the mere fact that he had experienced the loss of the function of a nerve.

The pioneer work of Head,¹ in which his own nerves were sectioned and he thus obviated the difficulty of obtaining from clinical subjects, untrained in introspection, reliable accounts of the changes in cutaneous sensibility occurring during the regeneration of a cutaneous nerve, speedily led to the discovery of a number of phenomena that had previously escaped observation. It has emphasized the necessity of differentiating deep sensibility from cutaneous sensibility proper. After desensitization of any given surface area of the skin it is still possible in this area to appreciate deep pressure and pain, and the localization of the situation of the pressure is fairly well carried out. On the other hand, the sensations of light touch, as well as of temperature and pain evoked by a light pinprick, are absent. The sensations of pressure, as well as of deep pain or pressure pain, are therefore carried by the nerves of deep sensibility. They are not the cutaneous nerves, but are derived from the sensory elements of the muscular nerves. To the fingers, for example, they run in the tendons of the muscle. Therefore simultaneous division, as by a circular-saw cut, of the cutaneous nerves and tendons to the fingers will abolish deep as well as superficial sensibility.

These interesting beginnings, the wider generalization of which cannot be rehearsed here, were followed by similar, more extensive divisions of seven of their own cutaneous nerves by Trotter and Davies.² In each case the area of skin supplied by the nerve showed in consequence of the operation defects in seven distinct functions: four sensory, namely, sensibility to touch, cold, heat, pain; and three motor, namely, vasomotor, pilomotor and sudomotor. Their observations also agree in establishing that sensibility to touch is subserved by a nervous mechanism distinct from that of pressure; the former occurs in the skin only, the latter chiefly in the deep structures. It is probable, however, that the skin possesses some sensibility to pressure. After section of a nerve, recovery of function occurs only as a result of regeneration. Recovery of all the functions which are dependent on regeneration begins about the same time.

With the increase in the number of reliable subjects comes a gradual elimination of the personal equation

1. Head, H.: *Brain*, 1905, xxviii, 99; 1908, xxxi, 323.

2. Trotter, W., and Davies, H. M.: *Experimental Studies in the Innervation of the Skin*, *Jour. Physiol.*, 1909, xxxviii, 134.

from observations in this field. This fact offers a justification for such experiments involving self-sacrifice, the latest of them being carried out by Dr. Boring³ of the Physiological Laboratory at Cornell University, who sectioned the anterior branch of an internal cutaneous nerve. The novelty in his experiments consisted in the fact that a special attempt was made, during the year preceding the operation, to train the subject in the observation of cutaneous sensation and in the analysis of the sensational complexes mediated by the normal skin. Care was taken to distinguish between the qualities of cutaneous contact, cutaneous pressure and deep pressure, all of which can be distinguished by practice; between warmth, heat and burning heat (the last two are complex); and to some extent between the different modes of cutaneous pain. Besides this special training, the subject had the advantage of general introspective practice, obtained during several years of psychologic investigation. The selection of the nerve for section was such that the region affected was sufficiently small to permit of a more careful exploration than would have been possible if it had been necessary to cover a large area. As in the earlier investigations, the section of the cutaneous nerve did not destroy the sensibility of the subcutaneous tissue, which provided to a considerable extent the capacity for localization. With the exception of certain early general pains, that were probably, strictly speaking, not of cutaneous origin, it may be said that the return of the sensations of warmth, cold, pressure and pain began at approximately the same time. The regions insensitive to each of these four sensations, both immediately after the section of the nerve and during the period of returning sensibility, were approximately, but by no means exactly, the same. In general, sensitivity began to return at the outside of the affected area and progressed toward the center, although decided irregularities in this course appeared; hypesthesia preceded normal sensitivity, but periods of hyperesthesia to pain and cold were noted. The observations so far recorded indicate that the four sense qualities will not simultaneously return to normal and that temperature sensations return more rapidly.

Only those who have engaged in laborious, fatiguing (and even painful) investigations in this field can appreciate the value of such contributions. We are told by one worker that he made and recorded in detail a series of 50,000 separate touches only to discover that the solution he had sought was not to be obtained by that method. It is well for those who sooner or later will meet the problems of skin sensations in some practical aspect, to realize the personal cost at which the modern advances in our knowledge have been achieved.

3. Boring, E. G.: Method in the Investigation of Sensibility after the Section of a Cutaneous Nerve (Preliminary Communication), *Proc. Soc. Exper. Biol. and Med.*, 1914, xi, 69.

THE ACTION OF VITAL STAINS BELONGING TO THE BENZIDIN GROUP

The most striking feature of vital stains is the peculiar selective affinity which they possess for certain cells, and the wide difference and often extreme contrast in the affinity of very closely related dyes. Two views are held concerning the nature of vital staining: The first, advocated by Ehrlich, regards the chemical properties and is based on the assumption of receptors for certain parts of the molecule of the dye. The second, chiefly supported by Overton, takes the physical properties of dyes into account. The tendency at present is to consider the latter as the more probable explanation.

Evans and Schulemann¹ in a recent article report experiments with dyes of the benzidin group, made for the purpose of determining the factors which govern the elective action of these dyes. They found that it is not the position of the hydroxyl group, not the entire periamido complex or the presence of two sulphonic groups which produces the different effects of dyes; in short, that chemical reactions do not determine the results, which rather depend on the physical properties of the stains. They behave in the manner of colloids, and according to the size of the particles in suspension exhibit a difference in the rate of diffusion; positive dyes have a rapid rate, negative dyes little or no diffusion. The most positive dyes of the benzidin group are the disulphonic acids, the sulphonic acid evidently making the dye more soluble and hence more diffusible; for sulphonation of a number of otherwise negative dyes resulted in the production of brilliant positive dyes. The pigmentation of the mucous membranes, observed in workers with silver, rests on the same principle, and is a good illustration that colloidal suspensions of gold, silver and other metals furnish vital stains.

In vital staining the power of diffusion enables the molecules of the dye to reach those cells for which they have an affinity. Singularly enough the polymorphonuclear cells of the blood, the chief cells in phagocytosis, are not vitally stained; the epithelial cells, except those in the proximal convoluted tubules of the kidney, are also refractory, and the cells of the entire nervous system, with the exception of the hypophysis and the choroid plexus, remain unstained. The cells for which the vital stains have an affinity are almost exclusively of the connective-tissue type: the large cells described by Maximow, Ranvier and others; smaller cells, generally known as fibroblasts; the macrophages; cells in the peritoneal lining; the endothelial cells (the Kupffer cells) in the liver, and the interstitial cells of Leydig in the testicles.

The fact that some cells stain deeply, while blood-cells do not take the stain, was made use of by Evans,

1. Evans and Schulemann: *Science*, 1914, xxxix, 443.

Bowman and Winternitz² to ascertain the part which the Kupffer cells play in the formation of the miliary tubercle in the liver. They found that under the stimulation of the dye alone these cells enlarge, increase in number and finally form giant-cells. But while the reaction in tuberculosis sets in rapidly, Kupffer cells, vitally stained, begin to react only after the third or fourth dose of successive daily injections of dyes, and the final changes occur only after the lapse of many days. The early changes, therefore, which occur in rabbits, vitally stained with trypan-blue and inoculated with bovine tuberculosis by way of the portal circulation, are almost exclusively referable to the tubercle bacillus, the dye serving as an aid in the recognition of the type of cells involved in tubercle formation. As early as half an hour after the inoculation, there occurs an accumulation of polynuclear leukocytes which are unstained. Very soon they are replaced by mononuclear endothelial cells, as revealed by the vital stain, which take active part in the reaction. They grow rapidly as a result of the infection and at the end of thirty-six hours the giant-cell is produced, which, even when fully formed, is still joined to the endothelium of the vessel by protoplasmic strands. The epithelial cells which surround the giant-cell are likewise derived from the endothelial cells, both being easily differentiated from the third type of cell, a mononuclear cell, which the absence of stain denotes as a derivative of the blood. A secondary migration of polynuclear leukocytes takes place when the tubercle degenerates.

These results overthrow the notions held by older writers and not yet entirely abandoned, that wandering cells play the chief part in the formation of the tubercle. In the liver, at least, the giant-cell and the epithelioid cells are shown by vital staining to be derived exclusively from hepatic endothelium. It is probable that other results of interest may be anticipated from the further studies of these dyes whose selective action may show the way for the proper interpretation of a variety of changes.

THE SULPHUR-YIELDING COMPONENTS OF THE BRAIN

The idea that certain mental diseases are associated with a disturbed metabolism of the central nervous system is not a new one. The reason for the absence of comprehensive data from which it might be possible to formulate some tenable hypothesis is not difficult to ascertain. Like other tissues and organs of the body the nervous system doubtless manifests the result of its physiologic activities by the production of certain products of waste and by undergoing certain altera-

tions in composition which must speedily be repaired, if the parts are to continue to function normally. The total mass of the nervous tissues is so small in comparison with that of the metabolic rivals of these tissues, the muscles and glands, that there is little hope at present of detecting the specific contribution of the nervous elements to the total waste of the organism unless it differ from the usual excretory products in quality rather than quantity. If the brain, for example, produced some peculiar chemical katabolite as the result of its activities, it might be possible to detect and measure this specifically in the urine or some other representative of body-waste. But the addition of a little more or less carbon dioxid or urea or creatinin to the contribution furnished by the preponderating bulk of other tissues could scarcely be charged to its real source. Hence it is that the attempts to identify quantitative urinary changes with nervous activity have been almost uniformly futile.

Greater hope of success was awakened when the lamented young American physiologic chemist, Waldemar Koch, began to attack the problem of the metabolism of nervous matter by another method — that of comparative analysis of the tissues in different states of health and disease. After having devoted some time to the nature and distribution of the sulphur derivatives in the nervous system, he turned his attention to the composition of the brain in respect to these components in well-defined manifestations of nervous and mental disorders. In a number of cases of dementia praecox Koch found an unmistakable decrease in the non-protein "neutral sulphur" fraction in definite parts of the brain. He concluded that in this condition there occurs a disturbed oxidative function which is responsible for the appearance of the chemical phenomena.¹

From a somewhat different point of view Woskressenski² has lately studied the possible correlation of pathologic manifestations of the nervous system with an altered composition of the brain substance. There have been reports to the effect that in certain psychoses the "neutral sulphur" of the urine is increased. If this were true, one might expect to find the sulphur content of the brain altered correspondingly; but careful analyses of brains from cases of dementia, epilepsy and youthful psychoses indicate no alteration of the sulphur content as compared with that of mentally normal persons. Whatever may ultimately prove to be the outcome of further investigation of organic diseases of the brain, the existence of disturbed sulphur metabolism in the case of the purely functional disorders is yet to be demonstrated. Indeed, it is unlikely on the basis of the current evidence.

1. Koch, W.: Zur Kenntnis der Schwefelverbindungen des Nervensystems, *Ztschr. f. physiol. Chem.*, 1907, liii, 496.

2. Woskressenski, S.: Ueber den Schwefelgehalt der Grosshirnrinde von normalen und geisteskranken Menschen, *Ztschr. f. physiol. Chem.*, 1914, lxxxix, 228.

2. Evans, Herbert M., Bowman, Fred. B., and Winternitz, M. C.: An Experimental Study of the Histogenesis of the Miliary Tubercle in Vitally Stained Rabbits, *Jour. Exper. Med.*, 1914, xix, 283.

HOUSING AND SANITATION

Without doubt, it is a difficult and complicated matter to obtain precise numerical data concerning the influence of housing on health. So many factors come into play in the assembling of vital statistics that a comparison of different localities may give very confusing or even misleading results. Rarely if ever is it possible to separate a city population into groups in which the character of the housing is the only factor affecting morbidity or mortality. A recent editorial in the *American Journal of Public Health*¹ calls attention to the importance of race in influencing the rate of mortality in various city districts, and proclaims the need of caution "in arguing the effect of crowded houses." This is perhaps well enough. The writer of the editorial goes so much further than this, however, that it seems worth while to note the methods by which he reaches his conclusions. Throughout the editorial in question the mistake is apparently made of assuming that because the effect of bad housing is not directly demonstrable by the statistics at hand, therefore it does not exist. "Not only in Boston, but in Glasgow and other important cities of the world has attention already been diverted from crowded houses to other causes, and it is evident that the question of race-component may be a more important one than the questing of housing."

This attitude seems to be based on a fundamental misconception. It does not follow that because the factor of racial susceptibility may be so powerful in some instances as to obscure completely the factor of bad housing, the latter is not operative at all. This mode of argument is like attributing all the typhoid fever in a city with a bad water-supply to the drinking-water, and ignoring the existence of the cases caused by carriers, because the number of such cases cannot be accurately determined or even approximately estimated. This obvious statistical fallacy would be hardly worth commenting on were it not for the extraordinary conclusion of the editorial in question. "For decency's sake, for morality and for ethical reasons, the demand for better housing should never cease, but sanitarians must begin to divert their attention to racial and other factors of population."

This declaration seems to mean that housing is practically negligible as a public-health factor, however important it may be "for morality and for ethical reasons." We do not believe that this position is tenable. The well-known facts concerning the spread by contact of some of the commonest infectious diseases suggest one way at least in which crowding may possess a very definite sanitary significance. It may be added, too, that while the evidence that "tuberculosis houses" or "cancer houses" are agencies in keeping alive specific disease needs careful analysis,

it cannot be dismissed as altogether worthless. Especially convincing, however, are the studies which trace a connection between housing conditions and infant mortality. From the early observations of Meinert in Dresden in 1886, down to the recent work of Liefmann and Lindemann, all careful students are of one opinion. In hot weather the babies die in those dwellings which from their situation or construction favor air-stagnation and long-continued high temperature. Narrow streets, small courtyards, insufficient window and door space; in short, crowding of dwellings and crowding within dwellings, are invariably associated with high infant mortality. On the other hand, houses freely exposed to currents of air and rooms into which cooling breezes can enter have a relatively low summer infant death-rate. Few can read the investigations of Meinert, Ballard, Willim, Prausnitz, Liefmann and Kathe without being persuaded that housing exerts a real and important influence on infant mortality. So far from its being desirable for sanitarians to "divert their attention" to other factors, we are of opinion that in many directions the effect of housing on health will repay a more careful study than it has yet received. We regret that the *American Journal of Public Health* should editorially minimize, even to the slightest degree, the importance of the sanitary aspects of housing.

AN ANCIENT DIETARY RECOMMENDATION FOR NEPHRITICS

Mr. D'Arcy Power in his paper on "The Lesser Writings of John Arderne," which was read in the section on the History of Medicine at the International Medical Congress in London last August and has lately appeared in the published transactions, quotes what John Arderne, a distinguished old English surgeon, says with regard to the dietetic management of nephritics, or as he called it in his old-fashioned English, the "governance of nefretykes."

John Arderne (the later form of the name is Arden) is the first important figure in English medicine and the earliest English surgeon about whom we have any detailed knowledge. He was born early in the fourteenth century, visited many lands, had extensive experience in military surgery during the Hundred Years' War with France, was in some way attached to the suite of John of Gaunt, and left a series of medical and surgical writings in which he shows his knowledge of medical literature. Above all he draws from his own experience helpful directions for other practitioners. His writings contain many absurdities, but some suggestions that show how sensible he was and how carefully observant he had been.

Patients with renal disease, he says, "should put away anger and all strenuous business and intense occupation and all manner of things that disturb the soul or move it in any way save only joy. They should

1. February, 1914, p. 130.

forbear all manner of meats that are heavy of substance and viscous, as old beef that is powdered and hardened with salt, and also fresh pork. They may use good wine and the flesh of calves, especially suckling calves, and also the meat of all fowls save those that are of the lakes and ponds. They may eat of all the scaly fishes, that is, the fish of the rivers and of running waters that are active, but not the heavy fish of standing waters, and they should eschew all manner of foods that are made of pastry and all bread that is baked of dough and all fatness." They should lead an easy life with a full amount of sleep, so that if they pass a bad night they "mowe sleepe be the morne unto IX on the klokke." In the days when men rose at five or, at the latest, six o'clock, nine was of course a very late hour, equivalent now at least to eleven or twelve.

It is curiously interesting to trace in the history of medicine the tradition of the dietetic difference between red and white meats. This oldest English medical document, written in the period of transition from the older to the modern form of the language, contains an explicit statement of the present-day theory that a marked difference exists between the red and white meats in food value and in irritative properties. The most careful methods of modern chemical investigation have failed to substantiate this theory, but it continues to be a favorite dietetic and therapeutic scapegoat in many of the chronic diseases. In gouty conditions, in so-called chronic rheumatism and above all in nephritis, patients are warned not to eat the red meats. They are told that these contain extractives particularly irritant to all chronically inflamed tissues, especially to inflamed joint-structures and the kidneys. Distinguished chemists have said that since both white and red meat are composed of muscle-tissue and the nitrogenous content of one almost equals that of the other, the only reason for the continuance of the idea of a difference between the two lies in this old clinical tradition.

Arderne seems to have had some idea of organo-therapy for he suggests that nephritic patients should "use the reynes [that is, the kidneys] of beasts either roasted or boiled."¹ He recommends particularly that these patients should eat the flesh of a fowl known in the scientific terminology of his time as the *Cauda tremula* or Wagstertte, that is, the familiar wagtail

of the modern time. This should be eaten "either fresh or salt or baked without dryness for and it be drye it is nought woorth." He adds further, "And note that the use of the powdir or of the flessch of the Wagstertte availeth gretely to breke the stone in the bladdere." The passage that we have quoted illustrates how much Arderne knew about caring for a nephritic patient. Probably because of his military experience he was particularly expert in genito-urinary surgery, and anticipates many of the modern prescriptions and directions for treatment. Many things have been recommended and all varieties of drugs have been prescribed for a similar purpose since Arderne's time, and not one of them has been any more successful than the dietary suggestions which he offers with so much assurance.

Current Comment

AGAIN THE WHITE MAN IN THE TROPICS

At a meeting of the Society of Tropical Medicine and Hygiene in London in October, Sir Havelock Charles, in a discussion of neurasthenia among northern peoples who go to India, made some interesting observations on the failure of such peoples to survive without admixture with the native races or without conforming to the necessities imposed by the climate. "Conforming to the climate," he says, "will probably mean the preservation of a percentage of strains defective in the primitive qualities, and with a liability to nervous weakness." The light-colored peoples are perfectly fitted to cold climates, but when they migrate to hot latitudes they are damaged by the conditions to which they are exposed. It is said that fresh waves of immigration are constantly necessary for the preservation of the purity and predominance of the white race in a tropical climate. Unless these occur, whether the invaders are white or yellow, in the crossing of light and dark races the foreigners have invariably assumed the characteristics of the natives. The climate seems to limit, to define and mold the foreign characteristics in accord with the alterations brought about by the food and the soil. As instances of this are cited the disappearance of the Turanian invaders of India, the failure of any foreign race to establish itself in Egypt, Mexico or Peru. The Chinese in Calcutta and Singapore only maintain their original qualities by importing continuous streams of fresh blood. It is true, Sir Havelock says, referring more or less particularly to the experiment at Panama, that with money and power enough insanitary conditions may be rectified and tropical diseases may be banished, but the heat, the sunlight and the climatic conditions cannot be changed either by the power of money or the power of knowledge. People evolved in the environment of northern latitudes cannot retain their characteristics in a tropical or subtropical climate any more than southern wheat can be made to grow and give its increase in a highland soil. Men of sound constitution can and do live in the tropics, but women and

1. The original English of the first translation of Arderne, made in the fifteenth century, seems interesting enough to reproduce. It runs as follows: "Nefretykes must putte away ire, hyghly & moche besynesse & almanere thyng that longeth to the soule saff only joye. . . . They schulle forbere almanere metys that ben to grete of substaunse & viscous, as olde beeff that is myghtyly pooudryd & enharded with salt & also fressch porke but yf it lye in salt iiij dayes afore They mowe use grete wyne & the flessch of calvys that ben soowkyng & also of all fflowlys saff thoo that ben of the lakys & dichys and squamous ffyssches, i. e. fyssch of the ryvere, of the stony waterys & rennyng ryveres & not of the standyng waterys & they schulle eschywe almaner mete made of paast [pasties] & all bred that is dowgh bakene & all fatnesse. And they schulle use the reynes of the beeste other roste or sode. And in especial he schall use a ffoowl that is called *Cauda tremula* or Wagstertte other fressch or salte or bakene without drynesse ffor & it be drye it is nought woorth."

children fare far less well, and the results in the third and fourth generations would be deplorable. Sir Havelock says that the white man is not plastic enough to take up the conditions of the colored man and yet remain white, and without intermarriage his descendants will die out. "His incapacity is based on biologic factors—skin and bone, his blood, his brain and cranial capacity, his nutritive processes. Prolonged residence in a high temperature, with little range, and high relative humidity, with excess of light, will produce both physical and mental deterioration, quite apart from the influence of any parasitic disease." Sir Havelock does not believe the experiment at Panama, with unlimited money and unlimited power, proves anything with reference to the possibilities in India. There, he says, even in the most advanced coast-towns Panama methods could not be applied, while in the interior it would be both economically and politically impossible. Such observations are especially interesting and pertinent in view of what has been said with regard to the possibility of the more extended occupation of our tropical possessions by the people of the United States.

A NEW JOURNAL FOR A NEW SCIENCE

No one can study the modern literature of scientific medicine and its related branches without observing the increasing influence of the newer physical chemistry. The phenomena of the recent science termed immunology are at present portrayed in a language foreign to the physician of a decade or two ago. Hemolysis, agglutination, cytolysis are discussed in new terms of permeability, adsorption, surface tension, etc. The story of the colloids has become prominent and has furnished new interpretations for various features of precipitation, gelation and solution. Enzymes and catalysis, antigens and antibodies, toxins and anti-toxins have found their way into the chapters of a rapidly developing science. Wherever one turns, not only in biology, but also in physiology, pharmacology, pathology, bacteriology and hygiene, physical chemistry has found its applications. It matters little whether we insist that it is merely a new name for old doctrines or a novel interpretation of long-recognized facts. Even if physical chemistry represents nothing more than a point of view, it is here to be reckoned with and to be welcomed as every help to progress ought to be. Encouraged in the belief that there is a greater future for the physicochemical conceptions in the biologic sciences, prominent workers in this field have joined to organize a new journal devoted thereto. Under the editorship of J. Traube of Berlin, together with H. J. Hamburger of Groningen, V. Henri of Paris and Jacques Loeb of New York, the new *Internationale Zeitschrift für physikalisch-chemische Biologie* is about to be launched in Leipsic. Its international character is further attested by the large list of collaborators, among whom are the American workers Drs. J. F. McClendon of Minnesota, E. W. Harvey of Princeton, L. J. Henderson and W. J. Osterhout of Cambridge, Mass., A. B. Macallum of Toronto, A. P. Mathews of Chicago and T. B. Robertson of Berkeley,

Cal. It can scarcely be said that there is to-day a dearth of journals of science. The only justification for new entrants into this field lies in an occasional need of bringing within closer range the related contributions from many domains. We must assume that the ready cooperation of so many eminent workers is a guarantee of the desirability of the new enterprise. Let us hope that the effect of the new journal on the progress of a young science will be, as suggested by its first editorial announcement, that of a catalyzer hastening reactions.

ANOTHER CLEAN RECORD IN THE CANAL ZONE

In THE JOURNAL for Oct. 25, 1913, the report of the department of sanitation of the Isthmian Canal Commission for September was reviewed,¹ showing that during that month not a single white man, woman or child from the United States had died from disease on the Canal Zone. The report for February, 1914, shows that another record has been established. During that month there were 7,592 white employees. Among this number, equal to the population of a good-sized city, there was not a single death from disease during the month. Two white employees were killed by accident, one by electric shock and the other by injury received on the railroad, but no white employee, either American or foreign, died from disease during that time. As might be expected, the death-rate among other classes was equally low. Of the 5,309 white employees from the United States, there was only a single death by violence. Of the 3,875 white women and children from the United States, there was one death from accidental drowning and three from disease. One, a child of 4 years, died of diarrhea; another, a woman of 70, died of old age, and a third, a woman of 44, died of pulmonary tuberculosis. Out of a total of 9,184 white American employees and their families, there were only three deaths from disease and two from violence, while among the total 10,963 Americans on the Canal Zone, there was only a single additional death from violence, making a total of six deaths for the month among nearly eleven thousand persons, equal to an annual average death-rate of 6.56 per thousand. Nor are the benefits of improved sanitary conditions limited to white employees and their families. In February, 1914, there were 41,867 colored employees, and among this number there were only twenty-two deaths from disease and six deaths from violence, making an average death-rate per thousand from disease of 6.31, equivalent to a total annual average death-rate, for the entire 49,459 employees, of 5.34 per thousand. Of the twenty-two deaths, four were from pneumonia, seven from tuberculosis and one each from organic disease of the heart and typhoid fever, leaving nine deaths from all other diseases. After living for five or six years amid conditions which have produced such a startling reduction in the death-rate, will the men who have dug the Panama Canal be able to find

1. A Clean Record in the Canal Zone, Current Comment, THE JOURNAL A. M. A., Oct. 25, 1913, p. 1544.

any city in the United States which is sufficiently cleanly and healthy for them to live in? Let us hope that the ten thousand Americans, returning to this country after a practical demonstration of what modern scientific knowledge can do to prevent disease, may prove to be the little leaven which will leaven the entire lump. If this is the case, the indirect benefits of the Panama Canal will be incomparably greater than its commercial or military value.

FULL-TIME CLINICAL TEACHERS AT HOPKINS

Two months ago,¹ comment was made relative to the new plan proposed for the employment in the Medical Department of Johns Hopkins University of full-time clinical teachers. The plan, it will be remembered, is that the heads of the departments of medicine, surgery and pediatrics are to give their undivided time to teaching and research. They will be free to act as consultants in private cases, but any fees earned from such consultations are to be turned into the university treasury. It is now announced² that the three positions referred to have been filled. The chair of medicine has been accepted by Dr. Theodore C. Janeway, Bard professor of medicine in Columbia University and director of the Medical Division of the Presbyterian Hospital of New York. The chair of surgery will continue to be held by Dr. William S. Halsted. The chair of pediatrics has been accepted by Dr. John Howland, formerly associate in pediatrics at Columbia University and later professor of pediatrics at the Washington University Medical School, St. Louis. A year ago Dr. Howland was called to be physician-in-charge of the Harriet Lane Home for Invalid Children—the pediatric clinic of the Johns Hopkins Medical School. No full-time scheme for any of the departments referred to would be complete unless an adequate income was at hand, not only to support the professors, but also to provide the needed assistants, laboratories, equipment, etc. Each department would need to be completely organized and each member of the organization would require facilities adapted to his particular kind of work. The sum involved is so large that even those who are advocating this plan think it improbable or even inadvisable that the scheme at present be generally adopted. The full-time organization, according to the plan proposed, should be put to the test, and its superiority proved before being given any general recognition. It is quite generally recognized that some reorganization whereby clinical teaching is placed on a more academic basis is highly desirable, but there are many who have their doubts regarding what is now referred to as “the Hopkins plan.” Clinical progress must be stimulated and men must be trained willing to devote themselves more largely to science and humanity on terms more equal to those obtaining in the laboratory branches. If the Hopkins plan brings about these results it will have demonstrated its value and indicate that the plan is worthy of a wider adoption.

A PRACTICAL BEAUTY HINT

The use of cosmetics and other artificial aids to attractiveness is as old as the human race. To Darwin and students of anthropology in general, decorative applications were a feature of selection—of attraction and sexual selection. The cheek covered with rouge, the heavily elaborated eyebrow and the colored wig, it appears, originated at an early period among the class of courtesans. It has been remarked that “time has taken the taint from the tint,” and the wide employment of artificialities to-day would seem to indicate the truth of this observation. The host of advertised medicaments, the beauty columns which grace or disgrace almost every metropolitan newspaper, the display-windows of the various department-stores catering to a large feminine clientèle bear further witness to the fact. The average man of rational clean mind does not approve of cosmetic innovations in his own feminine kinsfolk. He would prefer to see these radical departures from the natural confined to the chorus lady and the public tangoist. The physician always warns against the use of cosmetic preparations, because most of them are dangerous. To him the natural and healthy has always seemed to be typical of beauty. Even the editor of the lay press, however, has seen the ridiculous in the beauty column, and the following satirical excerpt taken from a Southern weekly¹ contains what is perhaps an ideal beauty hint: “For giving the face a good color, get one pot of rouge and one rabbit’s foot. Bury them two miles from home and walk out and back once a day to see that they are still there.”

THE PERCENTAGE OF OXYGEN SATURATION OF ARTERIAL BLOOD

Certain statistics with respect to the normal functions of the human body are transmitted from one generation of students to the next with little concern for their subsequent verification. This is true of some of the data relating to the blood of man. Now and then chance furnishes some new item to corroborate an old one in a way that increases respect for the permanence of scientific knowledge. We are taught, for example, that the blood is practically saturated with oxygen as it passes the lungs under ordinary conditions of circulation and respiration. An expert in blood-gas analysis² was recently afforded an opportunity to verify this by collecting some arterial blood, uncontaminated either with air or anesthetics, for analysis during the process of a transfusion. The blood proved to be 94 per cent. saturated with oxygen.

1. Southern Mercury.

2. Cooke, A., and Varcroft, J.: Direct Determination of the Percentage Saturation of Arterial Blood with Oxygen in a Normal Person, *Jour. Physiol.*, 1914, xlvii, 35.

Dirt.—The causative agents of diseases not being comprehended, naturally, propagating agencies are not understood. That dirt and disease are coexistent is obvious to the sanitarian who knows the relation of cause and effect, but to many people dirt is simply undesirable, not a menace to health.—Dowling, in *Bull. Texas State Board of Health*.

1. “A New Departure in Clinical Teaching,” editorial, *THE JOURNAL A. M. A.*, March 14, 1914, p. 853.
2. Medical News, page 1484, this issue.

Medical News

ALABAMA

Personal.—The sanatorium of Dr. Anti C. Watts, Fulton Springs, was destroyed by fire, April 16, with a loss of \$6,000, partially covered by insurance.

State Association Meeting.—The annual meeting of the Medical Association of the State of Alabama was held in Montgomery, April 21-24, and the following officers were elected: president, Dr. Benjamin B. Simms, Talladega; vice-president, Dr. Jacob U. Ray, Jr., Woodstock; state health officer, Dr. William H. Sanders, Montgomery (reelected). Birmingham was selected as the next place of meeting.

ARIZONA

State Association Meeting.—The twenty-third annual meeting of the Arizona Medical Association was held in Tucson, April 21 and 22, under the presidency of Dr. Ira E. Huffmann, Tucson. The following officers were elected: president, Dr. John W. Flinn, Prescott; vice-presidents, Drs. Robert Ferguson, Bisbee; Alfred J. Murietta, Jerome, and William W. Wilkinson, Phoenix; secretary, Dr. Clarence E. Yount, Prescott (reelected); and councilors, north district, Dr. William H. Bucher, Kingman; south district, Dr. Earl R. McPheeters, Clifton. In the afternoon of April 22 the wives of the visiting physicians were entertained at a Spanish luncheon at the residence of Dr. and Mrs. Ira E. Huffmann, and in the evening were entertained by Dr. and Mrs. Meade Clyne.

ARKANSAS

Executive Staff Appointed.—At a meeting of the Sebastian County Medical Society at Fort Smith, April 14, the following members were appointed to serve as executive staff of the Sparks Memorial Hospital during the ensuing year: Drs. Herbert Moulton, George F. Hynes, J. Gilbert Eberle, St. Cloud Cooper, Robert G. Carlin, Charles S. Holt, John McGinty and A. Earl Hardin.

CALIFORNIA

Typhoid Vaccination in California.—March 1 the State Hygienic Laboratory began issuing typhoid vaccine free to physicians with the idea of attempting to immunize a considerable portion of the population. Typhoid fever was responsible for 500 deaths in the state in 1913. With the vaccine sent out is a circular of instruction as to how it should be used. The vaccine as employed in California is prepared according to the method of Gay and Claypole of the University of California and is made by treating a culture of typhoid bacilli with immune serum, killing with alcohol, grinding and removing certain undesirable constituents. This vaccine has been shown to produce fewer unpleasant symptoms than other vaccines and its protective qualities are said to be greater. Each c.c. of the vaccine represents 750 million bacteria.

CONNECTICUT

Personal.—Dr. George H. Bodley has been appointed and Dr. Henry Bray reappointed a member of the Board of Health of New Britain.

New Officers.—Windham County Medical Association, one hundred and twenty-first annual meeting at Willimantic, April 16: president, Dr. Charles E. Hill, East Killingly; secretary-treasurer, Dr. William P. S. Keating, Willimantic. —Fairfield County Medical Association, one hundred and twenty-second annual meeting, at Bridgeport, April 14: president, Dr. George H. Noxon, Darien; secretary, Dr. Eli B. Ives, Bridgeport. —Hartford County Medical Association, one hundred and twenty-second annual meeting at Hartford, April 7: president, Dr. William R. Miller, Southington; secretary-treasurer, Dr. Albert R. Keith, Hartford. —Tolland County Medical Society, one hundred and twenty-second annual meeting at Rockville, April 21: president, Dr. Cyrus B. Newton, Stafford Springs; secretary-treasurer, Dr. Eli P. Flint, Rockville. —New Britain Medical Society, organized recently: president, Dr. George H. Bodley.

DELAWARE

Forty Years in Practice.—Dr. Willard Springer, Wilmington, celebrated April 22 the fortieth anniversary of his entering into practice in Wilmington. A dinner was given in his honor by the Newcastle County Medical Society at which

Dr. Springer read a paper entitled: "Forty Years in the Practice of Medicine."

Personal.—Dr. L. August H. Bishop has been elected president and Edwin S. Anderson, vice-president, of the Board of Health of Dover. —Dr. Stacy B. Collins, Seaford, has been appointed a member of the state tuberculosis commission. —Dr. Frank H. Edsall, Wilmington, as a result of a competitive examination, has been appointed superintendent of the Department of Health of Jersey City, N. J. —Dr. Joseph P. Pyle, Wilmington, has gone abroad.

GEORGIA

New Officers.—Ware County Medical Society: president, Dr. James J. Beaton, to fill the vacancy caused by the death of Dr. Marvin M. Johnson; vice-president, Dr. Paul P. Lane, all of Waycross.

Personal.—Drs. Archie Griffin, James M. Smith and Joseph H. Thomas have been reelected members of the Board of Health of Valdosta. —Dr. Victor H. Bassett was elected president, April 21, of the newly organized Anti-Tuberculosis Association of Savannah.

Health Report of Augusta, Ga.—That Augusta has an efficient health department is shown by the report of that body for the year 1913. This report, a pamphlet of 80 pages, shows that much improvement in health conditions occurred over previous years. The population of Augusta is 51,000, of which 27,400 are white and 23,600 negroes. In 1913 there were 377 white deaths, a ratio of 13.7 per 1,000, and 491 negro deaths, a ratio of 20 per 1,000. This gives an average of 17 per 1,000 which is a reduction of 1.6 per 1,000 over the previous year. Attention is called in the report of the reduction in deaths from typhoid and malaria. For malaria there were 12 deaths in 1913 as against 27 in 1912. For typhoid, 9 in 1913 against 14 in 1912. A gratifying feature is the reduction of mortality of children under 5 years of age. In 1912 there were 221 deaths while in 1913 there were 165. On account of careful school inspection the case incidence and death-rate among children from contagious diseases have been very satisfactory. There were 32 deaths from pellagra during the year.

ILLINOIS

New Officers.—Jersey County Medical Society at Jerseyville, April 23: president, Dr. Augustus K. Van Horne; secretary, Dr. Frederick M. Doyle, both of Jerseyville.

Personal.—Dr. George Pennington, West Alton, was thrown from a wagon and seriously injured, April 23. —Dr. Arthur Parsons, Geneseo, suffered the fracture of several ribs and severe cuts and bruises by the overturning of his automobile, April 21.

Hospital Notes.—At a meeting of the board of directors of Hillsboro Hospital Association, April 20, Drs. George A. Clotfelter, Zeb V. Kimball and Homer A. Seymour were elected members of the building committee for the new hospital, which is to be ready for occupancy early in November. —The new Deaconess Hospital, Peoria, was formally opened, April 21. In the evening a meeting of the Peoria Medical Society was held in the institution.

Medical Reserve Corps Meeting.—The annual meeting of the Medical Reserve Corps, United States Army, Illinois Division, was held April 30, under the presidency of Lieut. Junius C. Hoag, and the following officers were elected: president, Lieut. William L. Baum; vice-president, Lieut. William H. Wilder; secretary, Lieut. John A. Hornsby (reelected), and councilors, Lieuts. Louis E. Schmidt and Frank P. Lynch, all of Chicago. Among the speakers were Col. William Stephenson, M. C., U. S. Army, Col. Philip F. Harvey, U. S. Army (retired), Capt. Charles C. Billingslea, M. C., U. S. Army, and Lieuts. Patrick J. H. Farrell and Frank Billings, M. R. C., U. S. Army.

Chicago

Railroad to Build Hospital.—The Illinois Central Railroad announces that ground has been purchased on Stony Island Avenue, facing Jackson Park, for a hospital to be established by the Illinois Central Railroad, the erection and equipment of which will cost more than \$400,000. The building is to be six stories high and will be primarily for the benefit of employees of the railroad and passengers injured on the railroad.

Dr. Frank Honored.—Dr. Jacob Frank, surgeon-general of Illinois, was guest of honor at a banquet given April 23

by his friends of the medical profession of Chicago, and the Medical Reserve Corps, U. S. Army and Illinois National Guard. Dr. Charles P. Caldwell, president of the Chicago Medical Society, was toastmaster, and responses were made to toasts by Drs. A. Augustus O'Neill, Patrick J. H. Farrell, John B. Murphy, Arthur M. Corwin and Noble M. Eberhart. Dr. Martin M. Ritter, in behalf of those present, presented Dr. Frank with a sabre.

The Chicago Surgical Society.—The secretary of the Chicago Surgical Society calls attention to an item which appeared in these columns two weeks ago. The item stated that the Chicago Surgical Society had changed its name to the Chicago Academy of Surgery. The Chicago Surgical Society was organized in 1900 and still exists under that name. The society referred to in our previous item is a recently organized one, which incorporated under the name of the old Chicago Surgical Society. A bill to restrain the new society from using the name "Chicago Surgical Society" was presented to the court which sustained the contention, making it necessary for the new society to change its name.

LOUISIANA

New Officers.—Louisiana Railroad Surgeons Association at New Orleans: president, Dr. Frederick W. Parham, New Orleans.

State Society Meeting.—The thirty-fifth annual meeting of the Louisiana State Medical Society was held in New Orleans, April 20-23, under the presidency of Dr. Fred J. Mayer, Opelousas. On the Sunday before the opening of the meeting a health symposium was held in Tulane Theater on "The Relation of Religion to Hygiene and State Medicine," at which a number of the most prominent clergymen of New Orleans delivered addresses. Lake Charles was selected as the next place of meeting and the following officers were elected: president, Dr. George S. Bel, New Orleans; vice-presidents, Drs. J. Ashton Blanchard, Shreveport; David J. McAnn, Atkins; Everard M. Mahler, New Orleans; secretary-treasurer, Dr. Laurence R. De Buys, New Orleans (reelected), and councilors, first district, Dr. Wilkes H. Knolle, New Orleans; second district, Dr. Homer J. Dupuy; third district, Dr. Leon J. Menville, Houma; fourth district, Dr. Hardy H. Smith, Cotton Valley; fifth district, Dr. Oswald W. Cosby, Monroe; sixth district, Dr. J. N. Lee, Marthaville; seventh district, Dr. Charles A. Gardiner, Sunset, and eighth district, Dr. E. Lee Henry, Lacompte.

MARYLAND

Sydenham Contract Awarded.—The contract for the new ward building at Sydenham has been awarded. The cost will be \$17,225. The building will be used as a detention house instead of a measles ward. The new building will make Sydenham more modern and will provide quarters for the nurses.

New State Officers.—At the annual meeting of the Medical and Chirurgical Faculty the following officers were elected: president, Dr. James W. Humrichouse, Hagerstown; vice-presidents, Drs. Alexius McGlannan, Baltimore; James E. Deets, Clarksburg, and R. E. Lee Hall, Pocomoke City; treasurer, Dr. William S. Gardner, Baltimore; secretary, Dr. John Ruhrah, Baltimore; delegate to the American Medical Association, Dr. J. Hall Pleasants, Baltimore; alternate, Dr. D. E. Stone, Mount Pleasant; members of State Board of Medical Examiners, Drs. John McP. Scott, Hagerstown, and Henry M. Fitzhugh, Westminster; councilors, Drs. Charles O'Donovan, Baltimore; Peregrine Wroth, Jr., Hagerstown; Lewis C. Carrico, Bryantown, and William S. Archer, Bel Air.

Janeway at Johns Hopkins.—Dr. Theodore C. Janeway, now Bard professor of medicine in Columbia University and director of the medical department of the Presbyterian Hospital of New York, has been appointed professor of medicine in Johns Hopkins University, succeeding Dr. Lewellys F. Barker, who, however, will retain his connection with the university in an important capacity. The appointment will take effect at the close of the present academic year, and Dr. Janeway will probably come to Baltimore in the summer to organize his new department. The school is most fortunate in securing the services of so distinguished a clinical teacher, investigator and physician to join with Drs. William S. Halstead and John Howland in putting into effect the reform in medical education made possible by the gift of \$1,500,000 by the General Education Board. The establishment of the department of medicine, of surgery and of pediatrics on

the full-time or university basis was made possible by the gift of \$1,500,000 to be known as the William H. Welch endowment for clinical education and research by the General Education Board last October. The chairs of surgery and of pediatrics on the reorganized basis have already been filled by the continuance of Dr. William S. Halstead as professor of surgery and Dr. John Howland as professor of pediatrics under the new conditions. Drs. Barker and Thayer, who were unable to accept the university professorship under the new conditions, will continue their connection with the hospital and university.

Baltimore

Personal.—Dr. J. H. Mason Knox has been appointed a member of the Board of State Aid and Charities.—Dr. Hugh Hampton Young has been reappointed a member of the lunacy commission.—Dr. Albert T. Chambers has been reappointed by the mayor a member of the school board.—Dr. John Howland has sailed from New York for Bremen.—Dr. Alexander D. McConachie will spend the summer traveling in Europe.

MASSACHUSETTS

Resignation of Professor Briggs.—Dr. Frederic M. Briggs has tendered his resignation as professor of surgery and secretary of the faculties of Tufts College Medical and Dental schools, to take effect Sept. 1, 1914.

Personal.—Dr. Edward J. Mahoney, Springfield, has succeeded Dr. Simon J. Russell, resigned, as health officer of Springfield. Dr. Russell expects to spend the year in study abroad.—Dr. and Mrs. Edward R. Cutler, Bridgewater, celebrated their golden wedding anniversary April 27.

New Officers.—West Roxbury District Medical Club, April 15: president, Dr. Edward N. Libbey, Roxbury; secretary-treasurer, Dr. Francis P. McKenna, Jamaica Plains.—Plymouth District Medical Society at Brockton, April 16: president, Dr. Charles E. Lovell, Whitman; secretary-treasurer, Dr. Alfred C. Smith, Brockton, both reelected.—Brockton Medical Society, April 23: president, Dr. John R. Noyes; secretary, Dr. Harrison A. Chase.

MICHIGAN

Sanatorium Opened.—The new municipal sanatorium of Kalamazoo, erected at a cost of \$45,000, was officially opened April 21.

Fund Raised for Medical Mission.—The campaign for a fund for the University of Michigan Medical Mission at Buzrah, Arabia, closed April 23 with subscriptions amounting to \$4,850.

Shurly Tablet Unveiled.—A mosaic tablet, bearing an inscription describing the sterling qualities of Dr. Ernest L. Shurly, Detroit, was unveiled in the vestibule of the Detroit College of Medicine, April 19. Dr. J. Henry Carstens presided. Dr. Shurly's niece, Mrs. Kinzie Bates, Asheville, N.C., was the donor of the tablet.

Appropriations for Detroit Hospitals.—The Committee on Public Health and Hospitals of the Board of Estimates of the Detroit City Council, approved the appropriation of \$715,000 for hospital extensions, including \$400,000 for a tuberculosis hospital, \$100,000 for the first unit of a new municipal hospital, and \$125,000 for the purchase of 25 additional acres of land adjoining the present hospital site.

Personal.—Dr. S. Rudolph Light has been elected president of the Kalamazoo Anti-Tuberculosis Society.—Dr. Henry V. Tutton, Benton Harbor, who was operated on for appendicitis recently at Mercy Hospital, has recovered and resumed practice.—Dr. Bret C. Nottingham, Lansing, is reported to be critically ill with carcinoma of the stomach in Harper Hospital, Detroit.—Dr. Walter L. Slack has succeeded the late Dr. Daniel B. Cornell as eye and ear surgeon of the Pere Marquette System at Saginaw.

MINNESOTA

New Officers.—Stearns-Benton County Medical Society at St. Cloud, April 16: president, Dr. Pierre A. Hilbert, Melrose; secretary, Dr. John C. Boehm, St. Cloud.

New Sanatorium.—The Polk County Sanatorium Commission has purchased 35 acres of land south of Red River and west of Crookston, for \$2,000 an acre, as a site for the county tuberculosis sanatorium.

Foreign Surgeons in Rochester.—A special train brought nearly a hundred of the prominent surgeons of Europe to

Rochester, April 22, where they spent two days attending clinics of the Mayo brothers.

Personal.—Dr. William J. Mayo, Rochester, sailed for Europe April 30.—Dr. Harry P. Packard, physician in charge of the Mission Hospital, Oroomiah, Persia, has been visiting in Rochester and Minneapolis. He will return to Persia next month.—Dr. John Milton Armstrong, St. Paul, has returned from abroad.—Dr. Arnold Schwyzer and family, St. Paul, have sailed for Europe.

Public Health School Planned.—Plans for the establishment of a school of public health have been adopted by the administrative board of the medical school of the University of Minnesota. The function of the proposed school will be to consider and recommend measures pertaining to the health of the university community and to put into effect university regulations, either directly or by advisement.

Reorganization of Divisions of State Board.—A reorganization of the laboratory, epidemiologic and sanitary engineering divisions of the State Board of Health was perfected at a meeting held in St. Paul, April 14. The work of the laboratory division will hereafter be divided between the two divisions of infectious diseases and sanitation. Dr. Albert J. Chesley will retain his position as head of the division of infectious diseases, and in addition will take over the laboratory work which has to do with diagnosis of diseases. Dr. Robert H. Mullin, in charge of the present laboratory division, and Prof. F. H. Bass, head of the sanitation division, will retire that they may devote their entire time to their teaching work at the University of Minnesota. The new sanitary division will be under the direction of Mr. H. A. Whittaker, assistant director and chief chemist of the laboratory division.

NEW MEXICO

Typhus Fever.—The epidemic of typhus fever in the Navajo settlement at Canoncito Cojo has subsided. The last Indian to have the disease became ill March 12 and on March 28 the fever had disappeared. In all there were twenty-seven cases, eleven adults and sixteen children. Four cases were fatal. Of the dead, two were adults and two were children. The deaths occurred in the early stages of the epidemic. The prompt and strict measures taken in the beginning of the epidemic by the superintendent of the United States Indian Service, P. T. Lonergan, proved efficacious. The destruction of practically the entire Indian settlement was necessary to terminate the epidemic. On the order of Dr. Day, sixteen "hogans" were burned and new huts were erected in a different locality to take their place. The clothing of the Indians was also burned and new clothing supplied. Dr. Day believes the disease originated from the visit of an old Mexican to the settlement.

NEW YORK

New Officers.—Rochester Medical Society, April 14: president, Dr. William B. Jones; secretary, Dr. David B. Jewett.

Tuberculosis Camp to Open.—The Watertown Anti-Tuberculosis Society is preparing for the opening of its camp at Huntingtonville. The camp will be open July 1, and it is expected that the hospital will be ready for occupancy before next winter.

State Society Meeting.—The one hundred and eighth annual meeting of the Medical Society of the State of New York was held in New York City, April 28-30, under the presidency of Dr. William F. Campbell, Brooklyn. The following officers were elected: president, Dr. Grover W. Wende, Buffalo; vice-presidents, Drs. Myron B. Palmer, Rochester; Samuel W. S. Toms, Nyack, and Robert Elliott, Willard; secretary, Dr. Wisner R. Townsend, New York City (reelected); treasurer, Dr. Alexander Lambert, New York City (reelected). The proposition to place laymen in charge of the medical publications of the society was voted down by the House of Delegates.

Women Elect Officers.—The eighth annual meeting of the Women's Medical Society of New York was held in New York City, April 27, under the presidency of Dr. Marion Craig Potter, Rochester, who had for the subject of her presidential address a survey of the medicolegal work of women physicians during the past twenty years in cases of physical injury in New York State. The following officers were elected: Dr. Angenette Perry, New York City, president; Dr. Evelyn Baldwin, Rochester, second vice-president; Dr. Cornelia Thomas, Rochester, treasurer. At the public meeting Dr. Lillian South, Bowling Green, Ky., delivered an illustrated lecture on hookworm.

New York City

First Typhus Death.—The first death from typhus fever since the present visitation occurred April 27, the victim being a Greek, 43 years of age, who boarded the steamship *Madonna* at Naples.

New Dean for University and Bellevue.—It is reported that Dr. William Hallock Park has been named by the Council of New York University as the dean of the University and Bellevue Hospital Medical College, to take the place of Dr. Egbert LeFevre, who died March 30.

Exhibition of Lincoln Hospital Work.—An exhibition of the industrial work done in the Home department of the Lincoln Hospital and Home at One Hundred and Forty-First Street and Southern Boulevard, was held April 22-24. This work comprised the product of the industrial department and consisted of woven rugs, garden and other baskets, etc.

Safety Medal Conferred on Surgeon-General Gorgas.—The American Museum of Safety at its meeting April 27, conferred the Dr. Louis Livingston Seaman medal on Surgeon-General William C. Gorgas for his Canal Zone achievements. In conferring the medal Prof. Frederick R. Hutton ranked Dr. Gorgas as the man who had done the greatest good to humanity in this generation.

Train Teachers for Feeble-Minded.—New York University is organizing a department offering a two-years' course for the training of teachers for feeble-minded and backward children. The courses will be organized under the School of Pedagogy but will have the cooperation of the Medical School, Summer School and Extramural Division. The program is tentatively divided into five courses: Physical and mental factors, psychologic factors, sociologic factors and industrial factors.

Care of Convalescents.—At a meeting of the Monday Club, April 20, Dr. Frederick L. Brush, superintendent of the Winifred Masterson Burke Relief Foundation, outlined the plans which the directors are making for the care of convalescents: the erection of an extensive plant at White Plains, where an estate of 60 acres has been secured. Thirteen out of the contemplated twenty-two buildings have already been finished, and when completed the institution will be able to care for 3,000 convalescents a year.

Food Standard Urged.—The Department of Health urges the adoption of a food standard and points out that this is an age of standardization and that it is more important that food should be standardized than that many other articles should be subjected to this test. By standardization of food would be meant the definition of each food in terms of its chemical and physical components. New York State has already standardized wine, milk, butter, honey, cider, vinegar, evaporated apples and maple sugar. The City of New York also defines "spot eggs;" otherwise there are no food standards in this state.

The National Commission of Milk Standards.—This Commission at its recent meeting in this city condemned the present methods of manufacturing ice cream and advised a campaign for the pure product. Examinations were made of some two hundred samples of ice cream from stores, restaurants and hotels and it was stated that the percentage of bacteria varied from 1,000 to 21,000,000 per cubic centimeter. The small stores of the East Side sold the poorest ice cream and that used by druggists at the big soda fountains was also found to be of poor quality. It was stated that while the butter supplied to the city was better than the ice cream, there was much room for improvement. The Commission recommended the pasteurization of all milk used in the manufacture of butter or ice cream.

France Honors Flexner.—Dr. Simon Flexner, Director of the Laboratories of the Rockefeller Institute for Medical Research, has received notice through the French Ambassador in Washington that the Cross of Chevalier of the Legion of Honor has been conferred on him by the President of the French Republic. This honor has been bestowed in recognition of the services which Dr. Flexner has rendered to medical science through his own discoveries and through his administration of the Rockefeller Institute. Special mention is made in the award of the assistance given to France at the time of the epidemic of cerebrospinal meningitis, which prevailed in 1909, by sending to the Pasteur Institute in Paris a supply of antimenigitis serum which was successfully used in combating that epidemic.

Plans Large Cancer Research Institution.—Cornell University Medical College and the General Memorial Hospital are planning for a large cancer hospital. There will be

available for the purpose a large supply of radium and unique facilities for laboratory research. It has been announced that more than \$1,000,000, exclusive of the value of the hospital buildings, have been provided. Allan A. Ryan has contributed \$50,000 of this sum and it is understood that Dr. James Douglas has contributed a much larger sum and has made arrangements to turn over to the hospital his half interest in the first 7 grams of radium which he and Dr. Howard Kelly were to get from the output of Paradox Valley in the course of the government radium tests. There are at the present time 100 milligrams of radium available for the work. The management of the hospital will be under the Faculty of the Cornell University Medical School.

Health Guards for Children.—Late in 1913 a request was made that the Board of Education permit the posting of a copy of the Health Department's circular containing information regarding the precautions to be taken against the spread of contagious diseases. The Board of Education at once gave its consent to this measure and now has asked that such a circular be placed in the hands of every child. In response to this request 800,000 copies of an abridged and simplified circular are being prepared for circulation. By this means the information will be carried to many homes. The Bureau of Infectious Diseases recently made a study to ascertain what proportion of secondary cases of contagious diseases follow when patients are treated in their homes or in hospitals. It was found in diphtheria that when the patients were quarantined at home the percentage of secondary cases was 13 per cent., when the patients were removed to hospitals, 1 per cent. In scarlet fever the secondary cases where the child was quarantined at home were 9 per cent.; in hospitals 3 per cent. The percentage in measles was 10 per cent. greater when the patients were quarantined at home.

NORTH CAROLINA

Personal.—While fording a swollen river below Taylorsville, Dr. A. M. Edwards of that place narrowly escaped drowning, but was saved by his horse, which swam to the opposite bank.—Dr. Samuel W. Stevenson, Mooresville, is seriously ill with cerebral hemorrhage at his home.

District Society Meeting.—The Sixth District Medical Society held its annual meeting in Durham, April 23, under the presidency of Dr. Charles G. Nichols, Roxboro. The society was entertained at dinner at the Country Club. The president of the State Society, Dr. James Parrott, Kinston, delivered an address on "The Doctor's Duty to His Fellow Doctor."

OHIO

Medical Society History Published.—Summit County Medical Society has issued a booklet entitled "Summit County Medical Society, 1842-1914," which gives a list of members since the organization of the society with specialized information regarding each.

New Officers.—Montgomery County Medical Society, clinical section: chairman, Dr. Erle A. Baber; secretary, Dr. Harry H. Hatcher, both of Dayton.—Eastern Ohio Medical Society: president, Dr. George H. Irvin, Orrville; secretary, Dr. Edwin S. Lyon, Akron.

Personal.—Dr. Frank A. Morrison, Uhrichsville, is reported to be ill with small-pox.—Dr. Hervey W. Whitaker, Columbus, is ill at his home with erisypelas.—Dr. Will H. Woodworth, Delaware, announces that he will remove to Norfolk, Va., June 1, and that his practice will be limited to diseases of the eye.—Dr. and Mrs. John Edwin Brown and son Columbus, will sail for Europe May 26.—Dr. Ira H. Hawes, Arcanum, has been appointed colonel of the Ohio State University regiment, Columbus.

PENNSYLVANIA

Typhus Fever at Lancaster.—A well-developed case of typhus fever was discovered in a local hospital by the Lancaster Board of Health, April 28.

Allegheny County Tuberculosis Hospital.—The State Board of Health and Charities, April 8, approved the plans for the construction of a Tuberculosis Hospital for Allegheny County, at a cost of from \$50,000 to \$100,000.

Personal.—Dr. and Mrs. James A. Irwin, Philadelphia, sailed for Europe May 7.—Dr. George R. Moffitt of Harrisburg, has been appointed bacteriologist and chemist, meat and milk inspector of the state.—Dr. Edward G. Heyer of Hazelton, has been elected superintendent of the Nanticoke Hospital to succeed Dr. August Trapold, resigned.—

Dr. Clarence R. Phillips of Harrisburg has been appointed state health inspector for Dauphin County to succeed Dr. Paul A. Hartman, deceased.—Dr. Ellis M. Frost, instructor in clinical medicine and microscopic anatomy in the Pittsburgh School of Medicine, has been appointed director of the Department of Health of Pittsburgh.

Philadelphia

Health Director Resigns.—Dr. Joseph F. Neff, director of the Department of Health and Charities, under the administration of Mayors Reyburn and Blankenburg since 1907, resigned because of ill health, April 29, to take effect immediately, and Dr. Richard H. Harte has been appointed his successor.

Samuel D. Gross Prize.—The committee having in charge the Samuel D. Gross prize, valued at \$1,500, of the Philadelphia Academy of Surgery, announces essays in competition for the prize will be received until Jan. 1, 1915. The essays, which must be written by a single author in the English language, should be sent to the "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 19 S. Twenty-Second Street, Philadelphia," on or before Jan. 1, 1915. Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, containing the name and address of the writer.

TEXAS

New Officers.—Denison Medical Society, April 2: president, Dr. David K. Jamison, Sherman; secretary, Dr. Alfred M. Kahn, Denison.—Fort Worth Doctors' Lunch Club: chairman, Dr. George D. Bond; vice-chairman, Dr. William C. Rountree, and treasurer, Dr. Henry B. Trigg.

Quarantine Camp Established.—Acting on the advice of Quarantine Officer Irvy L. McGlasson, Galveston, the governor has announced that the American refugees from Mexico will be retained in a detention camp for a period of six days after their arrival, and tents have been procured in sufficient number for use of the refugees.

Quarantine Regulations Not to Be Suspended.—Governor Colquitt of Texas has refused the request of the State Department to suspend quarantine regulations in the cases of the refugees from the war zone in Mexico landing in Texas. He has suggested that they be landed at New Orleans where there is a Federal detention hospital. Citizens of Port Aransas have protested against the disembarking from the yacht *Wakivaof* of 130 refugees direct from Tampico, from which point they were taken to Aransas Pass for quarantine instead of being taken to the state quarantine station on Harbor Island.

GENERAL

Joint Meeting.—A joint meeting of the Cass County (N. Dak.) and the Clay-Becker Counties (Minn.) Medical Societies was held in Fargo, N. Dak., April 27. Dr. Frank S. Bissell, Minneapolis, read a paper on "The Roentgen-Ray in the Armamentarium of the Internist," illustrated by demonstrations and lantern slides.

Marine Hospitals and Quarantine Stations Made Available for Sick.—By an order issued April 25 by Surgeon General Blue, approved by the Secretary of the Treasury, United States marine hospitals and quarantine stations are made available for the sick and wounded of either the Army or the Navy on written request of the proper military or naval authority. The Public Health Service is to be reimbursed the actual cost of their care.

Barring Out Infectious Diseases.—Secretary of the Treasury McAdoo, on behalf of the Public Health Service, has asked Congress to appropriate and make instantly available, a fund of \$100,000 to prevent the introduction and spread of epidemic diseases in the United States. This has special reference to the danger to be apprehended from the introduction of such diseases from Mexico. The fund for the current year for this purpose is exhausted.

Officers in Mexico.—The first military hospital was established in Vera Cruz, May 1, under charge of Maj. Allie W. Williams, M.C., U. S. Army, attached to the Third Field Hospital.—Surgeons Rudolph H. Von Ezdorf and Gregorio M. Guiteras, U.S.P.H.S., have been ordered to report to Admiral Badger at Vera Cruz for duty.—Assistant Surgeons John Tully Vaughn and Richard M. Little, M.R.C., U. S. Navy, sailed for Vera Cruz on the *Morro Castle*, April 23.

International Congress of Neurology, Psychiatry and Psychology.—The increasing amount of research work relative to the nervous system has warranted the Swiss Society of Neurology in calling a Congress of Neurology, Psychiatry and Psychology to be held at Berne, Sept. 7-12, 1914. An organization committee and various international committees have been appointed. Manuscripts, which may be in English, French, German or Italian, should be sent to the secretary, Dr. L. Schnyder, 31 rue Monbijou, Berne, before July 15. Registration and subscription for members is \$5.

No Restrictions on Travel on Account of Plague in Havana.—Contrary to the impression given in some newspaper reports, no restrictions have been placed on travel to and from the ports of Cuba on account of the plague in Havana. A statement by Surgeon R. H. Creel in *Public Health Reports* May 1 is to the effect that there has been no "lifting of the quarantine" by the United States authorities as reported, which has given rise to a wrong impression as to the work of the Cuban authorities in combating the plague. The health authorities of both countries are working along the same lines, those of Cuba killing rats and fleas in the buildings in Havana, in the coast-wise shipping and in the cargo outward bound from Havana, and the Public Health Service devoting its attention to ridding ships bound for the United States ports of rats.

California Colleges Not to Merge.—Efforts have been made at various times to merge the medical schools of the University of California and Stanford University. Recently, it is reported, the proposal was made by Stanford University that the schools be united and controlled by a board on which the two universities would have equal representation. The proposal was considered at a conference held recently between committees appointed by the trustees of Stanford University and the regents of the University of California. It is stated, however, that the University of California considered it fundamental that the regents of the University of California have majority control of the board of managers. Since the board of trustees of Stanford University believed they were without authority to turn over the trust to any other institution in which they did not have at least equal voice the union of the medical schools was not accomplished.

Bequests and Donations.—The following bequests and donations have recently been announced:

New York Skin and Cancer Hospital, Society for the Relief of the Destitute Blind, Home for Destitute and Crippled Children, New York City, each \$1,000, by the will of Horace Bailey Thacker.

Mt. Sinai Hospital, Home for Aged and Infirm Hebrews, Lebanon Hospital, New York Institute for the Blind, Hospital for Deformities and Joint Diseases, and Jewish Hospital, New York City, each \$2,500; Beth Israel Hospital and German Hospital, New York City, each \$5,000, by the will of Emil Levy.

Manhattan Eye and Ear Infirmary, New York City, \$2,125 for the support of an eye clinic, and Yale Medical School, New Haven, \$1,000, by the will of Dr. Frank J. Parker.

Newton Memorial Hospital, Fredonia, N. Y., for the erection and endowment of a free tuberculous hospital for Chautauqua County, \$150,000, by the will of Mrs. Elizabeth M. Newton.

Home for Destitute Crippled Children, Chicago, \$1,000, by the will of Mrs. Delia L. B. Conover.

Home for Destitute Children, Chicago, \$10,000; Foundlings' Home, Chicago, \$10,000, by the will of Henry M. Hooker.

FOREIGN

Deaths in the Profession Abroad.—E. E. J. Golay of Geneva, author of several popular works on infant and child welfare, on diphtheria persisting for a year, on painful abscesses in the bones, etc., aged 66.—F. Delius, for many years chief of the German hospital at Buenos Aires, aged 51. He succumbed to the effect of chronic injury from Roentgen-ray work, which he was the first to introduce into Argentina.—L. Udranszky, professor of physiologic chemistry at Budapest and author of numerous works on this branch of science, especially on furfural reactions, occurrence and elimination of diamines, etc.

Diphtheria in Cuba.—Some recent statistics show that in the last eleven years, of the 320,039 deaths in Cuba, diphtheria was responsible for 1,850, but all but 19.78 per cent., were in whites. In the general mortality, the whites are represented by 65.7 per cent. and the blacks by 34.3 per cent. By the thousand living inhabitants, the mortality from diphtheria among the whites was 1.06 and 1.02, males and females; among the blacks it was only 0.56 and 0.62 respectively. J. LeRoy presents these figures in the *Revista de Med. y Cir.* of Havana and queries what can be the cause of this superior resisting power on the part of the blacks.

CANADA

Improvement at Queens.—The departments of physics, chemistry, physiology and bacteriology and hygiene are to be strengthened at Queen's University, Kingston, owing to the adoption of the five-year course.

School Medical Staff Changes.—Dr. William E. Struthers, chief medical inspector of Toronto Board of Registration, has recommended that Dr. E. R. Langrill be placed on the regular staff, and that the resignation of Dr. R. M. Burgess be accepted.

Foreign Surgeons in Montreal.—About forty of the leading surgeons of Europe visited Montreal before sailing for home from Boston. While in Montreal they were in charge of Drs. George E. Armstrong, Francis J. Shepherd and J. Alexander Hutchison. They were entertained at luncheon at McGill, Principal Peterson doing the honors, and also visited the Montreal General and Royal Victoria hospitals.

Personal.—Dr. Harry C. Burgess, Montreal, has returned from Europe.—Owing to the retirement of Dr. Richard W. Garrett, Dr. Gordon W. Mylks has been appointed professor of pediatrics and gynecology at Queen's University, Kingston, Ont.—Dr. Archibald R. B. Williamson has been appointed professor of obstetrics at Queen's University; Dr. John T. Fotheringham, Toronto, assistant professor of surgery; Dr. E. D. C. MacCallum, lecturer in clinical medicine; and J. M. Farrell, B.A., lecturer in jurisprudence.

Quackery in Ontario.—The province of Ontario seems to be the stamping ground for quackery of all sorts and variety. This state of affairs has been brought about owing to a member of the judiciary rendering an opinion or judgment that practicing medicine meant the giving of drugs. Apparently, however, the profession is getting tired of this state of affairs, and the Council is contemplating a request to the legislature at its next session to amend the Ontario Medical Act. It is nearing a year since the prime minister announced at the opening of the Toronto General Hospital that the government had in contemplation a commission to inquire into medical education and practice in all its bearings. Probably his late severe illness has occasioned the delay in appointing that commission.

Rabies and Typhoid in British Columbia.—A circular letter sent out by the Provincial Board of Health at Victoria calls attention to the fact that rabies has made its appearance among dogs in one of the districts of the province, and that the disease has also occurred in Washington and Oregon. The public is warned of other outbreaks and gives notice that the department is prepared to send the complete treatment for hydrophobia to persons applying, which is to be administered by the local practitioner. Another circular of the Provincial Board gives information as to the occurrence of typhoid fever and the great waste of time and money of the people on this wholly preventable disease, and gives notice that the typhoid prophylactic is available for distribution free of charge. The people are urged to avail themselves of this preventive by being vaccinated. The prophylactic will be sent to any physician or to qualified nurses who apply for it.

Hospital News.—A new \$20,000 home for nurses was opened at Woodstock, Ontario, on April 28.—From statistics prepared by the Montreal General Hospital, considerable shortening of the average illness of patients in recent years has been experienced. In 1880 inmates were in bed on the average 26.14 days. There has been a progressive decrease, until the average last year was only 18.4 days. During the same period the average cost of indoor patients has doubled, being now at the rate of \$2.15 per patient per day.—The Loyola Convalescent Home was opened in Montreal last week. This organization founded in 1899 as a purely social and literary body has developed into one doing a great amount of useful work in the community of Montreal. This convalescent home is for patients not well enough to resume their former lives but able to leave the hospital; and they will be cared for at no advance on the cost of hospital maintenance. Dr. James J. Guerin is chairman of the medical board.

CANAL ZONE

Personal.—Senior Surgeon Joseph Hill White, U.S.P.H.S., at present on leave of absence to enable him to do research work regarding the hookworm in Central America, arrived at Panama, May 1.

To Rebuild Ancon Hospital.—A committee consisting of Capt. R. E. Wood, chief quartermaster, chairman; Dr. A. B. Herrick, acting superintendent of Ancon Hospital, and Mr. Samuel Hitt, canal architect, has been appointed to sub-

mit recommendations regarding the most practicable plan for reconstructing Ancon Hospital on a permanent basis. In appointing the committee, the governor submitted for its consideration a letter from the chief health officer, in which the latter set forth that many of the buildings in present use are in bad condition, needing constant and expensive repairs, and offered the following suggestions: That a general plan should be drawn up for constructing the entire hospital in concrete buildings, with tile roofs and floors; that the pavilion system, on which the present hospital was laid out, is desirable, but for purposes of economy in construction and administration, the ward buildings should be of two stories; that an effort should be made to concentrate all the administrative features of the hospital in one building, and to place the commissary, and medical and quartermaster's storerooms together; that the Tivoli dispensary should be consolidated with the out-patient department of the hospital; that the two existing steam plants in the hospital should be consolidated, if practicable; and that space for 800 beds should be provided, exclusive of those for the insane, with a minimum allowance of 100 square feet of floor space for each bed.

LONDON LETTER

LONDON, April 24, 1914.

The British Medical Association and Medical Aid Institutes

"Medical aid institutes" constitute a form of contract practice which has always incurred the hostility of the profession. They are established by combinations of working men to provide medical attendance for themselves and their families, and are financed by small regular contributions either collected from the members or deducted at the works from their wages. As a rule they employ whole-time physicians who are paid a salary and whose appointment and control are entirely in the hands of a purely lay committee. These institutes are therefore usually staffed by the failures of the profession. When the insurance act was under consideration, the British Medical Association succeeded in obtaining restrictions to the further development of these institutes and a proviso that money paid to them for medical benefit should be handed over entirely to the physicians.

A committee of the British Medical Association has recently had the subject under consideration and passed a resolution that in order to check the extension of these institutes and to combat those established, the association should endeavor to enlist the support of the staffs of the voluntary hospitals and ask them not only to refuse professional recognition to the medical officers of the institute, but also to refuse to treat patients sent by them to hospitals, except in cases of grave emergency.

This attitude of the association has aroused hostility in the newspapers which support the government. They refer to a memorial addressed to the General Medical Council by the Friendly Societies Alliance as far back as 1892, in which the fact is pointed out that the ordinary club system left much to be desired, as it usually occurred that attendance on a club patient was a secondary consideration with the club doctor. Private patients monopolized his care and attention and he naturally looked more closely after the patients who might pay fees than after those whose money was certain to be paid whether the members were attended to or not. Moreover, a cheese-paring policy of supplying the sick with medicine of inferior quality and in improperly small quantities was adopted. Although the insurance act has removed some of the worst features of contract practice, the frequent complaints of overcrowded surgeries and unsatisfactory treatment are held to justify the continuance of these institutes. It is characterized as a monstrous abuse of trust by the staffs of hospitals which are maintained by charity to refuse to treat patients coming from medical institutes.

Bill to Prevent the Vivisection of Dogs

By a majority of 42 in a house of 202 members, the second reading of a bill to prevent experiments on dogs has been carried in the House of Commons. The bill was introduced by Sir F. Banbury, member for the city of London, who said that scientists could experiment on any animal they liked but the dog. This animal had a special claim for exemption on account of its long association with man, whose best friend he had been. Experiments on the dog were not necessary. The rejection of the bill was moved by Mr. Rollinson, member for Cambridge University, who pointed out that the

present power of vivisection in England was restricted by the most careful safeguards. If any further were required, he said, let them be brought forward; but it was not necessary to pass a bill to obtain that object. We had gone far beyond any other country in strictly scientific research. The recent Royal Commission on Vivisection found that for some experiments no other animal was so suitable as a dog or cat. For the government a compromise was proposed—an additional safeguard—that no one should experiment on dogs unless he proved that no other animal was available for the purpose. A memorial against the bill signed by most of the eminent physicians, surgeons and research workers in the country has been presented to the Home Secretary. It is pointed out that the bill would inflict severe injury not only on medicine and surgery, but also on the study of diseases of animals.

Compulsory Notification of Ophthalmia Neonatorum

The president of the Local Government Board has issued an order making ophthalmia neonatorum notifiable throughout the country. According to report of the committee of the British Medical Association, the disease is the cause of at least one-third of the blindness of the inmates below the age of 16 in British schools for the blind.

PARIS LETTER

PARIS, April 17, 1914.

Elections and the Public Health Service

The Association ouvrière pour l'hygiène et la sécurité des travailleurs has just posted an appeal to the voters in each electoral district, excerpts from which may be of interest: "France is occupied too much with that side of affairs which concerns the Bourse and the course of shifting values; and too little interested in the side which has to do with life and the course of human values. Witness the last sanitary statistics published by the Minister of the Interior, which state that for every 10,000 persons, France has 178 deaths a year, Germany 140 and England 135. If this coefficient were with us as it is with Germany or England, from 149,000 to 169,000 fewer persons would die in France each year. And yet France is an admirable country, with a rich soil and a temperate climate. The populace is no more destitute or ignorant than in any other country. The medical body is also educated. What, then, is the cause of the evil? In France the health services are rudimentary; in the central administration they are ridiculously scattered in a dozen directions. No one member of the governing body is responsible for the public health, and no one of them cares! The law of 1902 regarding public health is, in almost every department, a dead letter. In the communes the mayors dare not apply the sanitary regulations, and the prefects dare not ask help of the mayors. This is a question of economizing in human lives, to the extent of more than 150,000 a year. . . . Do you think that from any point of view—economic, sociologic, national—the question is negligible? Or do you think—with us—that instead of occupying the last place in the consideration of public officials this should occupy the first? If you do, make Parliament study the question. Insist that your candidates, of whatever political party, shall promise to urge on the Chamber of Deputies the necessity of serious organization which will further public service along the lines of hygiene in the commune, the department and the state, and above all things to wage methodical war against those twin scourges which are dishonoring and ruining France—tuberculosis and alcoholism. It is a question of life or death for the nation!"

Action of Antirennin on the Digestibility of Milk

At the April 14 meeting of the Académie de médecine, Dr. Louis Gaucher of Montpellier demonstrated that one of the principal causes of intolerance of cow's milk lay in the work done by the stomach in breaking up the curds of casein; human milk or donkey's milk, less rich in casein, is more easily tolerated. This is a factor which must be taken into account in the etiology of gastro-enteritis in babies. This objection to cow's milk may be removed by adding to it a small quantity of antirennin, a ferment which is found in the serum of the sheep or horse. Indeed, antirennin breaks up the coagulated cow's milk into light flakes, making it similar in quality to human milk. In consequence this method makes it possible to avoid fatigue of the stomach and to prevent gastro-enteritis in children who receive artificial nourishment. This method seems to be indicated also in the case of adults who cannot tolerate a milk diet, a

well as in the case of dyspeptics and victims of gastric ulcer, whose stomachs are given rest.

Has Mortality from Tuberculosis Diminished in Paris?

If the figures furnished by official documents be consulted, it will be seen that, for the city of Paris, tuberculosis has been noticeably on the decline for a number of years. In 1875, of each hundred thousand inhabitants of Paris, 410 died of pulmonary tuberculosis; in 1911, only 343. These are, as a rule, the figures cited when the diminution of mortality from tuberculosis is discussed: they are drawn from the statistics of the population, and do not recognize any cause but pulmonary tuberculosis. As it has been said, however, it is a mistake to say that the mortality from tuberculosis has dropped from 410 to 343 for each hundred thousand inhabitants, because the thousands of deaths caused by the localization of tuberculosis in organs other than the chest are forgotten. Furthermore, mortality from tuberculosis in the suburbs of Paris, which are growing to immense proportions, is not mentioned. According to a table made recently by Dr. A. Fillassier of the statistical bureau of Paris, which concerns the morbidity of the communes of the Department of the Seine, it is seen that the number of deaths due to tuberculosis has grown steadily from 1896 to 1911. This reinforcement from the suburbs makes up in a great measure for the falling off in the tuberculosis death-rate of Paris proper.

This undiminished mortality from tuberculosis has still another cause. Since 1880, in spite of the growth of the population of Paris, the general mortality has been lessened by 10,000. The health of Paris has therefore most fortunately improved: certain diseases are on the decline. But for each hundred deaths due to all causes, the proportion of those due to tuberculosis has steadily increased, having risen from 20 to 25 per cent.

The Next Meeting of Practicing Physicians

The program for this meeting, which will be held in Paris, May 27-29, will be given over to the study of the part which the medical body and the medical syndicates should play in the organization of social hygiene and the sanitary defense in France.

BERLIN LETTER

BERLIN, April 23, 1914.

Further Decrease in Deaths from Tuberculosis

According to the statement of the National Prussian Statistical Bureau, there was a further decrease in deaths from tuberculosis during the year 1913. In Prussia, during the year 1912, there were 59,911 deaths against 56,583 in 1913, showing a decrease of 3,328 deaths in 1913. The average death-rate per ten thousand, which in 1912 was 14.85, amounted to only 13.59 during the year 1913. Twenty years ago, the figures were twice as large.

Institute for Crippled Children in Munich

March 26 the new building of the National Institute for Crippled Children and the orthopedic clinic connected with this institute, the first national clinic of its kind in Germany, were formally opened in the presence of the king and queen of Bavaria. The king gave the institute a fund of \$2,500 (10,000 marks) for free beds. The National Institute consists of a large central building and two side wings. Through the entrance one passes into a main hall, from which is reached the large dining-hall. Spacious corridors each side lead to the schoolrooms for boys and girls, the work-rooms and workshops, such as the book-bindery, the tailor-shop and the shoe-shop. The gymnasium is connected with the latter by a corridor. On the second story of the main building there are offices, examination- and operating-rooms for the dentists and house physicians and a room for the drawing classes; in the wings are recreation-rooms, play-rooms, music-rooms and bedrooms. The separation of the sexes is carried out strictly. The third story contains besides the apartments for the director, dormitories, rooms for the laundry and the sick-rooms. Each dormitory is provided with an inspection-room, a wash-room and wardrobe. In the upper story, to be used for the enlargement of the institute, there will be placed at first only some reserve rooms, a sick-room and a room for former pupils. Comprehensive provision for the boilers and kitchen, besides the baths and the rooms for the servants, are made in the basement.

A roomy passageway in the first story leads from the National Institute to the orthopedic clinic. Here also the kitchen with its accessory rooms and the rooms for servants, as well as the workshops for the preparation of orthopedic apparatus, are placed in the lower story. From the arched entrance hall, the office and waiting-rooms as well as the numerous consultation- and examination-rooms are accessible. The operating-rooms, the special Roentgen-ray rooms and a patients' elevator, as well as the orthopedic gymnasium, lie in the transverse building adjoining on the south. The first and second stories of the clinic are chiefly occupied by rooms for patients in addition to a living-room for the assistant, an operating-room for septic cases, a dining-room for the nurses and two separate wards with five beds.

All the patients' rooms are provided with covered porches which face south or southeast. The number of beds for patients amounts at the outset to seventy, but they can be easily increased at any time by putting them closer together. The living-rooms for the nurses are in the upper story of the south building. From the connecting passage between the National Institute and the clinic there are entrances to the Roman Catholic and Protestant chapels.

The isolation and laundry building serves in common for the National Institute and the clinic. It contains in the basement scientific laboratories for animal experiments, disinfection apparatus and a room for generation of steam and hot water as well as an apparatus for softening the very hard water. On the ground floor and in the second story there are four isolation-rooms as well as a special steam laundry for each of the two institutions. The heating of the whole building is carried on in a common heating plant.

The Falling Birth-Rate in Bavaria

The claim frequently made with special emphasis by the press and members of parliament of the central party that the Roman Catholic population participate in the lamentable reduction in the birth-rate to a much less degree than the Protestants, finds a timely and interesting illustration in the official statistics for Bavaria for 1913, just published. In this connection, it must be remarked that Bavaria is 70 per cent. Roman Catholic and 28 per cent. Protestant, while Prussia is 36 per cent. Catholic and 62 per cent. Protestant, like the empire in general. Now there began in Bavaria as well as in Prussia, in 1887, a reduction in the birth-rate which has been especially marked since the year 1902. In Bavaria in the five-year period 1901-1905, there were 37 births as an annual average for 1,000 inhabitants; from 1906-1910, 34.1; 1911, 31.1, and in 1912, 30.7. In Prussia, according to the statistical year-book, there was from 1901-1905 an average annual birth-rate of 36; 1906 to 1910, 33.3, and 1911, 30.2. The number for 1912 is not contained in the year-book. The difference is not so great, amounting to only 3 per cent., and the curves run practically parallel. Whether the religious sect explains the slightly greater number of births in Bavaria seems very questionable when it is remembered that the Bavarian statistical bureau makes a further statement with regard to the proportion of births in the country. For every single district and for every city the average yearly birth-rate per thousand women of child-bearing age (from 16 to 50 years) is estimated. Very considerable regional differences are apparent. As in other countries, most cities are distinguished by their low fertility. Evidently, the birth-rate depends much more on the economic and social condition of the population than on its sectarian complexion.

The upgrowth, which is the term signifying the number of children who have reached the age of earning capacity, is the greatest in those districts in which the fertility stands especially high. The infant mortality which, in many parts of Bavaria, has reached a height which is observed nowhere else in the German Empire—as high as a third of the children born living die in the first year of life—causes such a destruction of new-born children that often districts with a much smaller fertility by rational care in bringing up their children raise many more than districts with a more marked fertility with poorer care. On the whole, a considerable reduction of infant mortality in Bavaria has been noticed during the last two years. At any rate, the death-rate of the entire population has sunk to a marked degree. In 1900 there were 26.6 deaths per thousand inhabitants; in 1912, only 18.5. All classes, particularly those in the productive years of life, have participated in this increase in the average duration of life. In this time of a falling birth-rate, this favorable preservation of vitality deserves especial attention.

Marriages

DONALD ANDREW FRASER, M.D., San Francisco, to Miss Beatrice N. Lux of San Jose, Cal., at San Francisco, April 22.

DANIEL PHILIP MACGUIRE, M.D., West New Brighton, S. I., N. Y., to Miss Beatrice Butler of New York City, April 22.

ALEXANDER SANDS ROCHESTER, M.D., Chicago, to Miss Harriet Morris Carnahan of Columbus, Ohio, April 18.

HARRY LANGDON ROCKWOOD, M.D., Warrensville, Ohio, to Miss Lou Catherine May of Brilliant, Ohio, April 22.

ALFRED MELCHIOR LETZERICH, M.D., Harlingen, Tex., to Miss Myrtle Laas of Yorktown, Tex., April 23.

DAVID A. CAMPBELL, M.D., Tampa, Fla., to Miss Florence Springer of Indianapolis, at Tampa, April 23.

FREDERICK JOHN CULLEN, M.D., to Miss Ida Gibson, both of Tacoma, Wash., in Seattle, Wash., April 13.

FRANCIS EUGENE MURPHY, M.D., Aitkin, Minn., to Miss Romelle Comrie of Winona, Minn., April 19.

EDGAR IRVING LEAVITT, M.D., San Francisco, Cal., to Miss Laura Arnot of Placerville, Cal., April 19.

METULLUS ROWAN BARCLAY, M.D., to Miss Elsie Genevieve Kohlasch, both of Chicago, recently.

FRANK BURTON VON WORMER, M.D., Alton, Ill., to Miss Stella Cobb of River Forest, Ill., April 22.

OTHO LEE MONROE, M.D., New York, N. Y., to Miss Anna Marshall of McLeansboro, Ill., April 22.

LLOYD HUNTER MILLS, M.D., to Miss Mary Richardson, both of Los Angeles, Cal., recently.

GORDON A. LILLIE, M.D., Batson, Tex., to Miss Bess Vandervoort of Pawnee, Okla., April 15.

ELVIN WILLIAM KEITH, M.D., to Miss Helen Dougherty, both of Pottsville, Pa., April 17.

FRANCIS W. SINKLER, M.D., to Miss Mildred Scott Pearce, both of Philadelphia, April 14.

RALPH S. JIROCH, M.D., to Miss Clara Davis, both of Saginaw, Mich., April 18.

Deaths

Daniel Mitchell Appel, M.D. Colonel Medical Corps, U. S. Army; a Fellow of the American Medical Association; was found dead at his home in Honolulu, Hawaii, April 23, from organic heart disease, aged 59.

He was graduated from Jefferson Medical College in 1875, and a year later entered the Army as assistant surgeon. At the outbreak of the Spanish-American War he was made chief surgeon of the First Division, Seventh Army Corps, and later was on duty at Chickamauga Park, Ga., and Fortress Monroe, Va. In 1899 he was transferred to Savannah, Ga., and three years later was placed in command of the Army General Hospital, Fort Bayard, N. Mex. A year later he was ordered to the Philippine Islands, where he served as surgeon at Camp Jossman, and later as medical-supply officer at Manila. On his return to the United States in 1906, he was placed in charge of the medical-supply depot at San Francisco. In 1908 he was promoted to colonel, medical corps, and three years later was made chief surgeon, department of the gulf. Early in 1913 he came to Chicago as chief surgeon of the central division, and a few months later was transferred to a similar position in the department of Hawaii, with headquarters at Honolulu.

Richard Alexander Urquhart, M.D. University of Virginia, Charlottesville, 1894; a Fellow of the American Medical Association; assistant pediatrician to Johns Hopkins Hospital, Baltimore; attending physician to the Union Protestant Infirmary; Church Home and Infirmary; Baltimore Orphan Asylum, James Kernan Hospital and Industrial Home for Crippled Children; one of the medical inspectors of public schools of Baltimore; instructor in pediatrics in Johns Hopkins Medical School; died at his home in Baltimore, April 22, from heart disease, aged 42.

Adolph Abraham Margolies, M.D. University of Koenigsberg, Germany, 1879; Eclectic Medical College of the City of New York, 1883; of Brooklyn; died in the German Hospital, New York City, April 20, from carcinoma of the stomach, aged 66.

Samuel Otway Lewis Potter, M.D. Homeopathic Medical College of Missouri, St. Louis, 1878; Jefferson Medical College, 1882; a veteran of the Civil War; acting assistant surgeon, U. S. Army, in 1882-83; major and brigade surgeon, U. S. V., from 1898 to 1902, with service in the Philippine Islands; professor of practice of medicine in Cooper Medical College, San Francisco, from 1886 to 1893; formerly president of the College of Physicians and Surgeons, San Francisco; author of a handbook of materia medica, pharmacy and therapeutics which has gone through many editions, and of a number of other books and articles on therapeutics and engineering; died in St. Luke's Hospital, San Francisco, April 21, aged 67.

Charles Pickering Putnam, M.D. Harvard Medical School, 1869; a Fellow of the American Medical Association and American Pediatric Society of which he was president in 1908; medical director of the Massachusetts Infant Asylum; at one time chairman of the board of children's institutions department of the city of Boston; president of the Boston Associated Charities; eminent as a specialist on diseases of children; from 1875 to 1879 lecturer and instructor on diseases of children in Harvard Medical School; one of the organizers of the Boston Association for the Relief and Control of Tuberculosis; died at his home in Boston, April 22, aged 69.

Charles Byron Nichols, M.D. Dartmouth Medical School, Hanover, N. H., 1872; a Fellow of the American Medical Association; formerly president of the Angelus Hospital Association, Los Angeles; professor of surgery and president of the College of Physicians and Surgeons, Los Angeles; president of the Los Angeles Academy of Medicine, and Clinical and Pathological Society of Los Angeles; a veteran of the Civil War; and a surgeon of volunteers in the Spanish-American War, with service in the Philippine Islands for three years; died at his home in Los Angeles, April 16, aged 66.

Oliver L. Halbert, M.D. University of Louisville, Ky., 1876; a member of the State Medical Association of Tex.; once president of the McLennan County Medical Society; formerly president of the board of directors of the Y. M. C. A. of Waco; for many years a trustee of Baylor University; died at his home in Waco, April 22, aged 64. At a special meeting of the McLennan County Medical Society, resolutions were adopted relative to the death of Dr. Halbert.

William F. Burnett, M.D. Louisville Medical College, 1902; a Fellow of the American Medical Association; formerly surgeon to the Eureka (Nev.) Hospital and Richmond-Eureka Mining Company; and later a practitioner of Santa Rosa, Cal.; died at the Hotel Dieu, El Paso, Tex., February 27, as the result of injuries to the fourth cervical vertebra, caused by a fall four days before at Bowie, Ariz., aged 49.

William Walker Brackett, M.D. Jefferson Medical College, 1896; a Fellow of the American Medical Association; health officer of New Britain from 1906 to 1909; medical inspector of schools of New Britain since 1911; attending surgeon to New Britain General Hospital; died at his home, April 21, from septicemia due to an accidental infection, aged 42.

Frank Kelly Roarke, M.D. Albany (N. Y.) Medical College, 1891; a Fellow of the American Medical Association, and a specialist on diseases of the nose and throat; laryngologist to the Samaritan Hospital and consulting laryngologist to the Maternity Hospital of Troy, N. Y.; died at his home in that city, April 19, aged 44.

Morris Stroud French, M.D. Jefferson Medical College, 1876; formerly superintendent of the Allegheny County Insane Hospital, Woodville, Pa.; died in his room in Philadelphia, April 26, from the effects of a gunshot wound of the head, believed to have been self-inflicted with suicidal intent, aged 65.

Francis Alvin Weir, M.D. Rush Medical College, 1879; a Fellow of the American Medical Association; for many years a practitioner of Jcsup, Ia., but for eighteen years a resident of Pasadena; died at his home in that city, April 16, from pernicious anemia, aged 75.

Orlando P. Sala, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1868; for forty-five years a practitioner of Bloomington, Wis.; a veteran of the Civil War; died in Mercy Hospital, Davenport, Ia., April 24, aged 68.

A. M. Covert, M.D. Starling Medical College, Columbus Ohio, 1879; for many years a practitioner of Antioch, Ohio; died at his home in South Zanesville, Ohio, April 19, from pernicious anemia, aged 61.

Hugh Watt, M.D. Victoria College, Cobourg, Ont., 1880; University of Toronto, Ont., 1890; for several years editor and proprietor of the *Meaford Monitor*; and later in charge of an Indian Reservation at Fort Steele, B. C.; died at his home in Elko, B. C., March 23.

Edward W. Blake, M.D. Missouri Medical College, St. Louis, 1897; a member of the Oklahoma State Medical Association; a specialist in diseases of the eye, ear nose and throat of Tahlequah, Okla.; died at his home, March 13, from heart disease, aged 44.

Rebecca Rogers George, M.D. University of Michigan Homeopathic College, Ann Arbor, 1891; for several years lecturer on special physiology and hygiene at the Indiana State University, Bloomington; died at her home in Indianapolis, April 17, aged 51.

Royal Lewis Cleaves, M.D. Harvard Medical School, 1869; a Fellow of the American Medical Association; for forty-four years a practitioner of Cherokee, Ia.; a veteran of the Civil War; died at his home in Cherokee, April 16, from heart disease, aged 69.

Joseph Taylor Shepler, M.D. Bellevue Hospital Medical College, 1874; for two years coroner of Fayette County, Pa., and later local surgeon for the Pennsylvania System; died at his home in Uniontown, Pa., April 12, from cerebral hemorrhage, aged 67.

Blake A. D. Harwood (license, New Hampshire, 1897), of Exeter, N. H.; a member of the New Hampshire Medical Society; surgeon in the British service during the Boer War; died at his home in Exeter, N. H., April 12, from heart disease, aged 61.

Warren R. Woodward, M.D. Medical College of Ohio, Cincinnati, 1866; a member of the Ohio State Medical Association and one of the best-known practitioners of Hamilton County, Ohio; died at his home in South Milford, April 16, aged 70.

Eugene C. McMeel, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1880; a member of the Iowa State Medical Society; recently appointed postmaster of Delmar, Ia.; died at his home in that place, April 22, from pneumonia, aged 55.

William Triplett Harris, M.D. Medical College of Virginia, Richmond, 1907; a member of the Medical Society of Virginia; at one time a member of the staff of the Memorial Hospital, Richmond; died at his home in Richmond recently, aged 39.

Peter Beaugrand, M.D. Medical College of Ohio, Cincinnati, 1845; surgeon of the One Hundred and Sixty-Ninth Ohio Volunteer Infantry during the Civil War; died at his home in Fremont, Ohio, April 12, from senile debility, aged 99.

Mark Andrews, M.D. New Orleans School of Medicine, 1858; for forty years a practitioner of Waterproof, La.; surgeon in the confederate service during the Civil War; died at his home in San Antonio, Tex., about April 21, aged 83.

Charles Joseph Spratt, M.D. Bellevue Hospital Medical College, 1869; a member of the Minnesota State Medical Association; an eye and ear specialist of Minneapolis; died in Asbury Hospital in that city, April 12, aged 65.

Julius Caesar Lauer, M.D. University of Berlin, Germany, 1893; aged 55; died at his home in Long Island City, N. Y., April 20, from septicemia, believed to have been the result of a bite of a child suffering with diphtheria.

Pliny Penn Lester, M.D. Rush Medical College, 1903; of Walsenburg, Colo.; aged 41; while dressing the wounds of a militiaman shot during the strike at the Forbes Camp near Walsenburg, was shot and killed.

Edmond Lalonde, M.D. Laval University, Montreal, Que., 1899; a Fellow of the American Medical Association; aged 38; was found dead in his home in St. Paul, April 22, from accidental gas asphyxiation.

Sebastian A. Allgaier, M.D. Medical College of Ohio, Cincinnati, 1900; died in his apartment in Cincinnati, April 19, from the effects of poison, self-administered, it is believed with suicidal intent, aged 39.

James W. Murphy, M.D. Ohio Medical University, Columbus, 1895; a member of the Ohio State Medical Association; died at his home in Eagle Mills, Ohio, April 16, from tuberculosis, aged 43.

Thomas S. White, M.D. American Medical College, eclectic, St. Louis, 1879; a veteran of the Civil War, died at his home in Kansas City, April 20, from nephritis, aged 82.

Ferdinand O. Kauffmann, M.D. Missouri Medical College, St. Louis, 1874; at one time physician in charge of the Quarantine Hospital, St. Louis; died at his home in that city, April 14, from heart disease, aged 67.

Charles Hunt Porter, M.D. College of Physicians and Surgeons, New York City, 1908; a Fellow of the American Medical Association; formerly a clergyman; died at his home in Taunton, Mass., April 17, aged 43.

Everett B. Utley, M.D. College of Physicians and Surgeons, Baltimore, 1883; a member of the South Carolina Medical Association; died at his home in Marion, S. C., recently, from pneumonia, aged 53.

William Edward Scollard, M.D. Rush Medical College, 1882; a Fellow of the American Medical Association; who was adjudged insane in November last; died at his home in Milwaukee, Wis., April 19, aged 62.

Morris Wolf, M.D. Eclectic Medical College of the City of New York, 1893; formerly health officer of Yonkers, N. Y.; died in St. Joseph's Hospital in that city, April 18, from disease of the intestine, aged 44.

William H. Seip, M.D. Jefferson Medical College, 1859; a member of the Medical Society of the State of Pennsylvania; died at his home in Bath, Pa., April 11, from cerebral hemorrhage, aged 76.

Charles Higgs Franklin, M.D. Tulane University, New Orleans, 1866; a member of the Medical Association of the State of Alabama; died at his home in Union Springs, Ala., March 19, aged 75.

John Aloysius Healy, M.D. Tufts College Medical School, Boston, Mass., 1896; a member of the Minnesota State Medical Association; died at his home in Spicer, Minn., April 13, aged 43.

William Bike Stiver, M.D. Rush Medical College, 1878; a member of the Illinois State Medical Society; of Freeport, Ill.; died in that city, April 18, from cerebral hemorrhage, aged 63.

Nelson Obetz, M.D. Starling Medical College, Columbus, Ohio, 1879; for thirty-four years a practitioner of Columbus; died at his home in that city, April 13, from arteriosclerosis, aged 61.

Vincent A. Baker, M.D. Syracuse (N. Y.) Medical College, 1854; Eclectic Medical College of the City of New York, 1873; died at his home in Adrian, Mich., March 20, aged 82.

Harrie B. Howell, M.D. University of Buffalo, N. Y., 1890; a member of the Medical Society of the State of New York; died at his home in Rochester, N. Y., February 6, aged 50.

Earl Weeks, M.D. University of Louisville, Ky., 1909; formerly of Gallup and Silver City, N. Mex.; died at his home in Paducah, Ky., March 20, aged 30.

Carl Wirth, M.D. Northwestern University Medical School, Chicago, 1873; died at his home in St. Paul, Minn., April 17, from angina pectoris, aged 70.

Charles L. Randell, M.D. College of Physicians and Surgeons, Baltimore, 1889; of Portland, Me.; died suddenly in Tampa, Fla., March 22, aged 55.

Julia Ann Marshall, M.D. Boston University School of Medicine, 1877; of Norfolk Downs, Mass.; died in Boston, March 26, aged 72.

Charles M. Mahaffey, M.D. Western Reserve University, Cleveland, 1877; died at his home in Mount Vernon, Ohio, April 10, aged 59.

Henry W. Shaffer, M.D. Cleveland University of Medicine and Surgery, 1897; died at his home in Tedrow, Ohio, April 7, aged 63.

Haschall P. Miller, M.D. Hahnemann Medical College, Chicago, 1887; died at his home in Norwalk, Wis., February 6, aged 74.

Miles W. Palmer, M.D. New York University, New York City, 1847; died at his home in New York City, April 10, aged 92.

James D. Foster (license, Kentucky, forty-nine years practice, 1893), died at his home in London, Ky., March 16, aged 92.

Charles W. Carrier, M.D. University of Buffalo, N. Y., 1862; died at his home in Troy, Pa., March 24, aged 73.

Herman Fritsch, M.D. Jefferson Medical College, 1870; died at his home in Philadelphia, April 16.

John Warren Walker, M.D. Rush Medical College, 1884; died at his home in Chicago, April 16.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE OKOLA LABORATORY

A Mail-Order Treatment for Weak Eyes Declared Fraudulent by the Postal Authorities

On Feb. 16, 1914, Postmaster-General Burleson, on the recommendation of Judge W. H. Lamar, assistant attorney-general, issued a fraud order against the Okola Laboratory (Inc.), Rochester, N. Y., on the grounds that the concern was "engaged in conducting a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises."

The Okola Laboratory commenced operations in 1911 and was incorporated in New York, March 25, 1912, by the following individuals:

Charles S. Clark
Katherine A. McCormick
Edwin J. McNamara

Clark is said to have been the chief promoter, and to have had associated with him in carrying on this fraud the following:

Thomas F. Adkin, Rochester, N. Y.
Dr. John L. Corish, New York, N. Y.
Dr. John S. Read, Rochester, N. Y.
Charles H. Phillips, London, England.

Many of THE JOURNAL readers will recognize the name of Adkin as the man who has been connected with various fraudulent concerns, some of which have been put out of business by the federal authorities, others have gone out of existence, while some are still being operated. Thomas F. Adkin and E. Virgil Neal (alias X. LaMotte Sage) have for many years been engaged in the business of swindling the public through the instrumentality of the United States mails. They will probably continue to do so until the laws have become sufficiently flexible and public opinion has become sufficiently aroused to warrant some more drastic punishment than the mere issuance of a post-office fraud order.

The general scheme of the Okola Laboratory was to advertise that Dr. John L. Corish, "an able New York physician, and 'an eminent medical man,' had discovered a marvelous treatment for affections of the eyes by which those who were wearing glasses, or who should have been wearing glasses, could do without them. The treatment was claimed to have originated in Germany (a favorite fiction in many lines of medical fraud) and was represented to cure eye-strain, inflammation of the retina, cataract, diseases of the optic nerve, and many other conditions equally serious.

The so-called Okola Method consisted of three parts: "Okola," Okolizer" and "Okolator." "Okola" was the name of some tablets that were sent to those who purchased the "treatment." These were analyzed by the government chemists and were found to consist, essentially, of:

Baking soda

Boric acid

The directions were to dissolve the tablets in water and apply the solution to the eye by means of an eye-cup. The "Okolator" was a metal inhaler containing cotton moistened with a volatile liquid found by the government chemists to have the following ingredients:

Oil of mustard
Carbolic acid
Iodin
Menthol
Camphor

Oil of eucalyptus
Oil of sassafras
Tincture of benzoin
Alcohol
Petroleum oil

The "Okolator" was to be applied to the nose and the fumes from this odoriferous tube inhaled. The "Okolizers" were simply printed cards on which directions were given for rubbing the eyes, etc. The element of "mental suggestion"

was not lacking, as some of the reading matter on these cards indicates:

"I am using Okola and the Okolator, also following the simple rules of the Okolizers, as I am convinced that there will be a notable and lasting benefit to my eyes by faithful adherence to the Okola Method for six months."

The absurdity and fraudulence of selling a simple eye-wash and an evil-smelling inhalant mixture for the cure of cataract, retinitis, glaucoma, astigmatism, etc., is evident. But this fraud was carried on for nearly two years and is said to have swindled the public out of \$100,000 a year.

The Okola Laboratory advertisements featured a "free book" which was declared to have been written by Dr. John L. Corish. When the fraud was investigated by the postal authorities, it was found that the book was not written by Corish, that Corish had had practically no experience in treating diseases of the eye, and was, in fact, at the time experimenting with a "cure" for baldness. Corish's name appears in connection with the Woods fraudulent cure for alcoholism, exposed in THE JOURNAL some time ago, he having "indorsed" this swindle. Needless to say, Corish is not an "eminent New York physician"—he is but a comparatively obscure member of the *genus* Quack. In this connection it should be noted that Dr. John S. Read, the "director" of the Okola Laboratory, was one of the Rochester physicians who gave sworn testimony for the benefit of that hoary fraud, "Duffy's Malt Whiskey," which he deposed had been "used and prescribed by him for a number of years."

As in all mail-order medical frauds, while the public was led to believe that individual attention would be given to all letters sent to the Okola Laboratory, the facts were that the correspondence was almost entirely handled by clerks and that "form letters" were used in practically all instances. This, too, in spite of the fact that practically all the letters which were sent out by the Okola Laboratory were signed "John S. Read, M.D."

After reviewing all of the facts brought out by the investigation of the postal authorities, the assistant attorney-general reported to the postmaster-general:

"I find that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations, and promises, in violation of Sections 3929 and 4041 of the Revised Statutes, as amended; and therefore recommend that a fraud order be issued against the Okola Laboratory, Inc."

As previously noted, a fraud order was issued.

The preceding gives in brief the case of the Okola Laboratory fraud. More complete details taken from memorandum of Assistant Attorney-General Lamar to the postmaster-general will be given in a pamphlet reprint of this matter soon to be issued.¹

"BELL-ANS," FORMERLY "PA-PAY-ANS, BELL"

For a good many years Bell & Co. have put on the market under the name "Pa-pay-ans, Bell," a tablet consisting essentially of charcoal, sodium-bicarbonate, and ginger, flavored with oil of wintergreen. Of course, the soda, ginger, and charcoal were not featured by the company. The advertising point was the alleged presence of papain, said by Bell & Co. to be the "digestive principle obtained by our own exclusive process from the fruit of the *Carica papaya*." The attempt on the part of the Council on Pharmacy and Chemistry to determine the digestive power of Pa-pay-ans, Bell, resulted negatively, thus verifying results reported by other chemists.

Reading some of the "literature" on "Pa-pay-ans, Bell," might, if it were believed, lead one to think that with a bottle of this preparation on hand the balance of the physicians' therapeutic armamentarium could be thrown into the discard. Peritonitis, cholera morbus, alcoholism, seasickness, vertigo, dyspepsia, flatulence, and the vomiting of pregnancy are some of the many conditions for which Pa-pay-ans, Bell, have been recommended.

1. "The Okola Laboratory," 4 cents, postpaid.

Within the past few weeks physicians have been notified that the name of "Pa-pay-ans, Bell," has been changed to "Bell-ans." The reason for the change, according to the company, is that the new name is "shorter, pleasanter sounding, and better." As the most valuable asset of a "patent medicine" company is the name of its product, it is hardly likely that the name of Pa-pay-ans, Bell, would have been changed for purely euphonious reasons. As previous analyses indicate that there is not, and probably never has been, any appreciable amount of papain in the product, and as the older name, "Pa-pay-ans," carries with it the impression that papain is the essential drug, a more rational reason for the change of name should be sought. There is little doubt that this might be found in the federal Food and Drugs Act, especially that part which refers to misbranding. Bell & Co. are changing a misleading name into a meaningless one.

What physicians think of Bell & Company's method may be gleaned from the letter which follows. It is a copy of letter recently written to the concern:

Bell & Co., Orange, New Jersey.

Gentlemen: I acknowledge the receipt of your announcement of the change in name of your product from "Pa-pay-ans Bell" to "Bell-ans."

While I do not wish to obtrude suggestions relative to your business policies, yet I venture the opinion that a name suggestive of the constituents of your tablets would be less vague. Thus "Bicarb-char" or "Soda-char", indicating that they are sodium bicarbonate and charcoal would be more in harmony with pharmaceutical nomenclature.

I would further suggest that your lavish distribution of blotters which contain your advertisement of the specific for all gastric ills, *viz.*, "Pa-pay-ans Bell," or after the new style, "Bell-ans," be limited to professional circles, and not made so obtrusive in post-offices, banks, etc.

The above suggestions are made with the conviction that you want to be considered entirely honest with the medical profession, of which I, personally, am not convinced, and that you would regret deeply the discovery on the part of the profession of your making it a convenient means of exploiting your wares. Fresh in the memory of us all, who more or less prescribed Antikamnia and Resinol, are the experiences with remedies which now are advertised as cure-alls or specifics which had their introduction through the profession.

Personally, I consider your methods as the last word in brazen effrontery, which the medical profession should resent.

OTIS O. BENSON, M.D., Tower, Minn.

Association News

THE ATLANTIC CITY SESSION

Announcement of American Medical Special Train

The American Medical special train is routed this year over the Michigan Central, "Niagara Falls Route," via Buffalo, and then via the Pennsylvania Railroad direct to Atlantic City. The special train (all-steel equipment) will leave Chicago, Sunday June 21, at 6:30 p. m. and will reach Atlantic City in time for dinner the following day. This gives the opportunity on the return trip of taking advantage of stop-over privileges at Philadelphia and at Buffalo, which will allow side trips from Philadelphia to New York and Boston, or to Baltimore and Washington; and from Buffalo to Niagara Falls, Toronto, the Thousand Islands, Alexandria Bay and other northern points. Further details will be announced next week.

J. RAWSON PENNINGTON, Chairman,
Committee on Transportation and Place of Session.

MEDICAL PROFESSION AND THE RED CROSS

Plan of Committee to Provide Physicians in all Communities to Cooperate in Times of Emergency

The following circular has been sent to the various component county medical societies of the country:

*"To the Secretaries of the Several County Medical Societies:
"Dear Sirs:*

"The undersigned have been constituted a committee by the President of the American Medical Association to cooperate with the American Red Cross, in the matter of medical work.

"In February, 1913, the following communication was addressed to you, but fearing it has miscarried, we here repeat our appeal in the hope that on account of the importance of the subject you will bring it to the attention of your society at the first possible opportunity.

"The committee feels that a great deal of substantial good will come to all communities by providing a body of representative physicians of approved qualifications to direct or participate in medical work carried on by the Red Cross in different localities in times of emergencies and to advise with the representatives of that society on questions of medical policy and procedure. Besides its activity in emergency relief work; the Red Cross is engaged in an educational campaign for the mitigation of human suffering and the saving of lives. So far it has extended this movement only to the teaching of prevention of accidents and first aid to the injured, but it is hoped in future that it shall include popular instruction in the prevention of disease. These medical committees are not in any way bound to this educational work of the Red Cross, but members of the committees who may be interested are invited to correspond with the First Aid Department of the Red Cross.

"In the opinion of this committee the plan may be properly considered under the following headings:

"1. OBJECT. Primarily this service is designed to meet local emergencies when conditions of disaster are such as to call for the intervention of the Red Cross. When exigencies come about in any community the Red Cross would be glad to feel that it might call on carefully selected physicians in that community to lend their aid in the medical work incident to the situation.

"2. ORGANIZATION. It is desired to have in every county a central committee of five physicians, two of whom shall be the president and secretary of the county medical society, *ex officio*. The president of the county medical society shall select the other three members, preferably from the list of councilors or of the executive committee. This committee should be designated the 'Committee on Red Cross Medical Work.' The names and residences of the members, immediately after organization, should be reported to the chairman of the American Medical Association committee. In case of disaster, requiring relief action by the Red Cross, these county committees will be called on to nominate qualified medical men in their respective counties for Red Cross service. The committees will also serve in an advisory medical capacity to the Red Cross in time of disaster and in other lines of Red Cross activity as indicated in a preceding paragraph.

"3. QUALIFICATIONS. The certification of physicians by county committees will be accepted as ample evidence of the physical, moral and professional qualifications of the gentlemen recommended for appointment. It may be pertinent to state that service in time of disaster may entail severe physical effort, and physical fitness of appointees to perform hard work is, therefore, important.

"4. COMPENSATION. In some instances the Red Cross may require the services of physicians at a distance from their places of residence and for varying periods. Under these conditions the Red Cross will be prepared to pay traveling expenses and a moderate honorarium to be agreed on between the physicians and the national director of the Red Cross.

"It will be obvious to you that the arrangement here proposed is primarily intended to provide for emergencies which may suddenly arise in any community or, on the other hand, may happily never occur. Thus it may be that the committee which we are inviting you to create may never be called into action, while, on the other hand, it may have occasion to perform a very great public service. Your cooperation in the completion of this plan at as early a date as convenient will be appreciated.

"Please address all communications bearing on the contents of this letter to the Chairman, Dr. George M. Kober, c/o The American Red Cross, 716 Union Trust Building, Washington, D. C.

"Yours respectfully,

GEORGE M. KOBER, M.D.,

"Chairman.

"WILLIAM J. L. Lyster,

"Major, Medical Corps, U. S. Army.

"E. M. BLACKWELL,

Surgeon, U. S. Navy.

The present is an especially opportune time to bring this matter before the component societies.

Correspondence

Holmes, Not Semmelweis

To the Editor.—Anent the interesting letter of Dr. Simon Baruch (*THE JOURNAL*, May 2, 1914, p. 1420), in your last issue concerning the priority of Holmes over Semmelweis "in the discovery" of the contagiousness of puerperal fever, Dr. Holmes himself states that his essay was read before the Boston Society for Medical Improvement, and at the request of the society printed in the *New England Quarterly Journal of Medicine and Surgery* for April, 1843. According to Hirst of Philadelphia the observations of Semmelweis were made in the Vienna Hospital in 1846-1848, while another paper which attracted wide attention was from the pen of Sir James Y. Simpson on "The Analogy between Puerperal and Surgical Fevers," published in 1850. That the facts will establish the priority of Holmes over Semmelweis would seem to be without question.

It is contrary to facts, however, to consider Holmes as the discoverer, a claim which he never made and which his own words disprove by quotations from writers who recognized the truth as clearly as did he, but long before. Among them Dr. Gordon of Aberdeen, in a treatise published in 1795, said:

"I had evident proofs of its [puerperal fever's] infectious nature, and that the infection was as readily communicated as that of the small-pox or measles, and operated more speedily than any other infection with which I am acquainted.

"I had evident proofs that every person who had been with a patient in the puerperal fever became charged with an atmosphere of infection, which was communicated to every pregnant woman who happened to come within its sphere. This is not an assertion, but a fact, admitting of demonstration, as may be seen by a perusal of the foregoing table" [referring to a table of seventy-seven cases, in many of which the channel of propagation was evident].

"It is a disagreeable declaration for me to mention that I myself was the means of carrying the infection to a great number of women." After enumerating a number of instances in which the disease was conveyed by midwives and others to neighboring villages, he declares that "these facts fully prove that the cause of puerperal fever, of which I treat, was a specific contagion, or infection, altogether unconnected with a noxious constitution of the atmosphere.

"I arrived at that certainty in the matter that I could venture to foretell what woman would be affected with the disease, on hearing by what midwife they were to be delivered, or by what nurse they were to be attended, during their lying-in, and almost in every instance, my prediction was verified."

I need not take space to cite passages also from White, Armstrong, Gregson, Gooch, Ramsbotham and other, chiefly English, authorities on whose researches Dr. Holmes based his argument, as the entire paper should be read by those interested. What I want to bring out is that the great debt we owe to Oliver Wendell Holmes, in this connection, is *not* that he discovered the contagiousness of puerperal fever, for this he certainly did not do, but that he clearly saw the truth as established by others and with his wonderful power as a master of English prose presented it in his usual attractive and forcible manner.

WILLIAM W. ROOT, M.D., Slaterville, N. Y.

Priority in the Adoption of Higher Entrance Requirements

To the Editor.—My attention has recently been called to a letter under the above caption in *THE JOURNAL*, March 21, 1914, p. 951, which may cause some to think that, in a paper read at the last meeting of the Council on Medical Education, I sought in some way to claim priority for the University of Virginia in the matter of requiring a year of college work for admission to the medical course. In view of the wide publicity which *THE JOURNAL* has given to the dates when the various higher entrance requirements were adopted by various medical schools, such an assumption would be anything but flattering to my intelligence, not to mention honesty, and I hasten to plead not guilty.

A reference to the paper in question, which was published in *THE JOURNAL*, March 14, 1914, p. 826, will be sufficient, I think, to show that the matter of priority was not in my mind, but that the date was stated simply as one among several facts which, taken together, might be thought to substantiate the opinion that, at the time and under the circumstances mentioned, the adoption of this requirement was "in a way an absurd thing."

R. H. WHITEHEAD, M.D., Charlottesville, Va.

Rubeola and Choroiditis

To the Editor.—Some years ago a child was brought to me who had suddenly developed partial blindness during an attack of rubeola. Ophthalmoscopic examination revealed choroiditis, which advanced to partial atrophy. This case caused me to investigate, and revealed the fact that but few cases of choroidal atrophy can be found which will not furnish a previous history of rubeola.

Swanzy states that rubeola may be the cause of purulent choroiditis, but there is scant if any reference to it in the text-books. In one case an intelligent young woman was referred by me to an eminent oculist for an obscure tumor of the fundus following rubeola. This tumor disappeared to be followed by choroidal atrophy. I have found no drugs of any value—the treatment must be preventive.

C. DREW, M.D., Jacksonville, Fla.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SACCHARIN IN DIABETES

To the Editor.—Please tell me the objection to the use of saccharin in cases of diabetes in doses of 2 to 3 grains per day as a sweetening agent. I know that the use of this preparation has been prohibited in a commercial way. Do you know anything to take its place for use in diabetes?

R. J. HILL, M.D., Minneapolis.

ANSWER.—Benzosulphinid (saccharin) is an antiseptic and tends to hinder slightly the action of the digestive ferments. An excessive quantity of it may, therefore, impair digestion. In the moderate doses in which it is used for sweetening beverages of diabetics it is not liable to do harm. The prohibition applies to the use of this preparation in the sweetening of preserved foods. In amounts of over 0.3 gm. (5 grains) per day, it has been pronounced harmful by the government Referee Board of Chemists. Glycerin can be used for sweetening the food of diabetics and may properly be used as an alternative in place of saccharin.

LITERATURE ON DISEASE AND CRIME

To the Editor.—I am looking for information on defective physical conditions as the cause of crime, or physical defects as a cause of criminal and degenerate acts. Can you direct me to something not too voluminous?

G. H. VAN DYKE, M.D., Chicago.

ANSWER.—The following is a list of articles on this subject:

- Talbot, E. S.: Stigmata of Degeneracy in the Aristocracy and Regicides, *THE JOURNAL*, Nov. 10, 1894, p. 710.
- Talbot, E. S.: A Study of the Stigmata of Degeneracy among the American Criminal Youth, *THE JOURNAL*, April 9, 1898, p. 849.
- Noble, C. P.: The Law of Degeneracy in Its Relation to Medicine, *New York Med. Jour.*, Dec. 24, 1910.
- Lombroso, Cesare: Crime: Its Causes and Remedies, Boston, Little Brown & Co., \$4.50.
- Payse, F. M.: The Physical Causes of the Slighter Forms of Mental Defects in Children, *Lancet*, London, 1901, clxi, p. 11.
- MacDonald, A.: Physical Stigmata of Degeneration, *Med. Fortnightly*, July 25, 1907.
- Hughes, M. R.: Some Anomalies of the Stigmata of Degeneracy, *Virginia Med. Semi-Month.*, July 24, 1908.
- Noble, C. P.: Hereditary Hypoplasia in Man Due to Degeneracy, *THE JOURNAL*, Feb. 13, 1909, p. 552.
- Fry, D. R.: Pathologic Condition of the Nose, Throat and Ears as Etiologic Factors in Degeneracy, *Ohio State Med. Jour.*, September, 1910.
- Hughes, M. R.: Recurrent Insanity and the Stigmata of Degeneracy, *Med. Fortnightly*, November, 1910.

- Anderson, C. H.: Are Criminals Insane Individuals? *Illinois Med. Jour.*, April, 1914.
- Bowers, P. E.: Constitutional Immorality, *Illinois Med. Jour.*, April, 1914.
- Sleyster, R.: Some Data Gathered in a Study of 269 Murderers, *Illinois Med. Jour.*, April, 1914.
- Hill, G. M.: Ways and Means of Preventing Physical, Mental and Moral Degeneracy, *Illinois Med. Jour.*, April, 1914.
- Kohler, F.: Psychopathologie der Tuberkulose unter ihre kriminelle Bedeutung, *Ztschr. f. Tuberk.*, 1909-1910, xv, 31.
- Appleton, H. L.: Crime, a Disease, with some Suggestions for its Cure, *South. Med. and Surg.*, September, 1905.
- Vento, R. P.: Medical Examination of Criminals, *Rev. de Med. y Cirurg.*, ix, No. 6.
- Ashmead, A. S.: Syphilis in Relation to Crime, *Jour. Cutan. Dis.*, 1906, xxiv, 571.
- Ashmead, A. S.: Suppositions of Relationship of Crime with Syphilis, *Am. Jour. Dermat. and Gen.-Urin. Dis.*, 1908, xii, 384.
- Ravogli, A.: Syphilis in Relation to Crime, *Ohio Med. Jour.*, 1906-1907, ii, 68.
- Bowers, P. E.: Causes of Crime, *New York Med. Jour.*, July 19, 1913.
- Sneve, H.: Influence of Parental Diseases, Habits and Heredity on Juvenile Crime, *Bull. Am. Acad. Med.*, October, 1913.
- The Criminal Class and the So-Called Criminal Type, editorial, *THE JOURNAL*, Jan. 21, 1911, p. 201.
- The Pathogeny of Crime, editorial, *THE JOURNAL*, May 18, 1907, p. 1708.

STATES WITH WHICH VIRGINIA RECIPROCATES

To the Editor:—Please tell me with what states Virginia reciprocates.
E. H. T.

ANSWER.—Virginia has reciprocated since June, 1904, with Delaware, District of Columbia, Georgia, Indiana, Maryland, Michigan, Nebraska, Texas and Wisconsin; since June, 1901, with Kentucky, Minnesota, Missouri, New Hampshire and West Virginia; with Iowa and Maine since December, 1907; with Wyoming since June, 1908; with Louisiana since December, 1908; with Arkansas, North Carolina and Vermont since June, 1910, and with Tennessee since 1911.

LITERATURE ON STAMMERING

To the Editor:—I should like to secure the best and most reliable information concerning the treatment of stammering.

FOREST A. CARPENTER, M.D., Statesville, N. C.

ANSWER: The following is a list of articles on this subject:

- Bluemel, C. S.: Stammering and Cognate Defects of Speech, Vol. I, The Psychology of Stammering, Vol. II, Contemporaneous Systems of Treating Stammering, Their Possibilities and Limitations, New York, G. E. Stechert & Co., 1913, \$5.
- Leary, T. G.: Treatment of Stammering with Special Relation to Respiratory Exercises, *Intercolonial Med. Jour. Australasia*, November, 1908.
- McCready, E. B.: Stuttering in Schoolchildren: Its Prevalence and Treatment, *St. Louis Med. Rev.*, August, 1909; abstr., *THE JOURNAL*, Sept. 25, 1909, p. 1061.
- Makuen, G. H.: Brief History of the Treatment of Stammering with some Suggestions as to Modern Methods, *THE JOURNAL*, Nov. 6, 1909, p. 1590.
- Gutzmann, H.: Treatment of Stuttering, *Therap. Monatsh.*, 1909, No. 10; abstr., *THE JOURNAL*, Nov. 20, 1909, p. 1786.
- McCready, E. B.: Congenital Word Blindness as a Cause of Backwardness in Children. A Case Associated with Stuttering, *Pennsylvania Med. Jour.*, January, 1910; abstr., *THE JOURNAL*, March 5, 1910, p. 818.
- Kenyon, E. L.: Can Stammering be Treated Successfully through Agency of Public School? *THE JOURNAL*, June 4, 1910, p. 1859.
- McCready, E. B.: Relation of Stuttering to Amusia, *THE JOURNAL*, July 16, 1910, p. 208.
- Scripture, E. W.: Stuttering, *Arch. Pediat.*, June, 1910.
- Makuen, G. H.: Treatment of Stammering, *THE JOURNAL*, Sept. 3, 1910, p. 853.
- Langwill, H. G.: Stammering and Its Treatment, *Practitioner*, London, October, 1910.
- Aronsohn, O.: Stammering, *Berl. klin. Wchnschr.*, Jan. 23, 1911; abstr., *THE JOURNAL*, March 4, 1913, p. 703.
- Leary, G.: Treatment of Stammering, *Australian Med. Jour.*, Nov. 25, 1912.
- Cadwallader, B.: Treatment of Stuttering and Stammering and Voice Defects through Science and Art of Speech and Singing, *Cleveland Med. Jour.*, December, 1912.
- McBeath, H. F.: Correction of Impediments of Speech in Our Public Schools, *THE JOURNAL*, Nov. 1, 1913, p. 1610.

ANTIPLAGUE SERUM

To the Editor:—Please give me some information as to value of the prophylactic serum or vaccine in bubonic plague. Also state what firms will supply the serum or vaccine.

CHARLES P. HARWOOD, M.D., Carrollton, Ky.

ANSWER.—Several forms of antiplague serum have been recommended for both prophylaxis and treatment, the Yersin-Roux serum being the most important. Vaccination by Haffkine's vaccine is also recommended. A vaccine containing killed plague bacilli is marketed in this country by H. K. Mulford Company. See N. N. R., 1914, page 249.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

DIFFERENT VIEWS ON CONTAGIOUS-DISEASE PREVENTION

Two physicians and a lay editor have recently expressed opinions concerning different phases of the contagious-disease problem which seem to be particularly interesting. Dr. A. J. Chesley, head of the Epidemiologic Division of the State Board of Health of Minnesota, in a recent report, cited the cases of three traveling men who, while touring the state, had become infected with small-pox, and said it would never be known how many cases had resulted from exposure to these men. Ninety-two per cent. of the public money spent in 1913 on the isolation of small-pox cases, he asserts, was wasted, because that percentage of the persons who had small-pox had never been vaccinated. He believed that there was no fairness or common sense in maintaining isolation hospitals for the care of persons who carelessly or deliberately chose to permit themselves to remain susceptible to small-pox by neglecting vaccination. This attitude, though apparently correct, is not likely to be adopted universally until public welfare is placed above what the individual is pleased to call "personal liberty."

WHO IS RESPONSIBLE?

A physician of La Crosse, as reported in the *Racine (Wis.) Times*, recognizing that small-pox and the other contagious diseases constitute a condition and not a theory, against which the public must be protected and for which it must pay, suggests that families obliged to submit to quarantine should be compensated by the state for their time and enforced idleness. This opinion is based on the ground that the quarantine is not for the protection of the individual in whose home the disease exists, but is for the general protection of society. Therefore, society should pay, notwithstanding, it may be added, that probably the sick individual and the family, in the case of small-pox, may have neglected such a prudent measure as vaccination, and may thus have been responsible for the waste of public funds and the loss of his time caused by the quarantine.

HEALTH CONDITIONS OF THE NEGRO

The editor of the *Houston (Tex.) Post* calls attention to another phase of the contagious-disease problem in deploring the presence of an unusual number of small-pox cases, chiefly among the colored population of a number of the cities of his state. The editor's conclusions apply, not to small-pox particularly, but to general sanitary and living conditions among the poor and colored fraction. This class contributes more or less directly, he believes, to all forms of disease and ill health. His paper has often endeavored to impress on the minds of the public that the white people cannot afford to ignore living conditions among the negroes. Disregarding philanthropic conditions entirely, the editor says, we must see that the lives and health of the whites depend largely on the sanitary conditions in localities inhabited for the most part by negroes, who are compelled to live amid conditions that foster all sorts of communicable diseases, which the negroes in the capacity of laborers and servants may and doubtless do communicate to employers and their families. It is said that not only is the high death-rate among the negroes in the Southern cities a reproach to the white people and white governments, but also the conditions responsible for it constitute a menace to the health of the white people themselves. The wider application of this thought and the remedy are obvious. The comments here presented call attention to problems which touch the people practically and affect them directly. The prevention of infectious diseases is the greatest problem with which public health authorities have to deal.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bk. Bldg., Pine Bluff. Homeopathic: Little Rock, May 12. Sec., Dr. I. J. Brooks, 219 East 10th St., Little Rock. Eclectic: Little Rock, May 12. Sec., Dr. C. E. Laws, Ft. Smith.

CALIFORNIA: Los Angeles, June 16. Sec., Dr. C. B. Pinkham, 135 Stockton St., San Francisco.

DELAWARE: Dover and Wilmington, June 16-18. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Palatka, June 17-18. Sec., Dr. E. W. Warren, Palatka.

GEORGIA: Atlanta and Augusta, June 3. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Coliseum Annex, Chicago, May 12-14. Sec., Mr. Amos Sawyer, Springfield.

IOWA: Iowa City, June 11-13. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

KANSAS: Kansas City, June 9-12. Sec., Dr. H. A. Dykes, Lebanon.

KENTUCKY: Louisville, June 3-5. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, June 4-6. Sec., Dr. E. L. Leckert, Macheca Bldg., New Orleans. Homeopathic Board: New Orleans, May 4. Sec., Dr. Edward Harper, 702 Macheca Bldg., New Orleans.

MARYLAND: Baltimore, June 15. Regular Board: Sec., Dr. J. McP. Scott, Hagerstown. Homeopathic: Baltimore, June 15. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.

MASSACHUSETTS: Boston, May 12-14. Sec., Dr. Walter P. Bowers, Room 159, State House, Boston.

MICHIGAN: Ann Arbor, June 9. Sec., Dr. B. D. Harison, 504 Wash- ington Arcade, Detroit.

MISSISSIPPI: Jackson, June 16-17. Sec., Dr. E. H. Galloway, Jackson.

MISSOURI: St. Louis, June 15-17. Sec., Dr. J. A. B. Adcock, Jeffer- son City.

NEBRASKA: Lincoln, May 27. Sec., Dr. H. B. Cummins, Seward.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.

NEW YORK: May 19-22. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

NORTH CAROLINA: Raleigh, June 9. Sec., Dr. Benj. K. Hays, Oxford.

OHIO: Columbus, June 2-5. Sec., Dr. George H. Matson, State House, Columbus.

PENNSYLVANIA: Philadelphia, June 1-3. Sec., Mr. Nathan C. Schaeffer, Harrisburg.

SOUTH CAROLINA: Columbia, June 9. Sec., Dr. A. Earle Boozer, 1802 Hampton Ave., Columbia.

Illinois January Report

Mr. Amos Sawyer, acting secretary of the Illinois State Board of Health, reports the written examination held at Chicago, Jan. 14-16, 1914. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 96, of whom 77 passed and 19 failed. The following colleges were represented:

| College | PASSED | Year Grad. | Total No. Examined |
|---|---------------------------------------|------------|--------------------|
| Bennett Med. College.. | (1911) (1912, 2) (1913, 11) (1914, 2) | | 16 |
| Chicago College of M. & S..... | :(1911, 2) (1913, 10) | | 12 |
| Hahnemann Med. Coll. & Hosp. of Chicago.. | (1912) (1913, 4) | | 5 |
| Hering Medical College..... | (1913) | | 1 |
| Illinois Medical College..... | (1910) | | 1 |
| Jenner Medical College..... | (1913) | | 1 |
| National Medical University, Chicago..... | (1903) (1904) | | 2 |
| Northwestern University | (1907) (1913) | | 2 |
| Rush Medical College..... | (1912) (1913, 4) (1914, 3) | | 8 |
| University of Illinois..... | (1912) (1913, 4) | | 5 |
| Drake University | (1909) (1912) | | 2 |
| Johns Hopkins University..... | (1907) (1910) (1913) | | 3 |
| Harvard Medical School..... | (1911) (1912) | | 2 |
| Barnes Medical College..... | (1895) (1906) (1910) | | 3 |
| Washington University..... | (1913) | | 1 |
| University of Nebraska..... | (1913) | | 1 |
| Jefferson Medical College..... | (1908) | | 1 |
| University of Pennsylvania..... | (1897) | | 1 |
| Meharry Medical College..... | (1904) (1910) (1913, 2) | | 4 |
| Marquette University..... | (1913) | | 2 |
| Royal University of Budapest..... | (1898) | | 1 |
| Royal University of Vienna..... | (1895) | | 1 |
| University of Geneva..... | (1911) | | 1 |
| University of Naples..... | (1906) | | 1 |
| FAILED | | | |
| Chicago College of Med. and Surg. (1909) (1910) (1911, 2) | | | 8 |
| (1912) (1913, 3) | | | 2 |
| Hahnemann Med. Coll. and Hosp. of Chicago (1910) (1912) | | | 2 |
| Hering Medical College..... | (1913) | | 1 |
| Jenner Medical College..... | (1913) | | 1 |
| National Medical University, Chicago..... | (1903) (1909) | | 2 |
| University of Illinois..... | (1912) | | 1 |
| Central College of P. and S., Indianapolis..... | (1897) | | 1 |
| Detroit College of Medicine..... | (1910) | | 1 |
| American Medical College..... | (1912) | | 1 |
| St. Louis College of Physicians and Surgeons..... | (1907) | | 1 |

Pennsylvania Reciprocity Report

Mr. N. C. Schaeffer, secretary of the Bureau of Medical Education and Licensure of Pennsylvania, reports that 20 candidates were granted licenses through reciprocity during the year 1913. The following colleges were represented:

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|--|--|------------|----------------------------|
| University of Michigan, Coll. of M. & S..... | (1904) | | Michigan |
| Washington University | (1911) | | Missouri |
| Ohio Medical University..... | (1907) | | Ohio |
| Starling-Ohio Medical College..... | (1909) Ohio; (1911) | | Ohio |
| Hahnemann Med. Coll. and Hosp., Philadelphia | (1896) Indiana; (1899) | | West Virginia. |
| Jefferson Medical College.. | (1890) Virginia; (1894) New Jersey; (1911) | | New Jersey. |
| University of Pennsylvania..... | (1894) Delaware; (1899) New Jersey | | |
| University of Vermont..... | (1909) Vermont; (1910) | | Vermont |
| University College of Med., Richmond | (1901) West Virginia; (1907) | | Virginia; (1909) Virginia. |
| University of Virginia (1905) Virginia; (1908) West Virginia; (1911) | | | Virginia. |

Five candidates were granted licenses by oral examination. The following colleges were represented:

| College | PASSED | Year Grad. | Total No. Examined |
|--|--------|------------|--------------------|
| Baltimore Medical College..... | (1898) | | 1 |
| Baltimore University | (1900) | | 1 |
| Columbia Univ., Coll. of P. & S..... | (1894) | | 1 |
| Queen's University, Medical Faculty..... | (1891) | | 1 |
| University of Athens, Greece..... | (1906) | | 1 |

Book Notices

THE ORIGIN AND DEVELOPMENT OF THE LYMPHATIC SYSTEM. By Florence R. Sabin. Monographs of the Johns Hopkins Hospital Reports, New Series, No. 5. Paper. Price, \$2. Pp. 94, with 19 illustrations. Baltimore: Johns Hopkins Press, 1913.

This monograph contains a discussion of existing theories, and reports further investigation which supports the author's previous important contributions on the origin of the lymphatic system. The older ideas of the lymphatic capillaries as extensions of simple interstitial spaces is now, and especially through the work of the author and others at Johns Hopkins, completely refuted. They are distinct tubes of endothelium, derived originally by budding from the veins, and they form closed canals as distinct from tissue-spaces as the blood capillaries themselves. In this article special stress is laid on the importance of endothelium as an active growing functional tissue. When it buds off the veins to form lymphatics it has the peculiar property of avoiding the blood-capillaries, hence forming the independent lymphatic network. These lymphatics invade the body, but apparently never enter the central nervous system, which remains a permanent non-lymphatic area. Lymph-glands are formed by development of lymphocytes around the lymph-vessels. Numerous illustrations add to the value of this important contribution to anatomy and embryology.

PRIMARY CARCINOMA OF THE LIVER. By M. C. Winternitz, M.D., Associate in Pathology, Johns Hopkins University. Monographs of the Johns Hopkins Hospital Report, New Series, No. 3. Paper. Price, 75 cents. Pp. 42. Baltimore: Johns Hopkins Press, 1913.

This monograph, which is a separate reprint of one of the Johns Hopkins Hospital reports, consists of a discussion of some of the literature and a report of one case observed by the author, two cases from Johns Hopkins studied by others, and two doubtful cases. One of the most important features of primary carcinoma of the liver, itself a rare tumor, is that in certain cases the neoplasm seems to grow by fresh transformation of liver-cells of adjacent territories into cancer-cells. If this is a correct interpretation of the processes observed, it signifies that substances or agents of some sort may diffuse from a malignant tumor into surrounding tissues, and there cause previously normal cells to take on the malignant character of growth, a phenomenon of the greatest significance in the problem of the etiology of cancer. Winternitz does not accept this view, but it will seem to some of the investigators who have studied this condition that his reasons for discrediting their interpretation are not conclusive.

Miscellany

Estimating Functional Capacity of Kidneys by Forced Elimination of Preformed Urea

The capacity of the kidneys for urea, chlorid and water excretion, according to G. W. McCaskey (*Med. Rec.*, New York, March 21, 1914), can be determined by surcharging the blood with the different substances in question and determining the rate of excretion of each, first over a brief period of time, while the blood remains heavily surcharged, and again over a longer period to determine the duration of time required to depurate the blood of a morbid excess.

The permeability of the kidneys for urea can be determined with great accuracy, in the absence of marked gastric stasis, by the ingestion of 30 gm. of urea, and furnishes a scientific basis for the regulation of the protein intake. The following technic is adopted by McCaskey: About 6 a. m. the bladder is emptied. Two hours later the urine is collected, and at the same time the patient is given 30 gm. of urea, dissolved in 4 or 5 ounces of water. Just before taking the urea, the patient drinks one-half of about 6 ounces of thin cereal gruel, taking the other half immediately after the urea. No other breakfast is eaten. The urine is then collected every two hours for twelve to twenty-four hours, the urea determined for each two-hour period, including the two hours preceding the ingestion of the urea, and from these data the curve of excretion is constructed.

The highest bihourly output seems to vary in health from 5 to 10 gm. The period during which the highest excretion occurs should be either the first or second two-hour period. If later, it may be due either to delayed absorption or to a slow response on the part of the kidneys. McCaskey states that the late, very wide fluctuations in the urea output found in some cases, after 30 gm. are taken, furnish pretty strong proof that the kidneys may for some reason fail to respond promptly to a large urea content of the blood, which certainly cannot rise and fall as the urea excretion sometimes does. Cases with an excretion much below 20 gm. should be regarded as of somewhat limited functional capacity for urea excretion, while one-half this lowest limit probably represents serious or even dangerous impairment of functions.

Getting It Out of the Doctors

In April, 1912, suit was brought against two noted surgeons of the German Hospital in New York City for leaving, after operation, two sponges in the plaintiff's abdomen. What actually happened was that the family physician later did a minor operation during which he used two pieces of absorbent cotton. It was those two pieces which the plaintiff assumed had been abiding in his abdomen since his first operation. Newspapers all over the country printed headlines telling how the fellow bunglers had sewed up those two sponges within their victim—first-class copy. When the case came up for trial, it was proved that one of these alleged miscreants had not even been present at the hospital operation; that absorbent cotton is never used in the German Hospital for abdominal sponges; that the family physician had positively assured the plaintiff the cotton he had used had never been inside the latter's abdomen, which he had, furthermore, never opened. The jury ended the suit of that G. P. (in medical parlance, grateful patient). Those surgeons have been harassed through two years and have had to engage counsel at loss to themselves, when their sole crime was having devoted their consideration and skill to a patient who was shown to have had not only one but four serious diseases—hernia, Bright's, diabetes and a heart lesion—and who, through their ministrations, nevertheless still lives. They were sued by that patient for ten thousand dollars. Medical history teems with accounts of such suits, almost always instituted by charity patients. Are there headlines telling of the issue of this suit? Hardly; where would be the news value?—*Harper's Weekly*.

Medicolegal

Operating on Nose of Person Stating That He Has a Cold—Basis for Expert Opinions

(*Swadner vs. Schefcik (Minn.)*, 144 N. W. R. 958)

The Supreme Court of Minnesota, in affirming in this malpractice case an order granting a new trial but denying the defendant's motion for a judgment notwithstanding a verdict was rendered for the plaintiff, says that the only question before it on this appeal was whether there was evidence to take the case to the jury. The plaintiff consulted the defendant for catarrh, from which he had been for years a sufferer. He testified that he had a cold at the time, and so informed the defendant. The defendant performed two operations on the nose, removing the anterior ends of the lower turbinates. After the second operation, a mastoid abscess appeared, which was operated on.

The first charge of improper treatment was that the first operations were performed while the patient had a severe cold, and that this was improper because of the acute inflammation in the mucous membrane lining the nasal cavity. It was claimed that the defendant should have first reduced the inflammation, and that his operating without so doing caused the mastoid abscess. The court, having examined the evidence, had no difficulty in determining that there was evidence which justified submitting to the jury the question whether or not it was ordinary care and skill to perform the operations on the nose at the time and under the conditions that existed.

As stated, the plaintiff testified that he informed the defendant of his severe cold at the time. The defendant urged that this testimony was incompetent, or at least insufficient as the basis for the opinions of the experts who testified to the impropriety of an operation under such conditions. It is true that, ordinarily, one who is not a medical expert is not permitted to diagnose his own or another's case, but the court thinks that the prohibition does not extend to testimony of this kind. One who is suffering from a cold usually knows what ails him, as do others who associate with him. It would be a technical and rather absurd rule that prevented his testifying to facts so within his own knowledge. The court is satisfied that the testimony was competent and of sufficient weight to be the basis of expert opinion. As to the medical testimony, it is sufficient to say that it made the propriety of an operation a question for the jury.

Case Showing Right of Recovery for Services Rendered to Injured Employee

(*Newberry vs. Missouri Granite and Construction Co. (Mo.)*, 163 S. W. R. 570)

The St. Louis (Mo.) Court of Appeals affirms a judgment in the plaintiff's favor for services rendered to an injured employee of the defendant by the plaintiff and two other physicians and surgeons. The court says that the employee was so severely injured by an explosion in the defendant's stone quarry as to occasion the amputation of both hands. The defendant's president was in St. Louis at the time, as was also its secretary, treasurer and general manager, named Schmalz. Its foreman at the quarry immediately took the injured man to a physician, and that physician, with the consent of the foreman, called in another physician, but neither one was prepared to undertake the operation, and the foreman sent a telephone message to the plaintiff to come at once and undertake it. The plaintiff inquired concerning the matter of compensation, and the foreman said that the company would settle the bill. The foreman then called up Mr. Schmalz and informed him of the serious injury to the employee, and that he had called in the three physicians to care for the employee. Mr. Schmalz was at the time in the company of the president, and consulted with him about the case. The foreman testified that Mr. Schmalz fully approved of all that he had done, telling him to have some one competent to operate and have the local physicians treat and care

for the patient, and then to bring him to St. Louis if deemed best. On the other hand, Mr. Schmalz and the president said that they intended no more than that temporary treatment should be given by the local physicians and arranged for permanent treatment at St. Louis. The mere fact, however, that there was this discrepancy in the testimony was a matter for the jury alone. The evidence showed beyond question that the physicians intended to charge the company, and the evidence of the foreman was abundant that he contracted for the company with full authority from the president. Whatever may be said concerning the authority of a general manager of the company to employ a physician to treat one injured in the quarry, no one can doubt the authority of the president in that behalf. The question is not even a debatable one. The injured employee testified in behalf of the plaintiff, and the defendant's counsel drew from the witness that Mr. Schmalz had offered him \$500 by way of a compromise, and said, too, that he would pay the physicians \$100 for their services. It appearing that no treaty of compromise was pending with respect to the physicians' claims, and that in any event the person to whom the seeming admission of a liability was made in no wise represented the physicians, the evidence was properly received.

Physicians May Testify as to Men Shrinking From Operations

(*St. Louis Southwestern Railway Co. of Texas vs. Brown (Tex.)*, 163 S. W. R. 383)

The Court of Civil Appeals of Texas says that the railway company complained of the admission of testimony by physicians that the ordinary man is inclined to shrink from an operation, and that nowadays nearly every man knows that, when he has to be operated on, he is running some risk, the objection being that it was not a subject of expert testimony, but was an invasion of the province of the jury. While the physicians testified that the chances were very good for a permanent cure of the rupture involved in this case, it was stated that every case is not successful. No class of persons have a better opportunity of knowing the risk of such an operation than physicians, or of the way in which the ordinary man regards an operation. It was also shown that the taking of an anesthetic proved dangerous, and the court thinks it was proper to give the physicians' opinion to the jury to rebut the effect on the jury of the testimony that a cure would result from an operation, and that care was not exercised because the plaintiff failed to resort to an operation. The company pleaded that the plaintiff (Brown) was guilty of negligence in failing to have proper treatment of his injuries, and in failing to have an operation performed. The court is of the opinion that under the circumstances the evidence was admissible.

Competent to Testify About New Operation

(*Niles vs. Central Vermont Railway Co. (Vt.)*, 89 Atl. R. 629)

The Supreme Court of Vermont says that a surgeon was a witness for the plaintiff, and the trial court found him qualified to testify as an expert. He described a comparatively new operation, known as the Murphy operation, in which, in cases like the plaintiff's, a piece of bone is taken from a patient's sound leg and used as a grafted splint on his injured leg. He was asked if the removal of such a piece of bone would impair the sound leg, and, when he answered in the affirmative, was asked to what extent it would impair it, and answered, subject to exception, to the extent of 20 per cent. The only objection urged was that the witness had never performed this operation, nor seen it performed, and consequently was not qualified to testify as an expert regarding the matter referred to in the question. But the finding of the trial court that the witness was qualified was abundantly sustained by the evidence on that question. For it appeared that he had had a long experience in surgery, under exceptionally advantageous circumstances, both in this country and abroad. Actual experience in the Murphy operation was not necessary to qualify him to answer the question objected to.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

American Academy of Medicine, Atlantic City, June 19-21.
Am. Assn. of Genito-Urinary Surgs., Stockbridge, Mass., May 15-16.
American Climatological Association, Atlantic City, June 19-20.
American Dermatological Association, Chicago, May 14-16.
American Gastro-Enterological Association, Atlantic City, June 22-23.
American Gynecological Society, Boston, May 19-21.
American Laryngological Association, Atlantic City, May 25-27.
American Laryn., Rhin., and Otol. Society, Atlantic City, June 19-20.
American Medico-Psychological Association, Baltimore, May 26-29.
American Ophthalmological Society, Hot Springs, Va., May 12-13.
American Orthopedic Association, Philadelphia, June 18-20.
American Otological Association, Atlantic City, May 27-28.
American Pediatric Society, New London, Conn., May 26.
American Proctologic Society, Atlantic City, June 22-23.
American Society of Tropical Medicine, Boston, May 29-30.
American Therapeutic Society, Albany, May 29-30.
American Urological Association, Philadelphia, June 18-20.
Arkansas Medical Society, Eldorado, May 19-22.
Association of American Physicians, Atlantic City, May 12-13.
Conf. of State and Prov. Boards of N. America, Washington, June 19-20.
Connecticut State Medical Society, New Haven, May 20.
Florida Medical Association, Orlando, May 13-15.
Illinois State Medical Society, Decatur, May 19-21.
Iowa State Medical Society, Sioux City, May 13-15.
Maine Medical Association, Portland, June 10-11.
Massachusetts Medical Society, Boston, June 9-10.
North Carolina Medical Society, Raleigh, June 16.
Missouri State Medical Association, Joplin, May 12-14.
National Association for the Study of Epilepsy, Baltimore, May 25.
Nebraska State Medical Association, Lincoln, May 12-14.
New Hampshire Medical Society, Concord, May 13.
New Jersey Medical Society, Spring Lake, June 29.
North Dakota State Medical Association, Grand Forks, May 13-14.
Oklahoma State Medical Association, Guthrie, May 12-14.
Rhode Island Medical Society, Providence, June 4.
South Dakota State Medical Association, Watertown, May 26-28.
Texas State Medical Association, Houston, May 12-14.
West Virginia State Medical Association, Bluefield, May 13-15.

TENNESSEE STATE MEDICAL ASSOCIATION

Eighty-First Annual Meeting, held at Memphis, April 7-9, 1914

(Continued from page 1428)

The *Corynebacterium Hodgkinii*

DR. WILLIAM LITTERER, Nashville: The *Corynebacterium hodgkinii*, a pleomorphic diphtheroid organism, is apparently the etiologic factor in Hodgkin's disease. In my series of four cases, a white staphylococcus was constantly present in all lymph-nodes examined and was more numerous in the later stages of the disease and in the older nodes. The *Staphylococcus albus* probably plays an important part in the causation of the exacerbations, especially inducing the high fever with leukocytosis and a polymorphonuclear increase. Autogenous vaccines of the coccus and bacillus in their relative proportions should be administered in practically every case. Excellent therapeutic results may be derived from their use, more particularly in the early cases.

DISCUSSION

DR. WILLIAM KRAUSS, Memphis: Our former conception that these tumors appear necessarily about the neck, and the inguinal glands primarily, is no longer tenable. Sometimes they are primarily mesenteric, sometimes primarily mediastinal, sometimes primarily in association with the gum, and they, or at least their metastases, have a remarkable tendency to appear in an area of chronic inflammation, so that whenever we have an adenopathy of the neck, the axilla or the groin, and we have, say, an ulcerating tooth and a marked swelling with tumefaction, with the production of tissue greatest in that neighborhood, it really makes our diagnosis Hodgkin's disease.

DR. JOHN PHILLIPS, Cleveland, Ohio: I have been much interested in Hodgkin's disease. I have had two cases in the last five years in which a recurrent fever kept up for sixteen months. These patients would have variable elevation of temperature for about twelve days, being quite ill; then there would be a period of normal temperature, and the patient during that time was usually well.

DR. W. S. LAWRENCE, Memphis: It is fairly well established that the Roentgen ray is the main reliance in the treatment of Hodgkin's disease. If that is true, it is interesting to know in what manner it accomplishes the result. Is it the influence of the ray on the organism which presumably is causing the disease, or on the tumor growth? In other diseases associated with micro-organisms we sometimes find that the Roentgen ray will accomplish results, although it will have no effect on the organism itself in pure culture. Tuberculosis of the skin is a good illustration of that. The Roentgen ray has absolutely no effect on the tubercle bacilli, but it has a wonderful influence on skin lesions caused by the tubercle bacilli.

Present-Day Problems of the Medical Profession

DR. W. D. HAGGARD, Nashville: Education is the dynamite of civilization. Great safeguards against unworthy practitioners have been initiated by the profession in the laws which they favored for proper examination by the state boards. In spite of the fact that the medical profession has thrown the most rigid preparation for practice, comprising five years, around itself, there are all sorts of would-be practitioners without any real knowledge, who wish to treat diseases of the human body by reading to the victims from a book or rubbing the spine. Fee-splitting, which is one of the most pernicious practices followed, must be eradicated forever.

Autogenous vaccines are far more reasonable, scientific and successful than mixed vaccines in their effect on a given condition, and should always be the first thought of those who have laboratory facilities. The practice of employing mixed vaccines in conditions of obscure etiology in the hope that one or the other may do good, is to be condemned severely.

Public health is purchasable. Within natural limits any community can determine its own death-rate. Tennessee is a healthy state, but by the expenditure of a reasonable amount of money by the state and county, under scientific guidance, it could be made a veritable paradise. The pure-food laws and their enforcement should be sacred to every intelligent citizen. The pure-food inspectors are of more value to a community than an embattled army. The antinarcotic law should be supported by every medical man, druggist and individual. The social diseases are the world-wide problems of the medical profession. The lawmakers of Tennessee should be asked to consider seriously the plan being tried out in New York of making all venereal diseases reportable, without the names. Thus an accurate survey of its exact prevalence would be the first step toward the intelligent curtailment of this monstrous evil.

Fraudulent medical advertising should be stopped. One of the most serious problems is the education of the people against fake medical advertising. When the newspapers of the country understand the enormity of the harm that is inflicted on humanity by their heedless and ignorant advertising of useless or harmful and often malicious forms of treatment for real or imaginary disease, they will surely clean the Augean stables.

Means of Resuscitation in Apparent Anesthetic Fatalities

DR. E. M. SANDERS, Nashville: The most important phase of resuscitation is to recognize its need immediately, and the first step is to establish artificial respiration with tongue drawn out and shoulders slightly elevated, and then decide about the position in which the patient had best be treated. The Trendelenburg position is not indicated in every case and should not be used except when the heart is failing. The pulmotor should be used whenever available. Epinephrin is the best drug and in extreme cases should be introduced into the pericardium.

The possibility of resuscitation bears a definite relation to the time that has elapsed between the cessation of the heart-beat and its reestablishment. Transfusion should be made as soon as possible in all cases not doing well under anesthesia before paralysis occurs. All artificial aids should cease as soon as functions are competent.

(To be continued)

MEDICAL ASSOCIATION OF GEORGIA

Sixty-Fifth Annual Meeting, held at Atlanta, April 15-17, 1914

(Concluded from page 1429)

Cerebrospinal Syphilis

DR. W. R. HOUSTON, Augusta: The treatment of cerebrospinal syphilis must be energetic. The limit of dosage should be the limit of the patient's tolerance for the specific drug. The time for relaxing the vigor of the treatment is to be determined by the disappearance of the clinical symptoms. Irreparable damage may have taken place if we wait for the recrudescence of symptoms. The use of Swift and Ellis' technic for the topical application of salvarsanized serum is yet under discussion. The reports so far seem to indicate that as good temporary results clinically are obtained by the intravenous use of salvarsan, but that the reactions in the fluid are not altered by the administration of the salvarsan into the blood as they are by the local applications. Many interesting theoretical considerations suggest themselves when we come to consider which plan of treatment we should pursue. Amounts of salvarsan equivalent to that contained in the salvarsanized serum may be injected into the cord without danger, and this will enable us to decide definitely as to the effect of the presence of salvarsan in the fluid on the tissue changes. The striking therapeutic successes achieved in what was formerly so intractable a disease as tabes, encourages us to unusual efforts in the employment of every aid in securing an early and accurate diagnosis. With increased ability to cure the disease goes increased obligation to recognize it in time.

Headaches

DR. WILL H. MALONE, Marietta: The first step in the treatment of any disease is the removal of the cause, if possible, and this holds true in headaches as well as in any other condition. Nothing could be more irrational than a routine administration of medicine to quiet the suffering without attempting to remove the cause where this is possible. Many forms of headache are susceptible of prompt relief or entire cure by timely and sensible regulation of the life of the patient, his habits, surroundings, influence of occupation, and by the correction of diseases and disorders on which the headache depends. In these various ways may be influenced the headaches of indigestion, biliousness and constipation; of cerebral overwork and emotional excitement; of insolation and eye-strain; of many cases of debility; of bad ventilation; malaria and overstimulation of various sorts; of uterine and ovarian disease and of syphilis.

Experimental Study of the Abderhalden Test

DR. ALLEN H. BUNCE, Atlanta: I have completed 34 tests for pregnancy, 16 of which were positive, and 17 were negative. In no case have I obtained a negative reaction in a proven pregnancy. However, I did, at first, obtain several positive reactions in cases where pregnancy was known not to exist, but my results here were due to faulty technic, such as obtaining the serum from patients soon after meals when amino-acids were present in the blood. They give a positive reaction to the ninhydrin test. In my last 30 cases I have not had this error occur, since I have found that if any reliance is to be placed on the tests an absolute adherence to the technic must be observed in every case.

My cancer albumin was prepared from a carcinoma of the breast in the same manner in which the placental albumin was prepared. So far, my tests on cancer have only included known positive and known negative cases, but from the results to date, I believe we have here a very valuable aid to substantiate and strengthen our clinical diagnosis in doubtful cases.

Report of Work Done Toward Eradication of Hookworm Cases in Georgia

DR. A. G. FORT, Atlanta: The sanitary index from 47 counties shows that of the 14,469 homes inspected, the toilet conditions at 7 homes averaged 75 per cent., at 21 homes averaged 25 per cent., at 10,217 averaged 10 per cent., and 4,224 averaged 0. It shows that in the 35 counties where dis-

pensaries were operated we examined 16,531 rural schoolchildren, and of that number 13,160 were infected with hookworm, or 79 per cent. To aid in this work, 52 counties have made appropriations, and that during the time we have carried on the work 51,166 people have been examined. Of this number, we have treated by our field force 14,632 and have reports from 1,400 physicians showing that they have treated 19,848 cases, which gives us a total record of cases treated in Georgia of 34,480. In order to accomplish these results, our field force has given 1,922 lectures and the central office has given 201 talks on sanitation and hookworm disease. We have had an attendance at these talks of 158,149.

The More Rational Methods of Treating Aural Diseases

DR. DUNBAR ROY, Atlanta: During the last six years I have been able in at least 90 per cent. of the cases of acute inflammation of the tube and middle ear to abort the inflammation by topical applications of astringents to the inside of the tube with small cotton or wire applicators passed into the mouth of the tube. In the use of the Eustachian catheter we have the only rational method of inflating and treating the middle ear. The catheter is introduced under direct observation by means of the pharyngoscope. The mucous membrane of the Eustachian tube and middle ear must be treated, and in no other way can we put medicaments on these parts except by the use of the catheter.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held April 8, 1914

The President, DR. WILLIAM D. ROBINSON, in the Chair

A Case of Osteitis Deformans

DR. ELEANOR C. JONES: The disease began at the age of 53 years. The patient has lost about 4 inches in height, because of the bowing of the legs and curvature of the spine. Her head is large and square-looking, the thorax small and emaciated, the clavicles thickened. The spine has the appearance of sinking into the pelvis. The pelvis is wider than normal, and all the long bones are bowed. The arteries are somewhat atheromatous, and the second aortic sound is accentuated and there is a loud systolic murmur present. The urine showed a cloud of albumin. The Wassermann was negative. The summary of the bone changes found by roentgenographic examination were those of new bone formation, porosity, a softening arthritis and bone absorption. No suggestions could be made as to the cause of the disease in this patient.

The Correlation of Appendicitis and Other Abdominal Affections

DR. LEVI J. HAMMOND: Aided by abundant clinical evidence we must conclude that the frequency of the coexistence of abdominal inflammations with appendicitis is more than a coincidence. A critical analysis of the findings in 920 operations at the Methodist Episcopal Hospital, Philadelphia, would seem to indicate that the existence of the appendix establishes an important anatomic and physiologic relation to the remainder of the digestive system. It must therefore, be considered as a specialized and functioning organ blending with the remainder of the digestive tract. The principal characteristic of the appendix is lymphoid tissue. One property of lymphoid tissue is to produce leukocytes, and it is only after the sclerosed appendix has impaired or destroyed the function of the lymphoid tissue that acute appendicitis develops. As to the demonstrable anatomic relation of the appendix with other abdominal organs, I would especially refer to that of the meso-appendix and the ovary by a peritoneal fold extending directly from the former to the latter. This relationship explains the frequent association of the appendix and adnexal disease. Of all the organs, the liver is the one which appendicitis causes to suffer most. Epigastric symptoms must be regarded as reflex phenomena caused in the domain of the vagus nerve by irritation in the nerve termin-

als of the appendix. Gastric dyspepsia in chronic or recurring appendicitis is thus explained, dependent as it is on trouble within the secretory, motor or vasomotor function of the viscera. Neuralgic or neurotic pains are in like manner referred to the hip, the thigh or to the thorax as in pneumonia and acute tuberculosis. Chronic duodenal and gastric ulcers would seem to be dependent on septic thrombi of appendiceal origin. Biliary lithiasis, chronic cholecystitis and hepatitis furnish forceful evidence in support of their origin in part, at least, in primary infection of the appendix. Diagnosis must be based on existence of a painful zone. This can always be elicited at the point at which the appendix is located, if palpation combined with rectal and vaginal examination be thorough.

Recurrent attacks of supposed typhoid have proved to be chronic appendicitis, and prompt cure followed removal of the appendix. When differentiation of the various abdominal affections is doubtful and the morbid symptoms justify operation, this should be done through an incision allowing intervention with the viscera and the appendix, with the ovary and the appendix, or with the kidney and the appendix. Faisans says that appendicitis is so frequent that one must always think of it and seek for it systematically by aid of interrogation and a complementary examination as one seeks for syphilis and alcoholism.

INTERNATIONAL SURGICAL ASSOCIATION

Fourth Congress held in New York, April 13-16, 1914

(Continued from page 1427)

SYMPOSIUM ON GASTRIC AND DUODENAL ULCER

Ulcer of the Stomach and Duodenum

DR. H. HARTMANN and DR. P. LECENE, Paris: Duodenal ulcer is certainly more frequent than was thought some years ago; nevertheless its frequency has been exaggerated in France. We noticed on an average one ulcer of the duodenum for eight or ten of the stomach. The symptomatology described by Moynihan and the anatomic signs supposed to be presented by the pyloric vein are far from being above criticism. Moynihan's symptomatology is that of pyloric spasm, and the pyloric vein is very unreliable as regards both situation and disposition. At the base of callous ulcers of the stomach, which are situated especially on the lesser curvature, lesions of neuritis are frequently found, accounting for the persistent pains which are one of the elements of the symptomatology of these ulcers. The cancerous evolution on the borders of callous ulcers of the stomach do not appear to us as often as certain writers assert. We have noted it in about one-fifth of the cases of callous ulcer. This frequency is still great enough to justify the treatment of these ulcers by resection when it is possible. Evidence shows that in ulcerous cases one has often to deal with gastric tissues wholly diseased, and in this lies the reason of the great importance of postoperative medical treatment in these cases. The value of roentgenoscopy and roentgenography in the diagnosis of gastric ulcer is universally recognized, but its value in the diagnosis of ulcer of the duodenum seems to be much less certain.

The surgical treatment of gastric and duodenal ulcer must not be opposed to the medical treatment; the first is only the frequently necessary complement of the second. The ultimate results of medical treatment are far from being as good as was formerly supposed. All gastric or duodenal ulcers showing resistance to medical treatment belong to the surgeon. Posterior gastro-enterostomy, with a short jejunal handle, performed on the pyloric cavern itself, at its most sloping point, is the operation of choice in all cases of juxtaposition ulcers of the stomach or duodenum. Experimentally and clinically it has been shown that with this operation the gastro-intestinal passage functions perfectly if care is taken to make it exactly on the pyloric cavern. The indications for the exclusion of the pylorus need to be more clearly shown. The absolute exclusion should be limited to certain

cases. In cases of pyloric callous ulcers when cancerous degeneracy is suspected, pylorotomy is preferable when anatomically possible. In callous ulcers of the lesser curvature it is better to have recourse to excision of the ulcerous area. The still fairly high mortality of these gastric resections will certainly decrease in proportion as their indications and technic become more clearly defined.

Chronic Ulcers of the Stomach and Duodenum

DR. WILLIAM J. MAYO, Rochester, Minn.: A historical review of this subject divides itself into three periods. The first period was from 1893 to 1900 when only those cases showing pyloric obstruction were operated. During the second period, from 1900 to 1906, knowledge on this subject grew rapidly as the result of surgical observation. In the third period, from 1906 to the present time, there has been marked improvement in diagnosis. Up to Dec. 31, 1913, we have operated in 1,841 cases of acute and chronic ulcers of the stomach and duodenum at St. Mary's Hospital. Of this number 457 were females and 1,384 males. The earlier clinical view of a preponderance of females over males is thus shown to be in error. The ulcers were situated in the stomach in 636 of the 1,841 cases, and in the duodenum in 1,205. The percentage in the last 1,000 cases accurately observed was 73.8 per cent. duodenal and 25.2 per cent. gastric. Of the gastric 29 per cent. were females and 17 per cent. males. Of the duodenal 21 per cent. were females, and 79 per cent. males. The pyloric vein was a factor in differentiating between an ulcer in the pyloric end of the stomach and one in the first part of the duodenum. The more common seat of gastric ulcers was along the lesser curvature, more often on the posterior than on the anterior wall. The character of ulcers of the stomach differs in many respects from those of the duodenum. A large number of acute, subacute and chronic ulcers are cured permanently by medical treatment, but if cures fail to show permanency after a reasonable length of time the patients should be treated surgically. The patient treated medically is in far greater danger of death from hemorrhage, perforation, obstruction or cancerous degeneration than he is from operation. Gastrojejunostomy is the most generally useful operation for gastric ulcer and has a wide field of application, especially in ulcers in the vicinity of the pylorus. It may be said that the greater the obstruction within limits, the more immediate and permanent the results of gastrojejunostomy. Posterior jejunostomy is the operation of choice, but adhesions may prevent its use in certain cases. Local excision of the ulcer without gastrojejunostomy has in our experience sometimes failed to effect a cure, and therefore gastrojejunostomy should be done in addition to excision.

Our operations for duodenal ulcer have been extraordinarily good, 98 per cent. of the patients being either cured or greatly relieved. In these operations we have used the Heineke-Mikulicz pyloroplasty, or what has been found still better, the gastroduodenostomy of Finney. We have abandoned the continuous silk sutures in gastrojejunostomy for interrupted musculoperitoneal sutures of fine silk, with continuous sutures of chromic catgut for the inner rows. As a secondary operation for the relief of pain due to fixation of pyloric end of the stomach about an ulcer, the unilateral exclusion of von Eiselberg has given permanent relief.

Etiology, Pathology and Operative Technic of Gastric and Duodenal Ulcer

DR. E. PAYR, Leipzig: There are two principal theories in regard to the etiology of these ulcers, that of a gastric or duodenal lesion and that of a nervous origin by vasomotor spasm leading to a localized ischemia of the mucosa. Neither theory explains every case. Some mechanical causes play a part in the localization and form of the ulcers. The bacteriotoxic lesions have also a certain part in their causation. There are two types of duodenal ulcers according to their position in the posterior or anterior wall; the first presents a tendency to perforation, the second to hemorrhage. It is impossible to establish the frequency of the cancerous trans-

formation of a gastric ulcer, or to establish before the operation a decided distinguishing diagnosis between callous ulcer and gastric cancer. The callous ulcer of the stomach should be resected every time the general condition of the patient allows it, especially if it is situated at a distance from the pylorus on the lesser curvature and on the posterior surface. In all other cases, posterior gastro-enterostomy constitutes the operation of choice. The excision of gastric ulcers gives unsatisfactory results unless accompanied by gastro-enterostomy. The excision or resection of duodenal ulcers should be exceptional, except in the presence of persistent hemorrhage, imminent perforation or suspected cancer. The best intervention for duodenal ulcer consists in a gastro-enterostomy combined with a unilateral pyloric exclusion after the von Eiselberg method. For ulcers of the lesser curvature and those of the posterior surface, total segmentary resection with axial suture of the stump gives the best results. For certain cases of ulcer near the pylorus, especially with the rate of acidity increased, after resection there should be a wide implantation of the gastric stump in the first jejunal handle after the technic of Reichel. This process perhaps guards against peptic ulcer. If the latter occurs, resection is advisable. Gastro-enterostomy for a simple callous ulcer necessitates a consecutive treatment with atropin and alkalines for at least a year. In cicatricial stenosis of the pylorus, gastro-enterostomy gives excellent results. In active ulcers distant from the pylorus the results are less reliable. Only in 50 or 60 per cent. of these cases were the results satisfactory. The mortality of resection of ulcers by Reidel's method was 10 per cent. or less and the clinical results were good.

Discussion on Gastric and Duodenal Ulcer

DR. A. LAMBOTTE, Brussels: It is clearly established that pyloric exclusion constitutes an important supplementary procedure to gastro-enterostomy. The simplest method of effecting this exclusion is by ligature of the pylorus. I have had recourse to this procedure for several years. It had been said that the occlusion is not permanent, that the ligature falls into the intestinal cavity. The ligature can be applied so that this does not happen. If the thread is drawn tight, to the point of arresting the circulation of the blood, it cannot fail to produce a section of the tissues, and with the aid of peristalsis there is not much delay in expelling the ligature into the intestinal cavity. When, on the other hand, the ligature is loosely drawn, so as just to bring the mucous membrane into contact, the thread will not be drawn into the intestine. I have not had occasion to verify by sight the permanency of the occlusion thus effected, but I have been able to prove its efficiency by using it in intestinal surgery. Each time that I do an entero-anastomosis I close the excluded end by a simple ligature placed some centimeters below the artificial anus. In the latter case I have been able to verify the closure several months later. Linen thread is employed and the ligature is placed habitually over the sphincter, which is located by palpation. The great advantage of this method is its extreme simplicity, the entire procedure taking only a few seconds. After this method of pyloric exclusion there need be no fear of hemorrhage, and, furthermore, it can be used in the weakest patient.

It is necessary to seek the origin of peptic ulcers in the operative technic that has been followed, rather than in the pathologic disposition of the patient. I have encountered only one case in more than 600 operations on the stomach, and am convinced that traumatism produced by instruments or the fingers of the operator are responsible for peptic ulcers and that this also explains the variable percentage of peptic ulcers observed by different surgeons.

DR. CHARLES L. GIBSON, New York: The following statistics have been collected from the Hudson Street, Roosevelt and St. Luke's hospitals during the past eighteen months by Dr. P. R. Turnure. During this time there were 74 operations in cases of perforating gastric and duodenal ulcer; of these 47 were gastric and 27 duodenal ulcers. Of 26 patients operated on within twelve hours after perforation, 16 were cured and 10 died; of 7 patients operated on in from twelve

to twenty-four hours after perforation, 1 was cured and 6 died; of three operated on in from twenty-four to forty-eight hours after perforation, 2 were cured and 1 died; of 12 coming to operation after forty-eight hours, 4 were cured and 8 died. The complications encountered in the order of frequency were subphrenic abscess, pneumonia, gastric hemorrhages, secondary adhesion and empyema. Of 48 cases, 16 broke down between the seventh and twelfth days. Gastro-enterostomy was done in 17 cases and of these patients 15 were cured and two died.

DR. SONNENBURG, Berlin: The diagnosis of gastric and duodenal ulcer is by no means a simple matter. In cases of recently perforated duodenal or gastric ulcer the history is rarely characteristic. In chronic cases pain is frequently absent. In ten cases of perforated duodenal ulcer, five gave no history of gastric disturbance, and in three the gastric disturbance was noted for only a few days or a week. The characteristic history of periodic attacks of hunger-pain with intervals of apparent well-being noted by Moynihan has been absent in many of our cases. On the whole, the history was more characteristic in the chronic cases. The pain in the right side of the abdomen near the umbilicus, which has been mentioned as characteristic, was frequently absent or found in other abdominal regions. Increasingly good results from operative treatment will accrue as operative technic improves and diagnosis becomes more accurate through roentgenoscopy. Max Cohn has found that stiffening of the ventricle and too rapid emptying of the stomach are in no sense pathognomonic, only accompanying symptoms of gastric and duodenal ulcer, but that retention of bismuth in the duodenum is of great importance. Abnormal gas formation is also of great import, especially gas bubbles in the first part of the duodenum. The majority of physicians in Berlin agree that the diagnosis of duodenal ulcers remains a probable and not an absolute diagnosis. We have found the relative frequency of gastric and duodenal ulcers at variance with that of American surgeons. In our series of 80 cases there were 13 duodenal ulcers and 67 gastric. A low leukocyte-count is of grave diagnostic import, indicating a virulent infection. In my experience the mononuclear leukocytes fall rapidly to normal in favorable cases, while in the lethal cases they remain high to the end. The leukocyte-count is more inconstant and fluctuating in cases of ulcer than in those of appendicitis. Peritonitis following perforating ulcers often runs a benign course with encapsulation of the abscess. In the late stage of the disease the leukocyte-count indicates the treatment to be followed.

DR. ARTHUR DEAN BEVAN, Chicago: Dr. Rosenow's experimental work on the etiology of ulcers shows that certain micro-organisms have a selective activity for certain anatomic localities. With certain strains of micro-organisms Dr. Rosenow has produced endocardial lesions; with others he has produced arthritis, and with others gastric and duodenal ulcers, etc. In ten or twelve instances, cultures from duodenal ulcers have been introduced intravenously into animals and have produced typical gastric and duodenal ulcers. This selective action of certain micro-organisms is not the only factor in the production of these ulcers; the lowered resistance of the individual and the local condition due to the corrosive action of hydrochloric acid also play a part in the etiology of these ulcers. Proper medical management has enormous possibilities in gastric and duodenal ulcer, and the patient who receives proper medical attention after operation has a shorter and smoother convalescence. The unfortunate results after operation for gastrojejunal ulcer may largely be prevented by proper medical management.

DR. JOHN B. MURPHY, Chicago: From clinical observation alone it seems evident that gastric and duodenal ulcer are practically metastatic lesions. This may be illustrated by their occurrence at that season of the year when infections of the upper air-passages are most frequent, and they also run the classical course of such infections. After using the round button for a number of years, I employed the suture method for a time, but now have returned to the use of an oblong button, which makes hemorrhage an impossibility.

DR. HOWARD LILIENTHAL, New York: When the ulcer is located near the pylorus, the entire ulcer-bearing portion of the stomach should be removed. The added risk of removing the entire danger-zone is less than leaving it for a future operation when cancer shall have developed. When the patient is in good condition the entire ulcer area can be removed at one operation, but when there is an indurated mass and one cannot see where it begins, the best procedure is to do a gastro-enterostomy with the minimum amount of manipulation, and then three weeks after the tumor can be removed and a pylorotomy performed. This method in indurated ulcers will give a lessened mortality.

DR. A. G. GERSTER, New York: With gastro-enterostomy and pyloric exclusion and even with resection of the pylorus, we sometimes have recurrences. There seems to be no sure way of permanently interrupting the passage of the food through the alimentary canal. After operation, patients experience relief, but they are not cured, as the ulcer is due to a condition which is not understood; and unless operation is reinforced by proper dietetic and hygienic management the relief is only temporary.

DR. WILLY MEYER, New York: As pathologic examination at the time of operation cannot always be relied on to determine definitely the possibility of cancer, the necessity of excising the entire ulcerous area cannot be emphasized too strongly. Some of the undesirable sequelae of these operations may be avoided if pyloric exclusion has a wider field. The two-stage operation may be good in some cases, but when every minute counts and the patient has the signs of hemorrhage, we should exclude the pylorus entirely. A modified Jianu operation and the use of Hult's wire-stitching instrument may be made applicable to operations on gastric and duodenal ulcers.

DR. A. J. OCHSNER, Chicago: Animal experimentation has shown that it is very difficult to produce gastric or duodenal ulcers unless the animal is first rendered anemic, or unless certain strains of micro-organisms are introduced according to the method of Rosenow, or unless the circulation is very much interfered with. When we find in normal persons and in animals a condition in which it is so difficult to establish ulcers, this should be accepted as absolute proof that in the development of our methods of treatment provision should be made for restoration from a very severe condition. This is confirmed by the histories of these cases which habitually show an abuse of normal feeding. There has been long-continued irritation due to hyperacidity in the peptic ulcers. The patient has swallowed, perhaps, septic material from the teeth, the pharynx or the tonsils for years. These are some of the factors which keep up conditions favorable for the establishment of ulcers, and they correspond to the conditions in which it is possible to establish experimental ulcers. Consequently we have found many cases seemingly incurable in which if alkalinity is established and maintained, and anemia and faulty feeding overcome, a cure has been effected and maintained. When the patient is in a depraved physical condition, the two-stage operation is of the greatest importance.

DR. WILLIAM L. RODMAN, Philadelphia: We all believe that gastro-enterostomy has its limitations; while patients make operative recoveries, clinically they are not cured. It therefore seems that if more radical treatment can be employed without increasing the operative risk, it ought to be considered. We have been kept from removing the entire ulcerous area by an exaggerated idea of the operative mortality. Communication with one hundred prominent surgeons on this subject has resulted in statistics from fifty, embracing 375 radical operations. In 204 of these, pylorotomy has been done, and in 174, excision in the larger part of the stomach. The mortality in all was a little more than 5 per cent. (5.4 per cent.). The mortality of the pylorotomies was about 8 per cent. and that of the excisions less than 2 per cent. A careful analysis of the mortality tables has convinced me that many deaths are due to poor judgment in the selection of patients for pylorotomy who should

have had a preliminary gastro-enterostomy and then later a pylorotomy.

DR. WILLIAM J. MAYO, Rochester, Minn.: There are some points in Dr. Rosenow's work that require further experiment. Strains of streptococci have produced acute ulcer but they have not produced chronic ulcer. Some ulcers seem to be chronic from the beginning. We have been making some experiments to find out if obstruction is a factor in causing ulcers to become chronic. If cancer develops on an ulcer it is never in the base, but always in the overhanging margin; when cancer is found in the base of the ulcer it may be assumed that it has been cancerous from the beginning. If ulcers are within $1\frac{1}{2}$ inches from the pylorus they are essentially duodenal. A one-stage operation is desirable when it can be done; the two-stage operation is only for the poor risks.

DR. BRÜNING, Giessen: The symptom-complex as described by Moynihan occurs in many cases of ulcer of the stomach but is absent in others. There is no way in which one can be absolutely certain as to the location of the ulcer. In operating on pyloric ulcers it is very important that the field of operation should not be subjected to too much manipulation or traumatism. The von Eiselsberg *Ausschaltung* method is undoubtedly the best. It is my custom to cut around the entire stomach musculature a little above the ulcer and down to the mucous membrane. About this I lay a fascial strip which is pulled firmly and sewed in a ring. Over this the muscular serosa is again joined. A gastro-enterostomy on the anterior pylorus ends the operation. If the pylorus is ligated according to the method of Wilms, no food can irritate the ulcer, and all peristaltic waves are retarded. It is important to keep the stomach-contents alkaline, as acid increases the peristaltic action. Only small amounts of food should be given, as large amounts cause an expansion of the stomach, which initiates a response in the form of a contraction-wave. By these means I keep the entire field in the vicinity of the ulcer at rest.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

Special Number, LXIX, No. 5, pp. 835-1086

- 1 Psychiatric Clinic and Community. S. Paton, Princeton, N. J.
- 2 Specialism in General Hospital. W. Osler, Baltimore.
- 3 Purpose of Psychiatric Clinic. A. Meyer, Baltimore.
- 4 Sources and Direction of Psychophysical Energy. William McDougall, Oxford, England.
- 5 Autistic Thinking. E. Bleuler, Roche Harbor, Wash.
- 6 Personality and Psychosis. A. Hoch, New York.
- 7 Personal Factor in Association Reactions. F. L. Wells, Waverley, Mass.
- 8 Study of Neuropathic Inheritance. F. W. Mott, London.
- 9 Etiology of Pellagra and Its Relation to Psychiatry. O. Rossi, London.
- 10 Psychic Disturbances Associated with Disorders of Ductless Glands. H. Cushing, Boston.
- 11 Primitive Mechanisms of Individual Adjustment. S. Paton, Princeton, N. J.
- 12 Dementia Problems. K. Heilbronner, Utrecht, Holland.
- 13 Interrelation of Biogenetic Psychoses. E. Jones, Toronto.
- 14 Prognostic Principles in Biogenetic Psychoses, with Special Reference to Catatonic Syndrome. G. H. Kirby, New York.
- 15 Anatomic Borderline between So-Called Syphilitic and Metasyphilitic Disorders in Brain and Spinal Cord. C. B. Dunlap, New York.
- 16 *Mental Disorders and Cerebral Lesions Associated with Pernicious Anemia. A. M. Barrett, Ann Arbor, Mich.

16. Mental Disorders and Pernicious Anemia.—Barrett has studied clinically the mental disorders of 11 cases of pernicious anemia, and in 9 of these a histologic study of the brain was made. The symptomatology of these cases showed considerable variety. Two were cases of epilepsy; 2 were not to be differentiated from dementia praecox; 1 was a questionable manic-depressive psychosis, and 6 presented a characteristic picture of an asthenic state in which there developed a mental disorder of a paranoid type. It is to

these paranoid conditions that this study is particularly devoted.

Brief accounts of 6 cases are given by Barrett. The first 2 of these showed that slight tendency toward delusional elaboration. In the remaining 4 the paranoid features were well developed. The cases, as a whole, have in common an irritability, and a suspiciousness which forms the ground on which develop the delusions of persecution. The content of the delusions is usually influenced by the somatic-neurologic symptoms and the situation in which the patient is placed as a result of these disturbances. In some instances there were auditory hallucinations to which the patient reacted with strong affect. In several cases there was confabulation, which suggested that seen in the Korsakow's symptom complex. There was no marked deterioration present, the comprehension and orientation were usually clear, except for rare episodes, in which they were slightly disturbed. In two instances the mood was slightly expansive. In a number of instances the course showed remission in the intensity of the symptoms and these corresponded to the remissions in the physical conditions. Underlying the development of the mental condition in all but one of these cases was a hereditary predisposition. In several instances there were a number of occurrences of mental abnormalities or insanity among the ancestors. In all cases of pernicious anemia with mental disorders studied, hereditary factors were found in the greater number.

The histologic changes in cord and brain as a whole, are not of a specific type, but rather those which occur in conditions of chronic intoxication and resemble those found in chronic alcoholism, namely, the occurrence of increased lipid products in cells, glia overgrowth, vessel changes, miliary hemorrhages and intramedullary fiber degeneration. The similarity to a toxic type is further shown in the axonal type of reaction which was found in two instances, a change which has often been noticed in the Korsakow's symptom complex and various forms of toxic neuritic disorders. As in toxic processes the vessels are severely affected.

Clinically, Barrett points out there are features in these paranoid cases which resemble closely those seen in chronic and subacute toxic conditions, especially the chronic alcoholic delusional states. These are the occurrence of the suspiciousness and irritability, the development of the delusions of persecution, the auditory hallucinations and occasional memory impairment and confabulation.

American Journal of Physiology, Boston

April, XXXIV, No. 1, pp. 1-126

- 17 Circulation of Blood in Man at High Altitudes. I. Pulse-Rate and Blood-Pressure. E. C. Schneider and D. L. Sisco, Colorado Springs, Colo.
- 18 *Circulation of Blood in Man at High Altitudes. II. Rate of Blood-Flow and Influence of Oxygen on Pulse-Rate and Blood-Flow. E. C. Schneider and D. L. Sisco, Colorado Springs, Colo.
- 19 *Study of Mechanisms by Which Muscular Exercise Produces Acceleration of Heart. H. S. Gasser and W. J. Meek, Madison, Wis.
- 20 *Nerve Control of Thyroid. J. M. Rahe, J. Rogers, G. G. Fawcett and S. P. Beebe, New York.
- 21 *Variability of Blood-Pressure and of Vasomotor Irritability in Anesthetized Dog. R. S. Hoskins and H. Wheelon, Chicago.
- 22 *Studies in Fatigue. C. M. Gruber, Boston.
- 23 *Variations in Sensory Threshold for Faradic Stimulation in Normal Human Subjects. E. G. Martin, P. R. Withington and J. J. Putnam, Jr., Boston.
- 24 *Two Types of Reflex Fall of Blood-Pressure. E. G. Martin and P. G. Stiles, Boston.
- 25 *Influence of Food, Posture and Other Factors on Alveolar Carbon Dioxid Tension in Man. H. L. Higgins, Boston.

18. Rate of Blood-Flow and Influence of Oxygen on Pulse-Rate and Blood-Flow.—The rate of blood-flow in the hands of the six men examined by Schneider and Sisco was increased by residence on Pike's Peak by an amount varying from 30 to 76 per cent. The increase in the rate of flow has been associated in part with an augmented rate of heart-beat and a fall in the venous pressure, also in part with a dilatation of the arterioles. The breathing of an oxygen rich mixture slowed the heart-rate in each of the six subjects to a greater degree on Pike's Peak than in Colorado Springs. The average retardation was 14 per cent. at 14,109 feet, and

5.4 per cent. at 6,000 feet. The arterial pressure was not clearly altered at either altitude during oxygen inhalation; but the pulse, with one exception, was fainter and softer. Oxygen inhalation diminished the rate of blood-flow in the hands from 4 to 20 per cent. on Pike's Peak while the flow was not ordinarily altered in Colorado Springs. In view of the beneficial influence of oxygen inhalation—the retardation of the heart-rate and diminution in the rate of blood-flow—it was concluded that oxygen want induces the adaptive high altitude circulatory changes.

19. Effect of Exercise on Heart.—Acceleration of the heart at the beginning of voluntary exercise in the normal animal is chiefly due to the decrease in tone of the cardio-inhibitory center. Gasser's and Meek's evidence for this conclusion is the following: Electrocardiograph records confirm the work of Bowen and Buchanan that acceleration takes place as early as the cardiac cycle following the initiation of the exercise. Acceleration of the heart at the beginning of exercise persists after the removal of the accelerator mechanism. The actual increase in number of beats due to a given amount of exercise has been found to be practically the same in six dogs before and after removal of the stellate ganglia. One of these animals was observed for over four months. Acceleration on exercise is reduced after section of the vagi provided that all asphyxial effects are excluded. After the removal of the accelerators and subsequent section of the vagi, marked acceleration of the heart may still be produced by a short period of exercise. This is associated with the cyanosis following vagotomy and on the second day when the animal is able to do the same work without such a marked cyanosis the increase following exercise is greatly reduced. It may be increased again by asphyxiating the dog for some thirty seconds. After tying off the adrenals neither asphyxia nor exercise gave a marked increase in heart-rate. Exercise involving asphyxial conditions may then be accompanied by a secretion of the adrenals. In the normal animal with the vagi intact this secretion of adrenalin can hardly be supposed to affect the heart-rate. It may, however, cause an increase in the amplitude and force of contraction.

In six dogs the heart-rate after removal of the accelerators was found to be remarkably constant, averaging about 72 beats per minute. The resting pulse-rate of each animal is therefore believed to depend more on accelerator tone than on any other factor. After removal of all nervous control and elimination of the adrenals exercise may still cause a small acceleration of the heart. This is attributed to the increased temperature of the blood. Acceleration of the heart occurs on exercise after vagotomy and extirpation of the adrenals. The amount though small is more than can be accounted for by increased temperature of the blood. Acceleration may therefore be brought about through the accelerators if necessary. Our work leads us to believe that the accelerators are a factor of safety and that in exercise their action is superimposed on that of the vagi only in times of great need. Aside from this, their chief function is maintaining the level of the resting pulse.

20. Nerve Control of Thyroid.—The authors summarize their experimental results as follows: The average difference of iodine, expressed in mg. per gram of fresh gland, between the two thyroid lobes of seven normal dogs was 0.0055 mg. The average difference found when the superior vessels, with accompanying nerve fibers, of one lobe were stimulated was 0.1351 mg. The average difference found when the stimulus was applied to the vagus peripherally to the superior ganglion, the nerve being cut central to the ganglion and ligated peripherally to the stimulus, was 0.1699 mg. The average difference found when stimulus was applied to the intact vagus was 0.2640 mg. In Series 3, two glands were stimulated forty-five minutes and thirty minutes, respectively. If the loss in the remaining five glands which were stimulated three hours is averaged it will be found that a loss of 0.3588 milligrams per gram of gland occurred.

In no case did they fail to get a loss after stimulation. There seems to them to be no reasonable doubt from these results that the thyroid is at least in part under nerve con-

trol, and that its physiologically active substance is discharged into the circulation in response to a nerve stimulus.

21. Variability of Blood-Pressure.—Mean arterial blood-pressure in the individual anesthetized dog under laboratory conditions at different times was found by Hoskins and Wheelon to be fairly constant. Forty-six determinations in twenty-one dogs at intervals of five to ten days showed an average maximum deviation of 4.8 per cent. The greatest individual deviation from the average was 17 per cent. The pressor effect of standard doses of epinephrin injected at different times is proportionately somewhat less constant. The average maximum deviation from the average was 14 per cent. in twenty-one animals. The greatest individual deviation was 54 per cent. Similar results were secured with nicotin. The average maximum deviation was 15 per cent. in nineteen animals. The greatest individual deviation was 45 per cent. The reaction consisted of a concatenation of features often giving "reaction pictures" characteristic for each animal. The constancy of blood-pressure and of the reactions to epinephrin and nicotin is of a degree to permit their use as criteria of activity and irritability of the sympathetic nervous system.

22. Studies in Fatigue.—Gruber found that curare increases the threshold of the normal muscle but not the threshold of a muscle in which the nerve endings have degenerated. Epinephrin is an antagonist to curare and decreases, in five minutes or less, the curare threshold, in some cases to normal. Fatigue increases the threshold of a curarized muscle, and epinephrin antagonizes this fatigue. Gruber concludes that the substance on which curare acts is probably different from that on which fatigue acts. It either degenerates on nerve degeneration, is transformed by muscle atrophy or is inexcitable to electric stimuli.

23. Faradic Stimulation in Normal Human Subjects.—Daily observations for several weeks on nine subjects, all following a regular somewhat pressing routine, showed that at the beginning of the week the irritability tends to be high, that from then till the end of the week there is fairly continuous decline in irritability, as judged by the sensory threshold, and that following the interruption of the routine by the intervention of Sunday the irritability returns to its original high point. This is interpreted by the authors as a result of general fatigue incident on routine and restoration of nervous tone following a marked interruption therein.

24. Two Types of Reflex Fall of Blood-Pressure.—Martin and Stiles report the results of an attempt to bring the Martin method for the physiologic calibration of induction shocks to bear on the analysis of the depressor reaction.

25. Alveolar Carbon Dioxid Tension in Man.—The alveolar CO₂ tension was found by Higgins to rise after the intake of food and remains high so long as the food is in active digestion. The alveolar CO₂ tension is higher when one is in a relaxed position than when one is in an erect position. Thus the alveolar CO₂ tension is markedly higher standing than sitting, and higher sitting than lying. The taking of coffee, without food, caused a fall in the alveolar CO₂ tension. These variations, especially those from changing position, do not appear to be due to changes in the H-ion concentration of the blood (independent of the H₂CO₃); but apparently some other agent is affecting the respiratory center to cause these changes. A high alveolar air is coincident with vasodilatation, and a low alveolar CO₂ tension with vasoconstriction.

Archives of Internal Medicine, Chicago

April 15, XIII, No. 4, pp. 509-672

- 26 *Systemic Blastomycosis. A. M. Stober, Chicago.
- 27 Id. R. A. Krost, A. M. Stober, Chicago, and M. J. Moes, Dubuque, Iowa.
- 28 Id. T. Churchill and A. M. Stober, Chicago.
- 29 Id. M. Lewison and H. Jackson, Chicago.
- 30 Id. H. J. Myers and A. M. Stober, Chicago.
- 31 Id. T. H. Boughton, Lawrence, Kan., and S. N. Clark, Hospital.
- 32 Id. T. H. Boughton, Lawrence, Kan., and A. M. Stober, Chicago.
- 33 Id. H. Jackson, Chicago.
- 34 Id. R. E. Bechtel and E. R. LeCount, Chicago.
- 35 Id. F. B. Riley and E. R. LeCount, Chicago.
- 36 Id. J. S. Eisenstaedt, Chicago, and T. H. Boughton, Lawrence, Kan.
- 37 Id. P. F. Shaffner, Chicago.

- 38 *Multiple Primary Malignant Tumors; Two Cases in Dogs. F. K. Bartlett, Chicago.
39 Fatty Infiltration (Lipomatosis) of Auriculoventricular Bundle of His, with Sudden Unexpected Death. F. Nazum, Chicago.
40 *Blood-Pressures. J. H. Barach and W. L. Marks, Pittsburgh.
41 *Mechanism of Cardiac Displacements in Pulmonary Tuberculosis. M. Fishberg, New York.

26. **Systemic Blastomycosis.**—Vaccination with blastomycetes and their products for therapeutic purposes was performed by Stober in three cases, two systemic cases and one case of cutaneous infection. The material used consisted of the filtrate and the suspension of the triturated membrane of bouillon cultures grown at room temperature for periods varying from two to six months. The cultures were killed by heat (110 C.) and preserved with 0.8 per cent. chloretone. Subcutaneous injection of either the filtrate or suspension produced an area of induration varying in size according to the quantity used. A few of the larger areas became soft and fluctuating, owing to the formation of pus, which was sterile in all instances examined. Such indurations and abscesses were more constant and pronounced when the suspension was used, and did not occur with small quantities of the filtrate. A certain amount of pain was noted the first few days at the site of injection.

The general effect of such injections was usually a rise in temperature of from one-half to 2 degrees. This became apparent in from six to twenty-four hours and sometimes persisted seventy-two hours or longer. With the rise of temperature occurred a feeling of general malaise and pain in the back and extremities. Pain, however, was more especially manifest in and about the local lesions, in which a distinct inflammatory reaction occurred, consisting of pain, swelling, increased discharge, and often bleeding from the ulcerated surface. This receded in from twelve to forty-eight hours. The crusts became detached, the ulcers decreased in size and general improvement followed. Deep abscesses approached the surface and ruptured, and healing of old fistulas occurred. These effects were quite as apparent from small amounts of the filtrates as from larger amounts of the emulsions. The latter produced more general disturbance and temperature; in fact, a rise of temperature was noticed in three cases not blastomycotic in which sterile abscesses followed the injection of 4 c.c. of the emulsion.

38. **Multiple Primary Malignant Tumors.**—Multiple primary malignant tumors, according to Bartlett, occur in approximately 0.2 per cent. of all cases of malignant tumors. Certain of them that originate close together in one type of tissue are indicative of a localized tendency to malignant degeneration. Others that are essentially bilateral, occurring in the ovaries, testicles, kidneys and adrenals, are indicative of a tissue predisposition, dependent in most instances on an anomalous embryonal development. Besides these two classes there is another general class of cases, two-thirds of which is composed of multiple primary malignant tumors, the location and arrangement of which is strongly indicative of a system involvement, affecting mainly the reproductive, the gastro-intestinal and the cutaneous systems. In the other third of this class of cases, the tumors are distributed miscellaneous, and apparently have no common features. The two cases reported by Bartlett belong to the latter class, each animal having one tumor dependent indirectly on a metabolic disturbance, and another tumor distinctly of embryonal anlage.

40. **Blood-Pressures.**—In 90 per cent. of a series of 656 healthy young men Barach and Marks found that the maximum blood-pressure was under 150 mm. Hg. It would be still lower if we could eliminate psychic effect. In 96 per cent. of a series of 338 cases the minimum pressure when read at the fifth phase did not exceed 100 mm. Hg. In 87 per cent. of a series of 312 cases the minimum pressure, when read at the fourth phase, did not exceed 100 mm. Hg. On reexamination of the 13 per cent. in the series of 312 cases, we found that 99.4 per cent. had a minimum blood-pressure not over 100 mm. Hg. In 92 per cent. of the total 650 cases the minimum pressure did not exceed 100 mm. Hg at the

time of the first examination. In 88 per cent. of a series of 629 cases the pulse-pressure ranged between 20 and 70 mm. Hg. There was no constant relation between the pulse-pressure and the diastolic pressure. In 75 per cent. of a series of 742 cases the pulse-pressure comprises anywhere from 20 to 80 per cent. of the diastolic pressure. There was no relation between physical efficiency, which also means circulatory efficiency, and pulse-pressure percentage of diastolic pressure. In a series of 344 cases, the poorer half gave practically the same pulse-pressure to diastolic pressure percentage as the stronger half, with their better circulatory system.

41. **Cardiac Displacements in Pulmonary Tuberculosis.**—In a large number of cases of phthisis in which Fishberg looked for the position of the heart while examining the thorax, he found it dislocated in a large proportion. Of 115 consecutive cases of pulmonary tuberculosis in 58, or 50 per cent., the heart was dislocated. Of 85 instances with early lesions 31, or 36 per cent., showed cardiac displacements. Of these 22 were displacements to the left and 9 to the right. In other words, 70 per cent. of the displacements were toward the left in early and second-stage cases of tuberculosis. Of 29 far-advanced cases, 27 showed cardiac dislocation, of which 15 were to the left and 12 to the right. Among 18 far-advanced cases with right-sided lesions, or in which the lesion was more extensive in the right side, 14 showed dislocations to the right and 4 to the left, and in one the heart was in its normal location. Of 19 left-sided lesions, or lesions more extensive on that side, there were 15 displacements to the left, one to the right; in one instance there was no displacement at all. Here the displacements were about equal between the two sides, and, with some exceptions, the shifting of the heart was toward the more affected side.

The dislocation is usually produced by traction exerted from the affected side. Pulmonary collapse and retraction, cavitation and fibrous bands running from the pleura to the pericardium drag the heart out of its normal place. Pressure exerted by a vicariously emphysematous lung on the opposite side greatly assists in displacing the heart to the affected side, or, in bilateral lesions, to the side which has the older or more serious lesion. In many cases we can determine in which side the tuberculous lesion is located, or in bilateral lesions in which side the older or more extensive lesion is located, by determining the location of the heart.

Dislocations take place more often toward the left hemithorax than toward the right for various anatomical reasons, mainly, however, because of the oblique position of the heart from right to left, and the strong attachment of the mediastinum to the central tendon of the diaphragm, which greatly counteracts traction exerted from the right pleura and lung. As a result about two-thirds of all displacements are toward the left side. In far-advanced cases the displacements are about equal between the two sides of the chest, and dextrocardia is not uncommon. Acquired dextrocardia is almost invariably of tuberculous origin.

In many cases of phthisis the heart is not only dislocated, but also rotated on its sagittal or vertical axis. In the normal position the cardiac apex is nearer the chest wall than the base. Traction exerted on the right side of the mediastinum may bring the base of the heart nearer the chest wall and push or pull the apex away from it. Elevation of the diaphragm also has a great influence on the position of the heart, and together with pleuropericardial adhesions may dislocate the heart in any manner—upward, downward, to the right or left; may bring it in a horizontal or vertical position, etc.

In the majority of cases the diagnosis of displacement can be made by percussion, auscultation and roentgenoscopy; but in some cases only the side of the heart adjoining the healthy lung can be mapped out by percussion, while on the opposite side its dulness merges with that of the pulmonary or pleural lesion and cannot be differentiated easily, and at times even the Roentgen ray is of no avail. In dextrocardia a good guide is the cardiac impulse. When only one point, with an impulse is found, it is usually the right ventricle that pulsates and not the apex, because in these cases the

latter is turned away from the anterior chest wall; if two points with pulsation are found the one to the left represents the apex and the one to the right the base or the right ventricle.

While tachycardia and dyspnea of phthisis are usually due to toxemia of the disease, the cardiac displacements are also responsible to some extent. Many patients cured of tuberculosis remain with permanent cardiac embarrassment because of the displacement of the heart.

Arizona Medical Journal, Phoenix

April, 11, No. 3, pp. 5-36

- 42 Functional Capacity of Kidney and Consideration of Quantitative Methods of Its Determination. J. I. Butler, Tucson.
- 43 Absence of Right Kidney. C. E. Yount, Prescott.
- 44 Artificial Pneumothorax in Pulmonary Tuberculosis. W. W. Watkins, Phoenix.
- 45 *Preparation of Nitrogen for Artificial Pneumothorax—Convenient Method. C. N. Boynton, Phoenix.

45. Preparation of Nitrogen for Artificial Pneumothorax.—Boynton uses ammonium nitrite, freshly prepared by mixing in solution pure sodium nitrite and pure ammonium chlorid. This forms, in solution, ammonium nitrite and sodium chlorid. The application of heat to the solution decomposes the ammonium nitrite into nitrogen gas and water. In the actual process, all glassware, rubber-tubing and water are sterilized in steam or by boiling before the apparatus is set up. The apparatus consists of a generating flask containing the two salts in solution, connected by rubber-tubing to a Wolff bottle in which the gas is washed through a solution of bichlorid of mercury. The gas then passes into a pressure flask in which it replaces the sterile water, forcing the latter into a sterile bottle, which constitutes the storage bottle for the water for the operation. The nitrogen obtained by this method is said to be 100 per cent. pure, absolutely sterile and more easily prepared. Twenty grams of the combined chemicals used in this method will yield four times the volume of nitrogen gas obtainable by the use of 150 grams of chemicals in the absorption method.

Boston Medical and Surgical Journal

April 23, CLXX, No. 17, pp. 637-672

- 46 *Treatment of Cases of Mental Disorder in General Hospital. P. C. Knapp, Boston.
- 47 Medical Inspection of Immigrants at Port of Boston. A. J. Nute, Boston.
- 48 Ptosis—Cause of Gynecologic Failure. F. S. Kellogg, Boston.
- 49 Physiologic Cost of Insufficient Protective Clothing. G. W. Fitz, Boston.
- 50 Fracture of Clavicle. F. E. Peckham, Providence, R. I.

46. Treatment of Mental Disorder in General Hospital.—It is not practical in Knapp's opinion to receive and care for such patients in a general hospital unless there be a special service under the charge of a visiting neurologist familiar with mental diseases and their treatment. The average American internist is too ignorant of mental and nervous diseases to deal properly with such cases. Something more is requisite than restraint while in the hospital and commitment at the earliest opportunity. The visiting physician must be familiar with mental diseases, he must be able to make a sound prognosis as well as diagnosis, must know how the patient is likely to behave and be ready to assume risks and to take proper precautions. He must have the control of his patients and their treatment without interference from administrative officers, and must be alone responsible for the treatment, the stay in the hospital, restraint and commitment. Only under such conditions can the reception and treatment of cases of mental disorder in general hospitals be of full benefit to the patient and the community.

Bulletin of American Academy of Medicine, Easton, Pa.

April, XV, No. 2, pp. 65-118

- 51 Social Factors Affecting Volume of Crime. J. L. Gillin, Madison, Wis.
- 52 Relation of Crime to Adolescence. W. S. Hall, Chicago.
- 53 Physical Basis of Criminality. C. R. Henderson, Chicago.
- 54 Physical Basis of Crime from Standpoint of Probation Officer. J. H. Witter, Chicago.
- 55 Relation of Feeble-Mindedness to Crime. H. H. Goddard, Vine-land, N. J.

Colorado Medicine, Denver

April, XI, No. 4, pp. 145-178

- 56 History of Medicine and Its Relation to Civilization. W. H. Crisp, Denver.
- 57 Recent Cases of Glandular Fever. H. B. Whitney, Denver.
- 58 Arrested Development of Cancer. G. A. Boyd, Colorado Springs.
- 59 Ludwig's Angina. T. J. Gallaher, Denver.
- 60 Traumatic Hysteria. E. Delehanty, Denver.
- 61 Present Status of Radium in Surgery and Medicine. W. W. Grant, Denver.

Delaware State Medical Journal, Wilmington

February, V, No. 3, pp. 1-26

- 62 Obscure Case of Meningitis Following Grippe and Ending in Recovery. W. Springer, Wilmington.
- 63 Early Diagnosis in Cancer of Breast. H. M. Thompson, Wilmington.

Journal of Kansas Medical Society, Kansas City

April, XIV, No. 4, pp. 131-170

- 64 Arteriosclerosis. L. F. Barney, Kansas City.
- 65 Upper Abdominal Diseases. R. C. Lowman, Kansas City.
- 66 What Is Solution of Cancer Problem? F. A. Harper, Pittsburg.
- 67 Abdominal Diagnosis and Roentgen Ray. E. H. Skinner, Kansas City.

Maine Medical Association Journal, Portland

April, IV, No. 9, pp. 1799-1840

- 68 Neisser Infection of Female Genitals in Relation to Pregnancy. E. B. Young, Boston.
- 69 Case of Intermittent Claudication with Roentgenographic Findings. W. P. Coues, Boston.
- 70 Bronchopneumonia in Children. A. H. Damon, Limestone.
- 71 Pernicious Anemia. Case Report. J. M. Sturtevant, Portland.

Medical Record, New York

April 25, LXXXV, No. 17, pp. 737-782

- 72 *Nutritive Significance of Different Kinds of Foodstuffs. L. B. Mendel, New Haven, Conn.
- 73 *Food from Standpoint of Energy. G. Lusk, New York.
- 74 *Results of Three Years' Clinical Work with New Antiserum for Cancer. W. N. Berkeley, New York.
- 75 Role of Exercise in Treatment of Visceroptosis, with Special Reference to System of W. Curtis Adams. S. S. Bradford, Montclair, N. J.
- 76 *Has Tuberculosis Death Rate Declined Recently? T. J. Mays, Philadelphia.
- 77 Comparative Study of Imaginative Powers in Mental Defectives. H. A. Knox, New York.
- 78 Recent Advances in Study of Pathogenesis of Cancer. M. J. Sittenfield, New York.
- 79 Value of Accurate Diagnosis in Disease. B. Robinson, New York.
- 80 *Tango-Foot. G. F. Boehme, Jr., New York.

72. Nutritive Significance of Different Kinds of Foodstuffs.—Foods, calories and energy are discussed fully by Mendel. He again emphasizes the fact that there are certain limitations in the application of the calorie idea in nutrition that are sometimes overlooked. It is not sufficient that a food material should give evidence of energy-yielding components in the laboratory of the food chemist. The energy must be available. Filter paper and cotton wool, finger-nails and hair, paraffin and wax, are instances of carbohydrate, protein and fat-like products; but inasmuch as they cannot be digested and absorbed by man the calories which they yield in the laboratory can never be put at the service of the organism. Physiologic analysis must supplement the conventional tests of the chemist whenever innovations in articles of diet are proposed. Mendel speaks at some length of widespread misconceptions and bias in respect to foods to emphasize points alluded to by him.

73. Food from Standpoint of Energy.—Nature, through the device of appetite, Lusk says, usually provides against the use of wrong food. A man who leads a life of sedentary occupation requires 2,500 heat units or calories to maintain his body machinery. He needs also water, salts, proteins and certain newly discovered substances called vitamins. All these materials are to be found in milk, beans, bread and other great fundamentals of nutrition. He will not take solutions of cane-sugar or of glucose as the exclusive mainstay of his life. Yet glucose taken alone yields 2,500 calories at a cost of 4½ cents, and 2,5000 calories in the form of cane-sugar costs 8⅓ cents. Glucose is the cheapest food fuel known, but like cane-sugar or butter fat, is not a complete food, in that it does not contain everything necessary for life. Commercial glucose is absolutely harmless. A man must have sufficient calories in his diet if he is to live properly and perform labor satisfactorily.

74. New Antiserum for Cancer.—To gain a sufficient and convincing clinical experience Berkeley has used his serum on patients with many kinds of malignant tumors, and in all clinical and pathologic stages. Out of 104 patients seen only 15 were turned away as being too far advanced to give reasonable hope of at least temporary relief. The serum has been given in doses of 5 to 50 c.c., intravenously and subcutaneously at intervals of a few days. It has been used in most cases unmodified except by inactivation.

The first report on the preparation of this serum was abstracted in *THE JOURNAL*, March 30, 1912, p. 976. The serum is best given in ascending doses intravenously. When this method is badly borne, intramuscular injections will be found to work almost as well. As in the case of all therapeutic sera, immunity develops (anti-antitoxin) generally after six or eight injections. Though there have been some happy exceptions to this rule, the indications are that a cancer which cannot be cured by six or eight maximum injections will not be amenable to the serum treatment. Clinically this confines the serum treatment to: (1) The destruction of microscopic remnants left after a primary operation; (2) the production of immunity to cancer in persons not yet clinically ill of the disease but threatened with it; *e. g.*, cases of leukoplakia lingua, old ulcer of the stomach, bad cervical tears, chronic uterine inflammation, persistent mastitis; (3) a very few early and localized recurrences will probably be curable.

Eighty-nine cases were regularly undertaken. None of the cases classed as inoperable have been cured, but from the point of view of the research the results are of prime importance. Over two-thirds of them made a favorable response for a time; only six or eight entirely failed. Of thirty-nine cases treated with autogenous or stock serum (or both) after primary operation there have been seven failures. Of the successful cases the time elapsed since operation is two years, one year and eleven months, two years and two months, two years and five months, two years and eight months, two years and one month, two years and nine months.

76. Has Tuberculosis Death-Rate Declined Recently?—This question is answered in the negative by Mayo who analyzed Hoffman's statistics with reference to that point. He says that if one thing stands out more prominently than another in this whole investigation it is the uniform and overwhelming evidence that the present prevention crusade is not only a failure as a prophylactic measure, but really a provoker of the disease, inasmuch as the aggregate figures plainly show that its death-rate was 11.22 per cent. higher at the end of ten years than it was at the time when the crusade began.

80. Tango-Foot.—A number of dancers have consulted Boehme complaining of "pain in the front of the foot," and in every instance he has found the same symptom-complex—and on investigation discovered the cause constant—the modern dance. The patient generally awakes in the morning with a slight dull pain in the outer anterior aspect of the leg in its lower third. At first it is regarded as a slight bruise or a "little rheumatism." During the next few days the pain becomes more marked and a stiffness in flexion and extension of the foot is noted. Going up and down-stairs is painful, especially the latter. Over the region of the tibialis anticus tendon pressure produces a slight degree of tenderness. With the hand over this painful area, extension and flexion of the ankle is made and the typical crackling feeling of a tenosynovitis is noticed. The latter day dances, especially the tango and the maxixe, and to some extent the complicated figures of the hesitation waltz call for great flexibility of the ankle, with much movement at this point throughout the various intricate steps. The more common movements are those of extension, flexion, and adduction of the foot. The resultant is a constant strain on the extensor muscles of the foot, viz., the tibialis anticus, the extensor digitorum, and the extensor proprius hallucis, which in turn produces a tenosynovitis in this muscle group. The commonest tendon involved is that of the tibialis anticus.

Rest is the first requisite in treatment. Immobilization with plaster of Paris or with adhesive plaster does no good; in fact the pressure irritates, limits walking, and causes needless stiffness. Simple cessation from dancing is all that is necessary, with a limitation in the amount of walking done. For the simpler cases massage with alcohol or simple soap liniment is sufficient. Boehme has also had quick results from the use of a mixture of aconiti and belladonna tincture 1 part each and iodine two parts.

New York Medical Journal

April 18, XCIX, No. 16, pp. 761-812

- 81 *Operative and Post-Operative Treatment of Appendicitis. P. Syms, New York.
- 82 Operative Mortality in Appendicitis. M. S. Kakels, New York.
- 83 Association of Systemic Disease with Metastatic Ophthalmia. G. O. Ring, Philadelphia.
- 84 Purse-Stringing of Small Intestines into Distance of Fifty Centimeters. I. O. Palefski, New York.
- 85 Cardiospasm with Dilatation of Esophagus. Report of Five Cases. M. E. Smukler, Philadelphia.
- 86 Lymphosarcoma. H. Smith, New York.
- 87 Two Present-Day Fads. The Cold Bath and Sleeping Porch. A. M. MacWhinnie, Seattle, Wash.
- 88 Marked Improvement in Tabes. V. Kenerson, Buffalo.
- 89 Ventilation. J. B. Todd, Syracuse.

81. Treatment of Appendicitis.—Surgeons, Syms says, agree that operating in the chronic or interval cases, in the early hours of acute cases, and in the very late stages is a safe procedure, but they are not agreed on the method and manner of operating. There are two or three factions; one believes in a quick definite procedure—removing the appendix and stopping the leak, thus removing the cause; making provision for drainage, inflicting as little shock and traumatism as possible, and depending on Nature to work out a cure, the cause of the trouble having been removed—every effort being made to avoid disseminating, or rendering general a localized process. The other factions, however, attempt to supplant Nature by art, and they inflict an undue amount of traumatism. They endeavor to cleanse the entire peritoneal cavity by washing, flushing, scrubbing, sponging, etc.

Surgeons are not agreed as to the best time for operating in acute cases. Syms believes in immediate operation. He would like to operate in all acute cases in the first twenty-four hours, but unfortunately we do not see these cases at that time, as a rule. Most of the acute cases come late. He does not agree with Ochsner and Stanton that all cases of appendicitis are localized at first. Many of his cases of fulminating appendicitis had spreading peritonitis from the beginning, which became progressively more and more generalized. He does agree with Ochsner that we should withhold from these patients drugs, cathartics, and food; but he also believes that we should remove from these patients a gangrenous, perforated, leaking appendix at the earliest possible moment. The method of operating is a most important factor in determining the mortality rate; the time of operating is not so important a factor as Ochsner was led to believe. Prompt operation is safer for the patient than delay at any stage of the disease.

Ohio State Medical Journal, Columbus

April, X, No. 4, pp. 193-262

- 90 Estimate of Value of Wassermann Reaction to General Practitioner. U. J. Wile, Ann Arbor, Mich.
- 91 Experiences with Heath Mastoid Operation. F. A. Leslie, Toledo.
- 92 *Clinical Value of Bacteriologic Study of Blood. C. L. Cummer, Cleveland.
- 93 Prevention of Infantile Paralysis. F. G. Boudreau, Columbus.

92. Bacteriologic Study of Blood.—The points emphasized by Cummer are: In typhoid, blood cultures are the diagnostic method of choice in the first week and are of equal value with the Widal reaction in the second week. In pneumonia, we are as yet unable to draw conclusions regarding the significance of a pneumococcemia. Further investigation of this condition is clearly demanded. In otitis media, a bacteriemia is a danger sign of distinct value. In acute and subacute endocarditis, the isolation and identification of the causative organism from the blood-stream should be of aid in prognosis. The study of the bacteriology of the blood is of inestimable aid in the differential diagnosis of obscure febrile conditions.

Ophthalmic Record, Chicago

April, XXIII, No. 4, pp. 163-216

- 94 Clinoscope as Guide to Operative Eye-Work. F. B. Eaton, Portland, Ore.
- 95 Operative Treatment of Muscular Imbalance. J. L. McCool, Portland, Ore.
- 96 Nature of Trachoma. W. H. Crisp, Denver.
- 97 Treatment of Trachoma. C. H. Dewey, Washington, D. C.
- 98 Sclero-Corneal Trephining as Taught by Elliot. E. Jackson, Denver.
- 99 Oculist as Interior Decorator. O. Wipper, Chicago.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

April 11, I, No. 2780, pp. 801-844

- 1 *Three Years' Sanatorium Experience of Laryngeal Tuberculosis. S. Thomson.
- 2 *Tuberculin Treatment as Essential Method of Dispensing Sanatorium Benefit. W. C. Wilkinson.
- 3 Tuberculin as a Specific Cure. H. Sahli.
- 4 Tuberculosis of Kidney. J. M. Renton.
- 5 Surgery of Tuberculous Lymph-Nodes. A. Neve.
- 6 Multiple Subcutaneous Tuberculosis Following Circumcision Treated by Tuberculin. S. T. Champaloup.
- 7 *Possibilities of Domiciliary Treatment in Phthisis. G. Jessel.

1. **Sanatorium Experience of Laryngeal Tuberculosis.**—More than half of the 178 cases of laryngeal tuberculosis treated by Thomson in the past three years—ninety-nine, in fact—were either arrested or improved during their stay. Thomson states that the larynx is frequently involved in pulmonary tuberculosis. Even in the selected cases sent to the sanatorium it is met with in 25.6 per cent. A considerable number of cases (102 out of 795) are sent to a sanatorium without their showing active tuberculosis. These cases, if included in statistics, would largely help to invalidate the foregoing conclusions. In patients of the middle class laryngeal tuberculosis may be met with as frequently in females (28.3 per cent.) as in males (24 per cent.).

Laryngeal tuberculosis occurs more frequently (13.7 per cent.) in the early favorable cases of Group 1 than is generally recognized. In the more decided cases of Group 2 this proportion is doubled (27.1 per cent.), and in the advanced cases of Group 3 it is trebled (40.8 per cent.).

The expectation of life among consumptives is markedly decreased by the complication of laryngeal tuberculosis. As a factor in prognosis the laryngeal condition deserves much more regard than it has hitherto commanded. Laryngeal tuberculosis may not infrequently be present, although the patient may make no complaint of the throat, and although the voice be unaltered. Hence the larynx should be carefully inspected in every case of pulmonary tuberculosis. Improvement in lung and larynx frequently, but not necessarily, progresses *pari passu*. In certain cases the larynx improves, while the lung retrogrades. The converse rarely takes place. Arrest of laryngeal tuberculosis can be effected in a sanatorium in 20.7 per cent. of all cases. Limited and slight laryngeal lesions, particularly in Groups 1 and 2, may become arrested spontaneously with sanatorium treatment. The galvanocautery is the best weapon at present for local treatment. It was only indicated in 20.22 per cent. of 178 cases and it completed the cure in 41.60 per cent. of the cases in which it was employed. These satisfactory results have not, so far as Thomson knows, been secured by any methods outside a sanatorium.

2. **Tuberculin Treatment of Tuberculosis.**—Wilkinson has little doubt that when the effects of tuberculin treatment in stages 1 and 2 of pulmonary tuberculosis have been carefully and impartially studied this method of treatment will come to be adopted as the essential method of treating the disease itself, so that the custom in vogue of sending the victims of tuberculosis to sanatoriums will be largely superseded by treatment in special dispensaries.

7. **Domiciliary Treatment in Phthisis.**—Domiciliary treatment of tuberculosis Jessel says depends for its success on careful attention to details. The problem is essentially one of hygiene rather than of therapeutics.

Dublin Journal of Medical Science

April, III, No. 508, pp. 241-320

- 8 *Case of Amyotonia Congenita. F. C. Purser.
- 9 Hypnotism. C. P. Smyly.
- 10 Case of Tuberculosis of Spine, with Pressure Symptoms on Cord. H. Stokes.

8. **Case of Amyotonia Congenita.**—The case cited by Purser differs from the majority of others described in the presence of nystagmus and the association with rickets. The patient was 2 years of age. The birth was natural, but there was severe post-partum hemorrhage. At the age of 15 months the child got severe diarrhea for four weeks. He became cross and restless. His belly swelled, and, later on, his chest got a queer shape. In fact, he had acute rickets.

The child made no attempt to stand, but he could sit up without support when he was helped into a sitting posture. If his body was bent forward he collapsed in a heap; if his head was bent backward or forward he had no power of getting it erect again. His spinal and abdominal muscles were fairly firm; they reacted briskly to faradic stimulation, and the abdominal reflexes were active. Swallowing, coughing and crying were vigorously performed. There was no sign of facial weakness. The limbs were extremely flabby and evenly small. All movements could be performed, but extension of the thigh was extremely feeble. The glutei were apparently the softest and feeblest of all his muscles. They contracted to faradic stimulation when it was strong. There were no polar changes. The movements of the arms were more frequent and of wider range and better than those of the legs. But they, too, were feeble, even when the child was angry. Occasionally a rhythmic tremor, about six or seven to the second, was seen in the arm used. There was extreme flaccidity and the joints were abnormally "loose." Purser says that this is the first case of the kind reported in Ireland.

Edinburgh Medical Journal

April, XII, No. 4, pp. 291-384

- 11 Nature and Treatment of Neurasthenia. T. A. Ross.
- 12 Milk Question in Edinburgh. A. P. Mitchell.
- 13 *Scrofula, or Hypersensitiveness to Tuberculous Infection; Its Relation to Abnormal Constitution (Status Lymphaticus). C. M'Neil.
- 14 Modern Treatment of Pulmonary Tuberculosis. D. M. Barcroft.
- 15 *Manifestations and Treatment of Intestinal Toxemia. D. C. Watson.

13. **Scrofula.**—Scrofula in M'Neil's opinion is something more than a variety of tuberculous infection. It depends on an abnormal constitution in which the body shows a hypersensitive reaction to various infective agents, including tubercle bacilli in a majority of cases. This abnormal constitution is that usually known as status lymphaticus.

15. **Treatment of Intestinal Toxemia.**—The aim of treatment in every case is summarized by Watson as follows: 1. To correct the abnormal bacterial activity in the digestive tract, attention being directed both to the small and large intestine. 2. To correct any associated or, it may be, primary toxemia existing in the upper part of the digestive tract, more especially the teeth, tonsils, gums and stomach. 3. To increase the functional activity of the main channels of elimination of the natural poisons of the body which in the cases in question are usually produced in excess. 4. To raise the general tissue resistance of the body by general means, attention being specially directed to improving the tone of the central nervous system. 5. In appropriate cases endeavor to raise the resisting power of the tissues by the use of vaccine.

Complete rest in bed is essential in the treatment of the majority of pronounced cases. In slight cases rest is unnecessary and inadvisable. Great care is called for in the selection of cases requiring complete rest.

Diet is of great value in modifying the bacterial flora in the bowel. The fermentation cases should be treated with a diet chiefly protein in character. The diet should comprise various meat soups, fish, chicken, eggs, tripe, sweet-bread and scraped beef, farinaceous foods being restricted to dry toast, stale bread and rusks. The diet must be carefully planned, the food given at regular intervals and no food o

any kind given between meals. The free use of plain water or other diluent should be encouraged. It is necessary to point out the importance of proper attention being paid to mastication of the food, to the state of the teeth and the careful regulation of the bowels, as essential points in the treatment. The putrefactive cases are treated with a partly vegetarian diet. Meat, and especially red meats, are for the time cut off from the dictary. Meat soups are similarly withheld. Eggs are also excluded. The diet should comprise bread and milk, farinaceous food, green vegetables and fruits. Patients who are specially prone to intestinal auto-intoxication have a relatively weak digestive power. Their diet must therefore be a simple one. All foods which are difficult to digest should be excluded from the dictary, and the various "extras" which can be indulged in with impunity by healthy subjects must be rigorously withheld.

In the mild cases all that is required for the bowels is a small dose of calomel— $\frac{1}{4}$ to 1 grain each night for three or four nights—followed by a morning saline, given in amount sufficient to empty the bowel thoroughly, the bowels being thereafter regulated by adding a little fruit to the dictary, and by including, where possible, oatmeal, whole-wheat bread and vegetables, the drinking of plain water in the morning, and, when necessary, the regular use of such aperient as is found to suit the patient. The one Watson has found most generally useful is the old-fashioned senna pods used in the form of cold infusion. An enema of soap and water, the use of petroleum or liquid paraffin as a mechanical lubricant are recommended as being of value in many of these cases. An important point in the treatment consists in stimulating the functional activity of the kidneys. In the earlier stages of the disease hydrotherapeutic measures are of great value in treatment. Massage and exercise should be insisted on. The use of vaccines when carefully administered is of value in supplying the final stimulus required to enable Nature to overcome the effects of the poison. In cases which have proved intractable to medical treatment, and in which there is clear Roentgen-ray evidence of the existence of stasis, operation should be recommended.

Journal of State Medicine, London

April, XXII, No. 4, pp. 193-256

- 16 Poliomyelitis. R. Burnet.
- 17 Sexual Disease and Individual. A. Corbett-Smith.
- 18 French Public Health Service in Equatorial Africa. Conan.
- 19 Residential Open-Air Schools. D. M. Taylor.

Lancet, London

April 11, I, No. 4728, pp. 1017-1094

- 20 Morphology of External Genitalia of Mammals. F. W. Jones.
- 21 *Analysis of Problem of Minimal Lethal Dose and Its Relationship to Time Factor. G. Dreyer and E. W. A. Walker.
- 22 *Improved Methods of Standardizing Bacterial Vaccines in Hemocytometer Chambers. E. E. Glynn and Others.
- 23 Method of Increasing Accuracy and Delicacy of Wassermann Reaction. F. H. Thiele and D. Embleton.
- 24 Diabetic Retinitis. S. West.
- 25 Therapeutic Value of Potato. H. C. Howard.
- 26 Mortality on Rand: Some of Its Causes. B. G. Brock.

21. **Minimal Lethal Dose.**—The formula proposed by

Dreyer and Walker is as follows: $\frac{1}{D_0 - a} - \frac{1}{D_1 - a} = k$

k ($T_0 - T_1$) offers a simple means of making such measurements. In this formula D_0 and D_1 are the concentrations of the drug or "surface doses," corresponding to the time T_0 and T_1 , in which the death of the animal (or other desired effect) occurs; a is a figure representing the "non-effective" dose of the substance employed, and k is a constant to be determined for the particular substance and species of animal under investigation. The formula states that to every equal increment in time there corresponds a definite decrease in the "active dose" ($D - a$). This formula is shown to afford a satisfactory expression for all the varied and diverse experimental data to which it has been applied.

22. **Standardizing Bacterial Vaccines.**—The most scientific method of enumerating the bacteria for vaccines is shown by Glynn and others to be in some form of hemocytometer

chamber. An optically plane and rigid coverslip must be used with such apparatus, for it is recognized as essential when counting blood and is still more essential when counting bacteria, where accuracy is of greater importance. Owing to the small free working distance of oil immersion lenses most optically plane coverslips are too thick.

Two types of hemocytometer chamber may be employed: (a) The ordinary chamber 0.1 mm. deep, with an optically plane coverslip 0.13 mm. thick. This is suitable for all oil immersion lenses with a free working distance of 0.17 mm. and some of 0.15 mm. (b) A chamber 0.02 mm. deep, with a special safety trench 2.5 mm. wide and optically plane coverslip 0.18 mm. thick. This is suitable for all achromatic oil immersion lenses, even if the free working distance is as low as 0.09. The 0.02 mm. chamber is much superior for the following reasons: (a) Almost all the bacteria settle at the bottom in fifteen minutes, when accurate counts can be made, whereas in the 0.1 mm. chamber a considerable number are still moving after half an hour. (b) Bacteria adhering to the under surface of the coverslip or still floating in the chamber are more easily enumerated. (c) The optical definition of the bacteria is better owing to the smaller quantity of fluid. (d) The free working distance is greater, and the coverslip being 0.18 mm. thick, is more durable. (e) Counting is quicker owing to the much smaller number of moving bacteria and the greater ease in focusing the top and bottom of the chamber.

A weak solution of carbol thionin is the best diluting and staining fluid; unlike a weak solution of Giemsa it is quite free from precipitate and stains more intensely. Enumeration of stained bacteria in a hemocytometer chamber, particularly in one 0.02 mm. deep, is more rapid and much more accurate than by Wright's method. The hemocytometer method does not underestimate the strength of the bacterial emulsion as usually happens with Wright's method, sometimes to a very serious extent.

Annales de Gynécologie et d'Obstétrique, Paris

March, XLI, No. 3, pp. 129-192

- 27 Treatment of Ophthalmia Neonatorum. V. Morax.
- 28 *Transfusion of Blood to Supplement Hysterectomy for Rupture of the Uterus. C. Sauvage.
- 29 Breech Presentation. (L'extraction du siège d'après Deventer-Mueller.) R. de Trey.
- 30 Cesarean Section; Twelve Cases. Ferré.

28. **Transfusion of Blood After Removal of Uterus Ruptured During Delivery.**—Sauvage relates the particulars of a case in which he combated the shock from the rupture, the great loss of blood and from the hysterectomy by transfusion of blood from the woman's husband. In three minutes after the transfusion was begun the radial pulse began to appear and rapid and complete convalescence followed.

Annales de Médecine et Chirurgie Infantiles, Paris

April 1, XVIII, No. 7, pp. 213-248

- 31 Acute Appendicitis in the Course of Varicella; Three Cases. E. Périer.
- 32 Tic of the Scapula. Nageotte-Wilbouchewitch.
- 33 Suture of Ulnar Nerve. (Section du nerf cubital chez un enfant. Suture.) P. Lombard.
- 34 *Acute Nephritis in Children. J. Renault and G. Siguret.

34. **Acute Nephritis in Children.**—Renault and Siguret think that bed rest and an exclusive milk diet are all that is needed in mild cases. When symptoms develop showing that the kidneys are becoming less permeable to salt and urea, diuresis should be promoted and the congestion in the kidney reduced by dry cupping, repeatedly applied, in Petit's triangle. In the severer cases and with older children venesection is sometimes preferable, or wet cupping in the lumbar region or leeches to each kidney. Moist heat to the chest is often effectual in relieving congestion of the kidneys; it is left in place for fifteen or twenty minutes, repeated every three or four hours. They advise against revulsion by mustard pastes, etc., but have often found useful in the threatening cases a full bath at 38 C. for fifteen minutes when there were no contra-indications on the part of the heart. A wet cloth should be kept on the head during the bath.

Drugs to act on the kidneys are too much of a strain for them; diuresis is best promoted by reducing intake of salt and of water. If this is not enough, a cold enema might be given every hour, and decoctions of onions, cherry stalks, or grape juice in small quantities, are often useful adjuvants. Calcium chlorid may help; 0.2 gm. a day for each year of age, but if it does not benefit promptly it should be dropped after a few days. Nothing but sugars can be given to promote elimination of nitrogen, they say, suggesting 10 to 50 gm. of lactose in the beverages during the day. Also subcutaneous or intravenous injection of 200 or 250 c.c. of a 45 per thousand solution of glucose. The bowels and the skin should be stimulated, but they say that calomel and pilocarpin are directly contra-indicated.

Nothing but water and little of that should be allowed the first two days, then unsalted gruels, gradually adding a little milk, finally giving nothing but milk, and no more than 1.5 liter in the twenty-four hours, and always warm, sweetened or not as desired, fractioned every three hours from 8 a. m. to 8 p. m. The mouth should be rinsed out afterward with an alkaline fluid each time. After a time other food can be added but always without salt and with minimal nitrogen. If there is no sign of edema by the end of a month, a little salt can be allowed. Other important elements in treatment are repose in bed, constant warmth and scrupulous disinfection of the throat and nose every day. In case of convulsions lumbar puncture may prove useful.

Archives de Médecine des Enfants, Paris

April, XVII, No. 4, pp. 241-320

- 35 Necessity for Removing Infant at Birth from Tuberculous Familial Environment. P. Nobécourt and G. Schreiber.
- 36 *Acute Leukemia in Children. M. Péhu and G. Chalié.
- 37 *Recurrence of Scarlet Fever. G. Jacobson.
- 38 Child Welfare Work in Brazil. (Protection de l'enfance au Brésil.) Moncorvo, Jr.
- 39 Children's Asylum at Stockholm. E. Lesné and C. Richet, Jr.
- 40 Varicella Contracted at Birth from the Mother. P. Lereboullet and I. Moricand.
- 41 Spastic Paraplegia in Boy of 8 with Inherited Syphilis. Deléarde and Cantraine.

36. **Acute Leukemia in Young Children.**—The blood-picture in the girl of 3 and boy of 2 was not of the classic type in either, but the general health became bad and the spleen much enlarged. Toward the end ascites and edema developed and the liver became enlarged while there was suppuration in one tonsil in the first case but no hemorrhages nor enlargement of lymph-nodes. The girl died in less than three months after the first symptoms; the disease in this case might be defined as a myeloid subleukemia with rapid course. The boy presented typical acute leukemia and had no hemorrhage nor fever to speak of, but the edema was extreme, invading the face and legs; probably pressure from the numerous enlarged lymph-nodes contributed to this; the spleen was also very much enlarged; death occurred in four months. The blood-count indicated an intense myeloid reaction and the eosinophils numbered 25 per cent. The case had features which suggested that it was a transitional form between true and pseudoleukemia. Arsenic was given the children and several Roentgen-ray sittings; the spleen became somewhat smaller, but the results on the whole confirmed the inefficacy of all our measures for treatment of acute leukemia. The first symptoms in the first case were the increasing size of the abdomen; the child seemed to suffer from it and was pale and languid. In the other case the enlargement of the lymph-nodes in the neck, pallor and loss of appetite were the only symptoms noticed by the family for three or four weeks.

37. **Recurrence of Scarlet Fever**—Jacobson reports that a family of four children had scarlet fever in 1908 and 1911. Over a year later he was called to attend the children for scarlet fever anew, each one of the four having a typical attack. The second attack was more serious than the first in all, and the 8-year-old girl died from it with signs of myocarditis.

Archives Générales de Chirurgie, Paris

March, VIII, No. 3, pp. 257-384

- 42 Congenital Fistula of Upper Lip. A. Parcelier and A. Lacoste.
- 43 *Grafts to Close Defects in Skull. (Greffes crâniennes.) P. Mauclaire.

43. **Skull Grafts.**—Mauclaire reviews the various methods in vogue for repairing defects in the skull and then gives the details of two cases of traumatic injury and one of congenital occipital meningocele. In the first traumatic case the gap was 5 cm. in each direction, with considerable protrusion of brain tissue. He implanted a flap of fascia and on top of this the lower corner of the scapula. The bone implant did not close the defect entirely and a fistula developed. The traumatic brain tissue hernia was improved by the operation, as the fascia flap held, but the cure was not complete. In the second traumatic case he implanted a flap of fascia lata which healed well in place but Jacksonian epilepsy developed and he incised the implanted fascia lata and found subjacent adhesions to the meninges which he separated and implanted a sheet of tissue cut from the hernial sac of another patient known to be healthy. He then sliced from the patient's tubercle of the ilium a sheet of bone and periosteum which fitted perfectly in the gap, after freshening the edges. The injury had been from a gunshot wound in the temporal region. The graft healed in place and after the fourth day following the intervention the patient had no further traces of epilepsy. The tubercle of the ilium seems particularly adapted for grafts as five or six flat or curved sheets of bone-tissue can be sliced from it without injuring the sacroiliac articulation. By cutting slices on each side enough bone might thus be obtained to repair a defect as large as the palm of one's hand. Mauclaire thinks that bone grafts are preferable to any other material for the purpose. In this case of meningocele he obtained the bone and cartilage graft from the child's greater trochanter.

Bulletin de l'Académie de Médecine, Paris

March 24, LXXVIII, No. 12, pp. 415-489

- 44 *Importers of Tropical Germs. L. Landouzy and R. Debré.
- 45 Chemistry of the Urine in Cancer. (L'acide urique et les corps puriques chez les cancéreux.) A. Robin.
- 46 *Congestion of the Peritoneum. (Congestion péritonéale d'origine appendiculaire.) Mignon.
- 47 *Experimental and Therapeutic Study of Emetin. E. Maurel.

44 and 46. Summarized in Paris Letter, p. 1267.

47. **Emetin.**—Maurel remarks that thirty communications have been recently published bearing on emetin hydrochlorid in treatment of dysentery, ameba liver disease, and hemorrhages from the intestines, stomach or lungs. These results confirm his experimental research with it long ago undertaken to confirm C. Bernard's laws that toxic and medicinal substances act, not on organs, but on systems of tissue; that each has one elective anatomic element; and that this electivity is manifested throughout the animal series. Emetin acts electively on the smooth fibers, and particularly on those in the blood-vessels, causing them to contract. This contraction explains the influence of emetin on hemorrhage as it induces vasoconstriction. The contraction of the smooth fibers under the action of emetin helps to reduce congestion and inflammation in a region. In all cases of local congestion the contraction of the vessels aids in restoring normal conditions especially in bronchitis, pneumonia, emphysema, etc.

Bulletins de la Société de Pédiatrie, Paris

March, XVI, No. 3, pp. 117-196

- 48 *Experimental Research on Dietary Deficiency Diseases. (Note pour servir à l'étude des troubles provoqués par une alimentation exclusive.) E. Weill and G. Mouriquand.
- 49 Tic of the Scapula. (Surélévation de l'omoplate gauche. Tic d'attitude ou tic tonique.) L. Lamy.
- 50 *Danger of Injections of Witte Peptone in Familial Hemophilia. P. Lereboullet and E. Vaucher.
- 51 *Foreign Bodies in Upper Air Passages of Young Children. M. Guisez.
- 52 Wassermann Reaction in Infant's Blood; Negative in the Mother. Cassoute.
- 53 Gangrene of the Foot in Diphtheria. V. Veau and Weber.
- 54 Diagnosis of Pericarditis with Effusion. Guinon and Malarte.

48. **Dietary Deficiency Disturbances.**—Weill and Mouriquand have been feeding a number of pigeons since last July exclusively on one kind of grain, rice, barley, wheat or corn, comparing the condition of these pigeons with that of others on an ordinary pigeon diet. Those fed on polished rice

developed typical beriberi and almost identical disturbances were displayed by the pigeons fed exclusively on barley. They think that everything tends to show that the trouble is due more to the exclusive, one-sided diet than to any special toxic element, and that the facts observed throw light on the pallor, weakness and dyspepsia in infants fed too exclusively with any one substance.

50. Danger from Peptone Treatment of Hemophilia—Nolf and others have reported that the coagulating time was materially shortened in a number of cases of hemophilia in which Witte peptone had been injected into a vein. Encouraged by this, Lereboullet and Vaucher applied the same measure to a child of 7 with severe familial hemophilia. The injections were borne at first without by-effects, but then symptoms of serious intolerance followed, with profuse hemorrhages, speedily fatal.

51. Foreign Bodies in Esophagus or Air Passages of Young Children.—Guisez reports eleven cases and insists on the difficulty of determining whether the foreign body is in the gullet or windpipe, spasm of the glottis frequently complicating the picture. This occurred in three of his cases when the foreign body was in the esophagus. The children coughed and seemed to be suffocating, and tracheotomy was done in one case. The safety-pin was not found and it was voided later with the stools. The dyspnea and cough at first are instructive; later the air passages may become tolerant of the foreign bodies. He is convinced that many children die from the effects of an unsuspected aspirated foreign body when the trouble is supposed to be ordinary bronchitis or pneumonia. In one case a child coughed up a fish scale which had been the unsuspected cause of a four-months' siege of bronchitis. In another case the nurse knew that the child had swallowed a foreign body and coughed incessantly for a time, but it was assumed that the foreign body would be expelled by the bowels and no one connected it with a pulmonary trouble which developed soon after. Several physicians examined the child and tuberculosis was suspected, but at the eighteenth month the child coughed up the foreign body and its lung trouble ceased at once.

The family always say that the child has "swallowed" the foreign body, but if there was any immediate suffocation this should suggest its presence in the windpipe rather than the gullet, especially when there was a spasmodic cough and attacks of suffocation recurred at first. The witnesses of the accident are liable to push the foreign body farther down, past the glottis, in their efforts to extricate it. Guisez took a penknife from the bronchus in one case and a bone in another; the foreign bodies had lodged in the throat and as a member of the family tried to seize the foreign body with his finger, he pushed it past the glottis. In only 50 per cent. of his total fifty-two cases of foreign bodies in the air passages were the Roentgen-ray findings reliable. Only metal bodies or bone cast a shadow, and the foreign body may change its place at each cough. His youngest patient was 3 months old. Broncho-esophagoscopy has materially reduced the mortality and will still further reduce it as it is more widely used and the technic perfected. Köhler's statistics up to 1910 gave a mortality of 90 per cent., but Jackson reported last year a mortality of only 5 per cent. in 171 cases.

Journal de Chirurgie, Paris

March, XII, No. 3, pp. 281-424

- 55 *Technical Point in Removal of Rectum by Abdomino-Perineal Route. B. Cuneo.
56 *Traumatic Fat Embolism. J. Tanton.
57 Exclusion of Pylorus by Biondi's Technic. S. Porta.

55. Removal of the Rectum.—Cuneo shows by diagrams that ligation of the inferior mesenteric artery as high as possible materially facilitates drawing down the rectum to the incision in the perineum, while it seems to be entirely feasible and harmless. He has done this operation ten times. In five cases he made an abdominal artificial anus and three of the patients died. In the other five cases he fastened the bowel to the anus or just back of it, and all in this group recovered.

56. Traumatic Fat Embolism.—Tanton reviews the history of this subject, the pathogenesis of fat embolism, symptoms and treatment. The diagnosis is based on the dyspnea, rise in temperature, brain disturbances and the lipuria, but these symptoms are seldom all present. Roux thinks that a retarded pulse with accelerated respiration speak strongly in favor of fat embolism. Benestad noticed small purplish spots on the skin of the shoulders, chest, abdomen or front of the thighs in his five cases of fat embolism after fracture, and others have noticed these petechiae on the mucosa and conjunctiva. Fat embolism in the lungs might be mistaken for pneumonia, and in the brain might be ascribed to shock or pressure on the brain from a hemorrhage. The symptoms are seldom fulminating as is liable with blood embolism; as a rule in the fatal cases death does not occur for five or six hours, or days may elapse. The fat embolism may not develop until some time after the fracture—two weeks in Groub's case. As there is so little that can be done in treatment of fat embolism, measures to ward it off are particularly imperative and chief among these the search for atrophy of the bone when it is a question of correcting an ankylosed joint. Roentgenoscopy will reveal whether there is atrophy of the bone at any point in the skeleton. If such is found the reduction of the stiff joint should be done very slowly and gradually, avoiding any sudden crushing of the bone. It is important not to treat more than one joint at a time, and also to do the correction before the bone has developed fatty osteoporosis. Immobilization of the fracture is a further factor in prophylaxis; the urine should be examined for fat every day, especially after a severe fracture.

In case of lipuria and trouble in breathing, he advises opening the fracture and removing the blood and fat accumulated there, hoping thus to arrest or reduce the absorption of fat. Wilms and Gröndahl regard the thoracic duct as the main source of absorption for the fat and suggest that a temporary fistula might divert the fat away from the circulation exposing the thoracic duct in the subclavicular fossa and inserting in it a cannula, left in place for one or three days. Wilms has reported a case in which he successfully applied this measure; the patient had developed subcoma twenty hours after fracture of the radius, with difficulty in breathing, and Wilms made an incision into the thoracic duct. Lymph poured out in abundance, containing numerous droplets of fat easily distinguishable from the granules of fat in the chyle. He kept the fistula open for four days when the condition improved and complete recovery soon followed. The fistula healed spontaneously in eight or ten days. For this operation to be effectual, the fat embolism must be diagnosed early and positively, which is rarely the case; the dyspnea, rise in temperature and brain disturbances are generally attributed to other causes.

Journal de Médecine de Bordeaux

March 22, LXXXV, No. 12, pp. 189-202

- 58 Electricity in Treatment of Deranged Metabolism. (L'ergothérapie passive par la faradisation généralisée. E. Spéder.
March 29, No. 13, pp. 205-226
59 Direct Connection between Certain Parts of the Liver and of the Intestinal Tract. (Sur les rapports fonctionnels des formations lobaires hépatiques et des divers segments du tube gastro-intestinal. Leur rôle en pathologie.) P. Mauriac and H. Sérégé.

Journal d'Urologie, Paris

March 15, V, No. 3, pp. 249-392

- 60 True Pathologic-Anatomic Findings in the Kidneys. (L'histopathologie fine du rein chez l'homme.) M. Chevassu and F. Rathery.
61 Subcapsular Nephrectomy; Three Cases. R. Molla.
62 *Nascent Iodin Fumes in Treatment of Tuberculous Processes in the Bladder. (L'enfumage iodé.) J. N. Normand.
63 Cure of Inoperable Urethrovaginal Cancer in Woman of 26 under Radium; No Recurrence for Two Years to Date. F. Legueu and Chéron.
64 Indications and Technic for the Transvesical Operative Treatment of Vesicovaginal Fistulas; Six Cases. J. Paris and F. Francey.

62. Nascent Iodin Fumes in Treatment of Tuberculous Process in the Bladder.—THE JOURNAL described, 1912, LIX, 488, with an illustration, the method of generating nascent iodine by gently heating iodoform and pumping the fumes directly into the organ or passage requiring treatment. Nor-

mand here relates his experiences with the method in twenty-four cases last year, with a total of 114 sittings or *enfumages*. During the current year he has applied it to 16 other patients, with 116 sittings. He regards the method as indicated in all primary or secondary tuberculous bladder affections except during acute exacerbations. He declares that the method is superior to all others for this purpose; it improves and soothes and seems harmless. The capacity of the bladder increased in about 50 per cent. of the cases, but incontinence did not show any improvement. In the majority of the cases the benefit was prompt and striking. The bladder need not be rinsed out beforehand unless it is much contaminated, and only plain boiled water should be used. About 0.05 or 0.1 c.c. of the iodoform is heated, and when the violet fumes issue from the tip of the cannula the alcohol lamp is set aside and the fumes are pumped into the bladder, stopping when the patient shows signs of pain or a desire to urinate. The fumes are retained in the bladder for from half a minute to two minutes. The sittings are given once or twice a week. The heat must be gentle, and if the iodoform is impure or impaired by exposure to the air or moisture, the nascent iodine vapor is correspondingly unreliable.

Presse Médicale, Paris

April 4, XXII, No. 27, pp. 253-264

- 65 *Advantages of Tansini's Technic for Amputation of the Breast for Cancer. M. Guibé.
66 Local Anesthesia for Phimosis Operation. M. Saissi.

65. **Amputation of the Breast.**—The last communication from Tansini on his technic for radical removal of the cancerous breast was summarized in these columns Dec. 13, 1913, p. 2202. Guibé here gives an illustrated description of it and says that experience is showing that the objections theoretically raised against the method are proving baseless in practical experience. It aims to remove the skin in the region more thoroughly and extensively than other technics, at the same time supplying an adequate substitute by twisting a skin flap around from the back.

Semaine Médicale, Paris

April 8, XXXIV, No. 14, pp. 157-168

- 67 Fracture of the Scaphoid Bone. (Les fractures du scapuloïde tarsien.) F. Lejars.

Beiträge zur klinischen Chirurgie, Tübingen

February, LXXXIX, Nos. 2-3, pp. 291-708

- 68 *Treatment of Diffuse Suppurative Peritonitis. J. Grekow.
69 *Operative Treatment of Traumatic Injury of the Heart. (Zur Frage der traumatischen Herzchirurgie.) H. Zeidler.
70 The Streptococcus Group and Vaccine Therapy. A. Berdnikoff.
71 Serotherapy and Vaccine Therapy in Surgical Gonorrheal Disease. B. Cholzoff and T. Gramenitzky.
72 Pathologic Anatomy and Histology of Suture of Veins. E. Hesse and W. Schaack.
73 Technic for End-to-Side Anastomosis of Vessels. N. Dobrowolskaja.
74 Traumatic Separation of the Epiphysis. E. Klopfer.
75 Salvarsan Therapy in Surgery. G. Iwaschenzoff and W. Lange.
76 Fascia Flap to Close Defect in Dura. W. Lawroff.
77 Roentgen-Ray Diagnosis of Suppurative Processes in the Thorax. O. v. Dehn.
78 Wounds of the Abdomen. (301 perforierende Stichverletzungen des Abdomens, 1902-1912.) M. Magula.
79 Experimental Study of Best Treatment for Peritonitis. F. Pikin.
80 Paratyphoid Peritonitis. G. Petraschewskaja.
81 Treatment of Appendicitis Peritonitis. N. Boljarski.
82 Treatment of Perforated Gastric and Duodenal Ulcer. G. Petraschewskaja.
83 Experimental Study of Compensatory Phenomena after Resection of Intestine. B. Stasoff.
84 Injuries of the Liver; 109 Cases. N. Boljarski.
85 Experimental Study of Digestion and Absorption of Different Foodstuffs with Abnormal Admixture with Bile in the Digestive Apparatus. H. Wiedemann.
86 Experimental Transplantation of the Papilla of Vater. H. Wiedemann.
87 Stab Wounds of the Gall-Bladder. (Stichverletzungen der Gallenblase.) H. Wiedemann.
88 Frequency of Gall-Stones among 17,402 Cadavers. E. and M. Hesse.
89 Technic for Repair after Stab Wound of the Spleen. (Zur Chirurgie der Milzstichverletzungen unter bes. Berücksichtigung der isolierten Netztransplantation.) B. Stasoff.
90 Tests of Functional Capacity with Surgical Disease of the Kidney. S. Liokumowitsch.
91 Treatment of Rupture of Kidney from Contusion; Fifty-Seven Cases. S. Ponomareff.
92 Intraperitoneal Rupture of the Bladder. N. Dobrowolskaja and H. Wiedemann.

68. **Suppurative Peritonitis.**—All the twenty-five communications in this double number of the *Beiträge* are from the great Obuchow hospital at St. Petersburg. Grekow, the chief of the surgical service, opens the list with an analysis of 902 operative cases of diffuse peritonitis during the last twenty years. The mortality varied according to the cause, but it averaged 63.3 per cent. He never witnessed any benefit from pouring oil, with or without camphor, into the abdominal cavity but was quite encouraged by the stimulating action of 500 c.c. of a 5 per cent. solution of grape sugar which was poured into the abdominal cavity and allowed to drain away. A hypertonic salt solution answers the same purpose; both induce copious secretion in the abdominal cavity and thus cause an autoflushing of the peritoneum, as is were, while it renders the pus more fluid. Oil, on the other hand, seemed to favor adhesions and mischief generally. No benefit was observed from vaccine or serotherapy, but a certain favorable influence was apparent after intravenous injection of a 0.1 per thousand solution of silver nitrate. The high mortality in his material was due to the late stage in which the patients were first seen as a rule.

69. **Operative Treatment of Wounds of the Heart.**—Zeidler states that nine of the thirty-one patients recovered after suture of the heart at the Obuchow hospital. He thinks this is the longest series of such cases yet reported from any one institution. A number of the patients have full earning capacity to date, from two to over seven years since the operation. He describes the usual technic in detail and ascribes the fine outcome in some cases to his prophylactic resection of part of the chest wall—cardiolysis—to prevent adhesions and the rigid wall hampering the work of the heart.

Berliner klinische Wochenschrift

April 6, LI, No. 14, pp. 629-676

- 93 Headache and the Eyes. (Kopfschmerz und Auge.) A. Jess.
94 Squint and Headache. (Höhenschielen und Stirnkopfschmerz.) E. A. Heimann.
95 *Nutrient Enemas after Operations on Stomach and Esophagus. (Rectalernährung nach Operationen im Munde und im Schlunde.) G. D'Agata.
96 *The Prognosis for General Anesthesia. W. Stange.

95. **Nutrient Enemas.**—D'Agata states that in Ceci's surgical service at Pisa there has been no instance of aspiration pneumonia during the five years since operations on the mouth or esophagus have been systematically done under local anesthesia or as the patient is recovering from general anesthesia, the head pendant. The patient is then kept in bed, sitting up, for twenty-four hours, and gets up the next day. For a period of ten to fourteen days nourishment is given exclusively by way of the rectum. This latter precaution is chiefly responsible, he thinks, for the freedom from post-operative foreign body pneumonia; the patients do not seem to suffer materially from inadequate nourishment during these two weeks. He gives the metabolic findings in two of the patients to sustain these assertions and demonstrate the absorption and assimilation of nutrient materials from the rectum, and the comparatively small amount rejected and cast off in the stools. The absorption of carbohydrates was approximately normal; less good of nitrogenous substances and least of all of fat.

96. **Prognosis for General Anesthesia.**—This article was summarized as it appeared elsewhere. (See abstract 158, p. 1132.)

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 21, XLIV, No. 12, pp. 353-384

- 97 *Paracelsus in Switzerland. A. Burckhardt.
March 28, No. 13, pp. 385-416
98 Hour-Glass Stomach. (Sanduhrmagen nach Ulcus der kleinen Kurvatur.) L. Gelpke.
April 4, No. 14, pp. 417-448
99 Pernicious Anemia and Uncontrollable Vomiting Cured by Induction of Abortion; One Case Each. A. Goenner.

97. **Paracelsus.**—Burckhardt has recently found among the archives of the university of Basel, Switzerland, records of Paracelsus having been a professor and city physician there during 1527 and at an unusually high salary for those days. But the faculty refused to accept him as a regular member

and he was never given license to practice there. No record has been found anywhere of his having actually completed his medical course, although he had studied at various medical schools and done surgical service on the battlefield.

Deutsche medizinische Wochenschrift, Berlin

April 2, XL, No. 14, pp. 681-736

- 100 *Treatment of Incarceration of Pregnant Uterus. P. Jung.
- 101 *Resection of Ribs Close to Spine and Sternum as Means to Cure Old Processes in the Lungs and Pleura. (Behandlung der Empyeme und der lange bestehenden tuberkulösen Pleuraexsudate mit der Pfeilerresektion.) M. Wilms.
- 102 *Paravertebral Hypostatic Pneumonia in Infants. A. Czerny.
- 103 *Bacteriologic Findings with Friedmann's Remedy. (Beitrag zur bakteriologischen Kenntnis des Friedmannschen Tuberkulosemittels.) L. Rabinowitsch.
- 104 History and Technic of Radiology of Duodenum. O. David.
- 105 Influence of Splenectomy on Pernicious Anemia. A. v. Decastello. Commenced in No. 13.
- 106 The Spirochetes in the Brain in General Paresis. (Spirochäte des Paralytikergehirns.) E. Forster and E. Tomaszewski.
- 107 Delivery with a Slanting Pelvis. (Geburt bei schiefem Becken.) R. Jolly.
- 108 *Orthopedic Substitute After Resection of Ribs. (Orthopädischer Ersatz einer grossen Rippenlücke.) H. v. Baeyer.
- 109 *Treatment of Congenital Dislocation of the Hip Joint. (Angeborene Hüftgelenksverrenkung.) Gaugele.
- 110 *Revival of the Asphyxiated Newly-Born. (Behandlung des Scheintodes bei Neugeborenen.) C. Sakaki.
- 111 *Necessity for Facilities for Research on the Laws of Heredity. (Organisation und Aufgaben eines Reichsinstitutes für Familienforschung und Vererbungslehre.) R. Sommer.

100. **Incarceration of Gravid Uterus.**—Jung warns that no attempt should be made to straighten the uterus until after the bladder has been emptied. If it proves impossible to introduce a catheter, we must not hesitate to puncture the bladder above the symphysis. The rectum must also be cleared out. Then the uterus must be straightened; it helps sometimes to draw down the cervix with forceps to leave more room above. The knee-chest position may help or general anesthesia may be necessary. During this it may be possible to break up adhesions. Once corrected, a pessary should always be introduced to keep things in place, removing it at the fifth month. If no pessary that fits is at hand the patient should lie on her side until one can be obtained. Morphine may also aid in quieting the uterus and warding off danger of abortion from maneuvers. Gangrene of the bladder is always extremely serious; after recovery the bladder generally shrivels and entails great suffering. Incarceration of the gravid uterus is liable to recur and women who have once had it should be warned to seek medical aid at once at a new pregnancy. The best plan is to shorten the ligaments after the puerperium to prevent recurrence later.

101. **Operative Treatment of Empyema.**—Wilms relates a number of instances in which his method of resection of ribs close to the spine and sternum, causing the chest wall to fall in, closed up cavities and led to the prompt healing of old tuberculous pleural effusions and empyemas. No loss of muscle functioning followed. This technic is peculiarly advantageous for old tuberculous processes and it does not expose them to secondary infection as with other technics. The resection can be done at several sittings, and it may be necessary to resect from the eleventh to the first ribs close to the spine, and eventually from the first to the seventh ribs close to the sternum. He thinks that the increasing application of artificial pneumothorax is bound to increase the numbers of empyemas, as an effusion is common after it and this effusion is liable to become infected or the lung be unable to expand from compression by it. In such cases he declares that his technic offers the best prospects of success.

102. **Pneumonia in Infants.**—Czerny calls attention to the marked decrease in the number of cases of what he calls hypostatic paravertebral pneumonia. This is the more remarkable as bronchitis and other forms of pneumonia show no decrease in frequency. He explains it by the progress realized in recent years in infant feeding, so that the diaphragm is neither pushed up by meteorism nor allowed to sag unduly by abnormally low intra-abdominal pressure. As the diaphragm behaves normally there is no occasion for the paravertebral hypostatic conditions to develop which are liable to entail complications on the part of the lungs.

103. **Bacteriology of Friedmann's Remedy.**—Summarized in the Berlin Letter, April 25, p. 1343.

108. **Orthopedic Appliance for Defect in Ribs.**—Baeyer's patient was a man whose lung was unable to expand on account of the sinking in of the chest wall where all the ribs had been cut out five years before on account of empyema. His dyspnea was extreme at the slightest exertion. A solid pad was made to extend from the axilla to the waist covered with soft kid and fitting tight to the chest wall during expiration. This prevented the chest wall from sinking in during inspiration, and all trouble was at an end at once. The article is illustrated.

109. **Congenital Dislocation of the Hip-Joint.**—Gaugele says that he has never had a failure since he has laid special stress on adapting the after-treatment to the rigidity of the joint, and aiming to make it the artificial prolongation of spontaneous correction, always bearing in mind that the shriveling of the capsule is what holds the head in place; the acetabulum does not grow any deeper. He gives an illustrated description of the pelvis and thigh appliance with which he accomplishes this, adjusting it himself from time to time under control of the Roentgen rays. In two and a half years to date the head has not slipped out of place in any of the fifty-two children thus treated.

110. **Asphyxia of the New Born.**—Sakaki recalls that an air pump works much less powerfully when the piston is pushed in slowly, and he deduces from this that the ordinary measures to revive the newly born are less effectual than they might be if a faster tempo were used. Another fact to which he calls attention is that if considerable water is poured on a capillary pipet, air bubbles form and very little water gets into the pipet unless it is well shaken. On these premises he applies a method of reviving the asphyxiated newly born which has never failed him in long years of experience. He holds the child facing him, with his forefingers in the child's axillae, entering from the back. His thumbs meet on the front of the child's throat and prevent its head drooping too far forward. The other three fingers of each hand are applied to the back of the chest. The child thus held firmly with its arms flexed and pressed against its sides, is shaken from the wrists, not hard but rapidly, 120 to 150 times a minute. In a few seconds the air can be heard entering the child's air passages. Then the child is suspended by the feet and the mucus runs out of its mouth and nose. After a few seconds the whole procedure is repeated, unless the child has begun to breathe naturally. Sakaki says that it is simple and easy and can be done before the umbilical cord is cut, and that it is the only way to get air into passages clogged with secretions. The objection that foreign-body pneumonia may be brought on by the procedure, he meets with the assertion that it is better to have a living child, even if it has to be carried through pneumonia later, than a dead child free from pneumonia.

111. **Research on Heredity.**—Sommer comments on the ever increasing sociologic importance of psychiatry and urges that provisions should be made to collect data in regard to forensic psychiatry and the laws of heredity. He suggests that the public health service for the German empire should have some section devoted to these subjects and to psychic hygiene in the widest sense, or a central institution might be founded for the purpose. Among the questions to be thus studied are the effects of intermarriage between blood relations; the regeneration in later generations of inherited morbid properties; congenital feeble-mindedness; connection between the tuberculous taint or syphilis in certain families and constitutional inferiority and degeneracy, with allied questions which can be solved only by industriously compiling and comparing extensive data on these subjects. He has got out a question blank for study of the heredity after intermarriage between blood relations and offers to send it to those who will help in compiling data in this line; address Prof. R. Sommer, Giessen. (A news item in our exchange states that an experiment station for study of heredity in plants and animals will soon be opened at Berlin in connection with the Agricultural College.)

Deutsche Zeitschrift für Chirurgie, Leipsic*March, CXXVII, Nos. 3-4, pp. 209-414*

- 112 Surgical Anatomy of the Exterior of the Base of the Skull. (Basis cranii externa.) A. W. Starkoff.
 113 *Experiences at the Balkan Wars. (Kriegschirurgische Erfahrungen 1912-1913.) A. Dilger and A. W. Meyer.
 114 Angiosclerotic Changes in the Bones. (Eine noch wenig bekannte angiosclerotische Knochenveränderung.) A. Serra.
 115 Experimental Research on Chronic Granulating Osteomyelitis. F. Rost.
 116 Cysts in the External Ear. (Knorpelcysten der Ohrmuschel.) Junkel.

113. **From the Balkan Wars.**—Dilger and Meyer here review their experiences on the battlefield, their 154-page report being profusely illustrated. They noticed that small bullet wounds healed as a rule without infection, regardless of whether they were dressed or not, while extensive injuries usually became infected even when the first-aid dressing had been faultlessly applied. They insist that it is far more important to apply measures for immediate fixation of fractures than to waste time dressing small wounds. With a gunshot fracture the bleeding generally stops as soon as the fracture is splinted, and the temperature often goes down in case the wound is infected. Better results were obtained in the febrile cases by waiting a day or two before incising, unless there was a large accumulation of pus.

Medizinische Klinik, Berlin*March 15, X, No. 11, pp. 443-486*

- 117 *Laceration of the Uterus during Delivery. (Zerrcissung der Gebärmutter unter der Geburt.) M. Henkel.
 118 Meat Poisoning. (Bedeutung der Fleischvergiftung.) Konrich.
 119 Serodiagnosis of Pregnancy. (Umfrage.) Zweifel, Veit, Bumm and others.
 120 Copper in Treatment of Surgical Tuberculosis. (Kupfertherapie bei äusserer Tuberkulose.) K. Stern.
 121 Vital Staining and Deposits of Cholesterol in the Organism. (Vitale Färbung und Cholesterinspeicherung im Organismus.) N. Anitschkow.
 122 Auscultation-Perussion by the Mouth. (Die oralauskultatorische Perkussion.) W. A. Sokolow.
 123 Volvulus in a Hernia. A. Landsberger.

117. **Rupture of the Uterus During Delivery.**—Henkel says that about 87 per cent. of the lacerations occur in the lower segment, and about twice as often on the left side as on the right, and very rarely in the rear. Spontaneous ruptures are the more serious as they generally run across, while traumatic lacerations are usually lengthwise of the uterus. In 95 per cent. of the cases the women have borne other children; preceding twin delivery, hydramnion or hydrocephalus may have strained the uterus wall and predispose it to lacerate. The mortality up to 1895 averaged 70 per cent. and 45 per cent. even in 1901, but nowadays the mortality has been reduced to 18 or 20 per cent. The extent of the laceration is not proportionate to the extent of the hemorrhage, and even when there is extensive hemorrhage it may not appear externally. This is the main point, namely, to bear in mind the possibility of the uterus having torn when apparently all is going well. The only way to be certain is to feel inside the uterus after delivery is complete, and convince one's self that there has been no laceration. This is especially imperative when delivery has been difficult, with disproportion between the size of the child and the birth passages.

The lower segment may have been stretched beyond what it can bear and yet cause no subjective symptoms, but palpation during a labor pause causes pain in it. Tenderness in the round ligaments is also instructive. After the uterus tears, the parts of the fetus above the pelvic inlet become abnormally movable; the contraction ring has vanished and there is no further tenderness in the previously sensitive stretched lower segment. The labor contractions generally stop altogether when the uterus tears. The rupture once diagnosed, the uterus must be emptied at once without regard for the child; if cesarean section is done, the general anesthesia must be profound. Version and forceps are liable to increase the rupture. If the head of the child has passed through the tear, it acts as a tampon and should not be disturbed; ergot may be given to make the uterus contract around the head. Ergot is also useful when the

child has been safely delivered. But the reverse should be the aim when the rupture is merely impending and the woman is to be sent to the hospital. Here everything should be done to relax the uterus and keep it relaxed, morphin in large doses, and if labor contractions start up again, more morphin. Treatment can be only by laparotomy as this alone permits oversight of the true conditions. Tubal sterilization or hysterectomy should never be omitted after rupture of the uterus. The general practitioner's task is to ward off laceration of the uterus and to detect it when it occurs, and then have the woman taken at once to the hospital for operative measures. Five patients have been treated recently by Henkel on these principles, and all were saved although some already showed signs of peritonitis.

Münchener medizinische Wochenschrift*March 3, LI, No. 13, pp. 689-744*

- 124 *Pregnancy Skin Reaction. (Neue Hautreaktion in der Schwangerschaft.) E. Engelhorn and H. Wintz.
 125 Sacral Anesthesia; Epidural Injections. E. Zweifel.
 126 *Prophylaxis and Treatment of Pellagra on Basis of Vitamin Theory. C. Funk.
 127 Differential Cultivation of True and False Diphtheria Bacilli. M. af Heurlin.
 128 No Apparent Basis for Serodiagnosis of Epilepsy. W. Mayer.
 129 *Restoration of Nose. (Zur totalen Rhinoneoplastik.) J. Joseph.
 130 Lengthening of Tendons by Letting Them Work Down of Themselves. (Sehnenverlängerung durch das Rutschenlassen.) O. Vulpius.
 131 Microscopic Control of Prostitutes. (Was leistet die mikroskopische Sekretuntersuchung bei der Kontrolle der Prostituierten für die allgemeine Prophylaxe der Gonorrhoe.) M. Müller.
 132 Increasing Number of Crimes under the Influence of Alcohol among the Young. (Die Alkoholkriminalität der Jugend Bayerns.) K. Rupprecht.
 133 Head Held Slanting with Process in Posterior Cranial Fossa. (Ursache einer bei raumbeschränkenden Vorgängen in der hinteren Schädelgrube beobachteten eigentümlichen Schiefstellung des Kopfes.) O. Muck.
 134 Treatment of Delirium Tremens. Scharnke.
 135 Attempt at Suicide with Seven Times the Maximal Dose of Digalen; Slight and Brief Intoxication. E. Krönig.

124. **The Placentin Skin Reaction in Pregnancy.**—Abderhalden and others have now established beyond question that an alien albumin circulates in the blood of the pregnant woman against which the organism elaborates a protective ferment. Engelhorn and Wintz here announce that this specific sensitization of the organism can be rendered manifest, in the same way as the tuberculin and luetin reactions, by inoculation of the skin with the alien albumin. They assumed that it was derived from placenta tissue and hence used a placenta extract, placentin, for the test. In seventy pregnant women a reaction in the skin was constantly obtained while there was no reaction in fifty-three men and children and non-pregnant women. The only contradictory finding was a positive reaction in one child of 6 with bladder disease. The reaction became positive in pregnant women from the seventh week on and persisted for three or four days after delivery.

126. **Prophylaxis and Treatment of Pellagra.**—Funk calls attention anew to the recent experiences in Rhodesia which showed that when whole cornmeal was used there was no pellagra while it was liable to develop when bolted meal was used. Nightingale's experience with 1,210 cases amply confirmed this although he calls the cases "zeism," not venturing to list them as pellagra cases. Funk expatiates on the importance of avoiding bolted meal, using the whole grain, and using more potatoes, stating that in the potato zone pellagra is unknown. Treatment should be a diet rich in vitamins, supplemented perhaps by yeast preparations and cod liver oil, which are exceptionally rich in vitamins.

129. **Restoration of the Nose.**—Joseph gives a profusely illustrated description of his method of making a new nose. It is a modification of the Italian method, a pedunculated, somewhat oval flap from the arm growing into the nose region. After it has taken root all around and been severed from the arm, he builds up a support beneath with two prism-shaped strips of bone taken from the tibia, one forming the septum, the other the straight profile of the nose. The photographs of the eight cases described show a remarkably good outcome.

Therapeutische Monatshefte, Berlin*April, XXVIII, No. 4, pp. 229-308*

- 136 *Principles and Technic of Organotherapy. W. Weiland.
137 Radium Treatment of Alveolar Pyorrhea. H. Euler.
138 *Treatment on Physiologic Bases of Gastric Ulcer and Allied Conditions. (Einige physiologische Gesichtspunkte in der Behandlung des Magengeschwürs und verwandter Zustände.) H. Januschke.
139 Magnesium Sulphate in Tetanus. F. Mielke.
140 *Protected Names of Proprieties. (Zum Wortzeichenschutz von Arzneimitteln.) W. Heubner.
141 Criminal Prescribing of Morphin. (Fahrlässige Morphinverordnung.) W. Heubner.

136. **Present Status of Organotherapy.**—Weiland reviews the history, bases and mode of application of organ extracts or fresh tissues, advising the general practitioner to give the preference to the organ tissue, fresh or dried, administering it by the mouth as we know that—with the exception of epinephrin—the active substances are not destroyed in the gastro-intestinal tract. With this technic, also, there need be no fear of by-effects such as have followed sometimes intravenous injection. The principle should always be borne in mind never to give a substance of this kind which is capable of augmenting the functioning of an already morbidly functioning organ. What empiric experience has been groping for through the centuries has been placed on an exact and broad basis in recent years by experimental research. The trouble, however, is that when one ductless gland is diseased, others generally suffer with it. This is particularly the case, he affirms, in diabetes, so that it is folly to waste time, efforts and money on futile pancreas organotherapy in cases of supposed pancreas diabetes. But when study of the stools shows that fat and nitrogen are being eliminated in excess, unutilized, then pancreas extracts may have a favorable influence on chronic defective pancreas functioning. He says of hypophysis extract that it seems to have a tonic effect on the heart and vessels, similar to that of epinephrin, but without the by-effects of the latter, so that Falta recommends it for disturbances in the innervation of the vessels. It has also proved useful in asthma, in Weiland's experience. In speaking of ovarian organotherapy, he remarks that when a woman has had her ovaries removed or destroyed and had an ovary transplanted from another woman, any child born to her later must be the child of the other woman.

Transfusion of whole blood is a form of organotherapy of which he makes constant use, having found it of great service in pernicious and secondary anemia. The technic is simple and easy even for the general practitioner: 20 c.c. of blood is drawn from the distended ulnar vein of the donor and, using another needle, is injected immediately into the gluteal muscle of the patient. It acts possibly merely as a stimulant to the bone marrow, but the effect is such that he commends it for the widest adoption.

138. **Physiologic Bases for Treatment of Gastric Ulcer and Spasm.**—Januschke discusses the dietetic, hydrotherapeutic and medicinal treatment aiming to keep the stomach free from sensory irritations, to soothe it so there will be no spastic contracture, and to promote the circulation in the region. Among the measures suggested as liable to be beneficial are small, frequent meals; the more the patient "relishes" his food, the greater the secretion of gastric juice, which is what we have to contend with. The sooner the contents of the stomach are passed along, the less the irritation of the stomach mucosa; an isotonic salt solution is evacuated exceptionally rapidly. An 11 or 14 per thousand solution of sodium bicarbonate or a 15 or 20 per thousand of Carlsbad salt is equivalent to the isotonic 7 or 9 per thousand salt solution. Warm stomach contents are evacuated sooner than cold, and constipation is liable to have an inhibiting effect on stomach evacuation, showing the necessity of keeping the bowels open. Januschke explains with diagrams the mechanism of the benefit from atropin with gastric ulcer. He gives half an hour before each of the three meals 5 drops of a 1 per thousand solution of atropin sulphate, doubling or trebling the dose if it does not relieve, and reducing it if there are signs of intolerance. This

dosage is equivalent to 0.0009 gm. of the drug daily, fractioned, and it can be increased to 0.003 gm. Children over 6 can take these doses, he says. The course has to be kept up for several weeks. His experience has confirmed that psychic influences may affect the motor as well as the secretory functioning of the stomach. Local application of heat to promote the circulation is extremely useful, but the atropin may render it unnecessary. Measures to tone up the general circulation are indispensable in some cases.

140. **Protected Names of Proprieties.**—The Germans are discussing new legislation on the subject and a number of legal points are here brought out. Some recent court decisions in Germany are given which sustain the view that the protected name of a proprietary becomes sooner or later the commercial term for the article in question, regardless of by whom it is made. One court decision stated: "There is no other term to designate the substance in question except its trademark designation, and hence this name must be used for its commercial designation." The buyer must rely on the trademark of the manufacturer for the reliability of the product, not on its protected name. This decision of the highest court in the land is equivalent to the declaration that trademark names cannot be protected, as they have to serve for the generic commercial designation. It is stated further that in Germany during 1913, 1,600 applications were made for trademark names of drugs; 600 more than in the previous year. A number of new drug manufacturing establishments were also founded last year.

Therapie der Gegenwart, Berlin*April, L, No. 4, pp. 145-192*

- 142 *Non-Operative Treatment of Tuberculous Lymph-Nodes in the Neck. (Halsdrüsentuberkulose.) O. H. Petersen.
143 *The Flexible Gastroscope. (Zur Methodik der Gastroskopie.) M. Sussmann.
144 Serotherapy of Pregnancy Dermatoses. (Schwangerschaftsdermatosen.) F. Heimann.
145 Compresses that Do Not Require Changing. (Dauerumschläge.) F. Steiner.

142. **Tuberculous Lymph-Nodes in the Neck.**—Petersen says that in the very earliest days of roentgenotherapy it was applied to enlarged tuberculous cervical lymph-nodes but without much effect until improvement in technic and skill has now brought most excellent results. The swollen lymph-nodes retrogress without injury to the skin, so that the cosmetic outcome is ideal. Another advantage of the Roentgen rays over the knife is that they act on all the nodes, even those with incipient lesions, too minute to be clinically apparent. The beneficial action of the Roentgen ray in these cases is the best to its credit yet, and no more failures are being encountered. The young cells of the tuberculous tissue seem to be exceptionally sensitive to these rays, but the tubercle bacilli themselves do not seem to be directly affected. This is the weak point of the treatment; the bacilli may be merely walled in as in any old encapsulated cheesy process, and the infection may flare up again if occasion offers. The roentgenotherapy should be supplemented by all the general measures usually invoked, and the sittings should be planned to avoid cumulative action. He agrees with Iselin that a total of six full doses (Sabouraud) should be the limit for one course. He waits for a month between each sitting, and then suspends this treatment for several months. Improvement once started progresses even during suspension. There may be a local reaction, swelling and tenderness and even nausea and vomiting after the sitting, but these are comparatively slight and transient. When they occur, the dosage had better be reduced a little. Rollier accomplishes equally good results in his sunlight treatment in the Swiss mountains, but this is accessible only to a few while roentgenotherapy can be applied anywhere. Several typical cases are described in full with illustrations.

143. **Flexible Gastroscope.**—Sussmann's gastroscope has been described elsewhere. Here he only reiterates the indispensable direction that the gastroscope must be introduced with the patient lying on his right side; this overcomes the

curvature of the esophagus to the left where it passes through the diaphragm.

Wiener klinische Wochenschrift, Vienna

April 2, XXVII, No. 14, pp. 357-388

- 146 *Stereochemical Properties in Connection with Cancer. (Ueber Beziehungen sterischer Atomgruppierung zum Karzinom.) E. Freund and G. Kaminer.
147 *Alimentary Galactosuria as Sign of Liver Disease. J. Hatiegan.
148 Case of Transcortical Motor Aphasia with Paralysis and Inability to Read Correctly. A. Finzi.
149 Obsessions and Psychotherapy. (Die Zwangsvorstellungen und ihre psychische Therapie.) H. Kahane.
150 Balneotherapy and Skin Disease. G. Riehl.

146. **Stereochemistry and Cancer.**—Freund and Kaminer have been investigating the atom grouping in a number of stereo-isomeric acids since their discovery that an organic acid which they extracted from the intestine content had a specific action on cancer cells and cancer serum. They here announce that maleic acid and solutions of dextrin displayed this same action.

147. **Alimentary Galactosuria in Liver Disease.**—Hatiegan reviews what has been written on this subject, including Bauer's findings in 320 cases, and then reports his own experiences with 41 cases. The patients took 40 gm. of galactose in the morning, fasting, and the urine was examined every two hours afterward. The findings are tabulated. They harmonize with those reported by others, all testifying to the constant appearance of galactosuria in cases of catarrhal jaundice, with scarcely an exception. Quantitative estimation of the amount of galactose eliminated also throws light on other affections of the liver accompanied by gall-stones. There was no febrile reaction to the galactose. In the cases of catarrhal jaundice the amount of galactose in the urine ranged from 1.95 to 8.8 gm. while with cancer of the liver there was no galactosuria in seven cases and less than 1 per cent. in the five others with one exception in which it was 2.5 gm. This figure was never surpassed in all the other cases of various other liver affections and in the overwhelming majority there was only a fraction of 1 per cent. It is possible to obtain a quantitative estimation of the galactosuria by noting the smallest amount which is followed by elimination of galactose in the urine.

Zeitschrift für klinische Medizin, Berlin

LXXIX, Nos. 5-6, pp. 371-550. Last indexed Feb. 28, p. 738

- 151 Serial Roentgenoscopic Differential Diagnosis of Gastric and Duodenal Benign and Malignant Disease. L. G. Cole (N. Y.).
152 *Mode of Action of Dietetic Measures on the Behavior of the Sugar in the Blood in Diabetics. (In welcher Weise wirken Diätikuren auf das Verhalten des Blutzuckers bei Diabetikern.) L. Wolf and S. Gutmann.
153 Distribution of the Sugar in the Blood. (Verteilung des Blutzuckers auf Blutkörperchen und Blutplasma.) H. Tachau.
154 *Polycythemia and Liver Disease. (Polyglobulie und Lebererkrankung.) M. Mosse.
155 Digitalis Has an Elective Action on the Heart Muscle. (Digitalis und Muskulatur.) E. Reinike.
156 *Malignant Granuloma; Nine Cases. (Klinik und Pathologie der Lymphogranulomatosis.) O. Steiger.
157 Functional Diagnosis of Disease of the Kidneys. (Zur funktionellen Diagnostik interner Nierenerkrankungen.) Frenkel and Uhlmann.
158 Influence of Position of the Heart on the Height of the Peaks in the Electrocardiogram. (Einfluss der Herzlage auf die Grösse der Elektrokardiogrammzacke.) E. Egan.

152. **Effect of Dietetic Measures on the Sugar Content of the Blood in Diabetics.**—Wolf and Gutmann report the results of their study of thirty-five diabetics, including six with chronic nephritis. On a diet free from carbohydrates, the proportion of the sugar in the blood markedly decreased in the other twenty-nine, the amount of reduction usual proportional to the severity of the case. Four patients with the mildest form of diabetes had the sugar content of the blood reduced within normal range in this way. When carbohydrates were ingested, the sugar content in the blood increased and the more rapidly and with the greater intensity the severer the diabetes. When the sugar level peculiar to the case had been reached, no restriction of albumin (by vegetable-fat days) affected the sugar content, not even when the amount of sugar in the urine was remarkably reduced or the urine quite clear of sugar. Oatmeal days

tended rather to increase the sugar content of the blood, if they affected it at all. The sugar content was found abnormally high in those who had died of coma. The six diabetics with chronic kidney disease always had an excess of sugar in the blood although their glycosuria was slight and could be banished by diet. The details of a number of cases, day by day, are tabulated for comparison and the work of others in this line is reviewed.

154. **Polycythemia and Liver Disease.**—Mosse reports a case analogous to a few on record in which polycythemia was accompanied by urobilin jaundice and enlarged spleen, and at necropsy the spleen was found gorged with blood; the red bone marrow showed hyperplasia, and the liver signs of cirrhosis. He thinks the liver affection must be regarded as secondary.

156. **Malignant Granuloma.**—Nearly sixty pages are devoted to this profusely illustrated study of the clinical and necropsy findings in nine cases of the Paltauf-Sternberg type of lymphogranulomatosis. The blood picture seems to be first a leukocytosis; in the florid stage the polymorphonuclear neutrophils predominate, and in the last stage there is pronounced lymphopeny. There does not seem to be any characteristic fever curve, but everything seems to indicate that lymphogranulomatosis is a chronic infectious process in the lymphatic system, displaying a malignant course in its uncontrollable progress. Syphilis and tuberculosis are the main causal factors; almost all the animals inoculated died of miliary tuberculosis. Analogous granuloma tissue developed in three guinea-pigs after intra-abdominal injection of a granuloma tissue suspension, along with the miliary tuberculosis. A number of facts were observed which suggest that the bovine tubercle bacilli are responsible for the disease. Tuberculin of human bacilli origin elicited no reaction in the clinical cases, but a positive reaction was obtained in the one case tested with tuberculin from bovine tubercle bacilli.

Zentralblatt für Chirurgie, Leipsic

April 4, XLI, No. 14, pp. 585-624

- 159 Advantages of the Physiologic Oblique Incision in the Epigastrium. P. Sick.
160 Artificial Inversion of the Testicle in Treatment of Varicocele. R. Frank.
161 *Disadvantages of Nail Extension. (Nachteile des Steinmann'schen Nagelexension.) P. Ewald.

161. **Nail Extension.**—Ewald states that serious disturbances followed in seven of the twenty-nine cases of fracture of the leg in which he applied extension dragging on nails driven into the bone on each side. The fracture healed ideally in every case, but on one patient with a compound fracture the holes left by the nails were the seat of recurring inflammation so that they did not heal up finally until two and one-half years after the operation. In the six other cases the nails had been driven in too close to the ankle—Steinmann insists on a distance of at least 2.5 cm. Lack of this precaution caused in one case painful ankylosis of all the joints in the ankle and foot, with severe atrophy of the bones. The nails had been driven in only 1 cm. above the ankle. After months of ineffectual measures the young man was fitted with a walking splint to relieve the joints, but there is still—after three and a half years—some painful ankylosis of the ankle. In other cases the nails seemed to have contributed to the production of a spur on the calcaneum.

Zentralblatt für Gynäkologie, Leipsic

April 4, XXXVIII, No. 14, pp. 505-544

- 162 The Prognosis in Puerperal Fever. Baeumer.
163 What Can Be Learned from External Examination during Delivery. (Leistungsfähigkeit der äusseren Untersuchung während der Geburt.) O. Hoehne.

Gazzetta degli Ospedali e delle Cliniche, Milan

XXXV, Nos. 36-39, pp. 377-416

- 164 Negative Results of Autoserotherapy in Hydrocele; Four Cases. M. Zannini.
165 Congenital Polycystic Tumors in the Neck. E. L. Piazza.
166 Vulvovaginitis in Children. L. Dozzi.
167 Intermittent Hydronephrosis from Kinking of the Ureter from a Single Kidney. A. Austoni.

Riforma Medica, Naples*March 21, XXX, No. 12, pp. 309-336*

- 168 Production of Antibodies in Animals Treated with the Bacillus of Rhinoscleroma. R. Stanziale.
- 169 Research on the Venous Circulation in the Leg. (Sulla circolazione venosa dell'arto inferiore con vene normali e varicose.) V. Marcozzi.
- 170 The Neutrophils in Pulmonary Tuberculosis. P. Masenti.
March 28, No. 13, pp. 337-364
- 171 *Plague Bacilli Carriers. (Esistenza del bacillo pestoso nell'organismo senza sintomi clinici.) A. Ilvento and M. Mazzitelli.
- 172 *Viscosity of the Blood and the Blood Pressure. (Viscosimetria del sangue e pressione cardio-vascolare.) M. Bucco. Commenced in No. 12.

171. **Plague Bacilli Carrier.**—A young man was kept under surveillance at Tripoli because he had been living with another who had developed the cutaneous form of bubonic plague. The first young man was apparently healthy but the lymph-nodes in the groin and axillae were enlarged on both sides. Puncture of one of the lymph-nodes in the groin revealed plague bacilli. He was evidently a healthy bacillus-carrier and as the foci did not communicate with the exterior he might be called a carrier with closed foci. The infection in this case probably acted as a vaccine, rendering the bearer immune, and such cases are liable to occur in any epidemic of plague.

172. **Viscosity of the Blood and the Blood-Pressure.**—Bucco has been studying on nineteen patients both the viscosity of the blood and the blood-pressure; the latter was abnormally high in all but two. He was unable to detect any special connection between the viscosity and the blood-pressure except that when the pressure was low the viscosity was generally low also. He concludes that to date there have been no laws discovered which render the parallel study of the viscosity and pressure of any special moment for differential diagnosis.

Rivista Ospedaliera, Rome*March 15, IV, No. 5, pp. 221-268*

- 173 *Quantitative Estimation of Urea. (Nuovo ureometro di precisione.) F. Olivieri.

173. **Improved Ureometer.**—Olivieri states that at the Rome university laboratory such extensive use is made of Ambard's "uremic constant," that is, the relative proportion between the amount of urea in the urine and in the blood, that it was found necessary to improve on the ureometers in vogue. He gives an illustrated description of three forms of the instrument he devised to overcome the difficulties of those previously used. His ureometer is maintained at a constant temperature by being immersed in water. There is no rubber used, as this deteriorates rapidly and requires constant surveillance to avoid error. Another feature of his instrument is that the tube branches so that it can be read without letting out the water. The reagent is the usual sodium hypobromite solution. The findings he says can be relied on for precision and constancy and materially facilitate the functional tests of the kidney by the Ambard method. (Described in THE JOURNAL, March 7, 1914, p. 813.)

Semana Medica, Buenos Aires*February 26, XXI, No. 9, pp. 477-532*

- 174 Technic for Serodiagnosis of Pregnancy. (Procedimiento de Abderhalden para el diagnostico del embarazo.) M. Beatti.
- 175 Medicine in Spain in the Early Eighteenth Century. (Aspecto medico de la vida, obras y trabajos de Torres Villarroel.) S. V. de Castro.
- 176 Subtotal Abdominal Hysterectomy for Fibromas or Disease of Ovaries or Tubes. C. T. Carvallo.
- 177 Platinum Powder Best Means to Bring Out Invisible Finger Prints. (Sobre revelacion y fijacion de huellas dactilares invisibles.) A. Lecha-Marzo.
- 178 Psychasthenia. (El concepto de la psicastenia.) L. Schnyder.
March 12, No. 11, pp. 585-636
- 179 *Pubiotomy for Primiparae. J. A. Gabastou.
- 180 Improved Technic for Cultivating the Gonococcus. (Nuevo medio de cultivo del gonococo.) E. M. Gache.
- 181 Uterine Cancer. P. S. Mimbela.
- 182 Evolution in the Vegetable Kingdom. (Nuevas ideas sobre la evolucion del reino vegetal.) V. Delfino.
- 183 Predetermination of Sex. (El determinismo del sexo y la astrogia.) J. Regnault.

179. **Pubiotomy.**—Gabastou reports twenty-seven pubiotomies done on primiparae in his service since 1905; two of the women died from the effects of the chloroform and two from septicemia, so that the mortality of the operations was about 7 per cent. All of the children were born alive except three, one succumbing to the effect of preceding efforts at extraction, one to prolapse of the cord, and the third to the long deliberation before the pubiotomy was attempted. The chief danger of the operation is that as the head emerges the soft parts, lacking the solid natural background, may tear through the vagina up toward the severed pubis. High age of the patient and the necessity for forceps delivery magnify this danger. Laceration occurred in fourteen of the twenty-seven women but it healed smoothly leaving no disturbance in all but two, who succumbed to sepsis. Both of these were infected from the start. One patient was left with a vesicovaginal fistula requiring another operation later. The urine showed that the bladder had been injured in four cases, but all healed under a retention catheter for a few days. His impressions on the whole are very favorable unless infection is already installed.

Pediatrics, St. Petersburg*V, No. 10, pp. 237-316. Last indexed March 21, pp. 976*

- 184 Set of Sixty Models of Infants' Stools. (Modelei dietskikh isprazhnenii.) D. A. Sokoloff.
- 185 Pathogenesis of Rachitis. V. O. Mochan.
- 186 Laryngostenosis. V. A. Bush.
- 187 Purpura in Children. A. Artamonoff. Commenced in No. 8.
- 188 What Is Needed for the Physical Development of Our Youth. E. E. Ivanoff.
Nos. 11-12, pp. 317-447
- 189 Composition of the Blood and Body in General of Children in Relation to Nutrition and Weight. A. O. Karnitzky.
- 190 *Diagnosis of Brain Tumors in Children. I. V. Levich.
- 191 Familial Myxedema; Thyroid Grafting; One Case. V. N. Vorobieff and V. A. Perinoff.
- 192 Three Cases of Myxedema in One Family. N. A. G. Vakar.
- 193 Metrorrhagia of the Newly Born. S. K. Gogitidze.
- 194 Infant Welfare Work in Russia. M. Bezbokaya.

190. **Brain Tumors in Children.**—The necropsy in the first case confirmed the tuberculous nature of the tumor, surmised from the coexisting tuberculous lesions elsewhere. But conditions in the second child offered a prospect for an operative cure, and the tumor proved to be a hemangioma in the cerebellum. The patient was a girl of 9 suffering from headache and vomiting with increasing difficulty in walking and in vision. When she attempted to walk alone she fell forward, and toward the left side. The left leg was weaker than the right; the tendon reflexes stronger on the left side; the pupil reflexes were abolished and there was no perception of light. The pains were located in the occipital region and there was marked nystagmus and paresis of the left facial nerve. The mind was not affected, and the child seemed normal otherwise. There was no history of syphilis or tuberculosis and the rapid development of the trouble suggested a sarcoma. Four months after the operation the child could walk without aid; there is some perception of light and the pupil reflexes have returned to some extent.

St. Petersburg medizinische Zeitschrift*March 15, XXXIX, No. 6, pp. 73-83*

- 195 Gynecologic Peritonitis. (Pelvioperitonitis exsudativa.) L. von Lingen.
- 196 *Occurrence and Course of Blood Diseases. (Sog. Blutkrankheiten.) O. Moritz.

196. **Blood Diseases.**—Moritz states that in 7 of his 31 cases of pernicious anemia the bothriocephalus was responsible and one patient died before the helminths could be expelled; twenty-two heads were found in his bowel. All in this group had fever, systolic murmurs and retinal hemorrhages. In 4 other men and 4 women the anemia was apparently of the pernicious type but it had followed chronic and severe genital or hemorrhoidal hemorrhages; these too, all had fever, most of them also achylia, edema and enlargement of the liver. In the elderly this picture may suggest heart disease. Moritz made this blunder in one case and treated an elderly man with edema, heart murmurs and

dyspnea, on the mistaken assumption of myocarditis for several months, and finally sent him to Kissingen for a course of treatment, before the idea of examining the blood occurred to him. This altered the diagnosis and under a four-months' course of treatment with repose, dieting and arsenic a complete cure was realized. In 2 other cases of pernicious anemia malaria could be incriminated; the interval since the malaria was fifteen years and one year. Both had fever but no malaria germs could be discovered; one had paroxysmal hemoglobinuria and both had achylia and enlarged spleens. The reds numbered 1.7 and 1.3 millions, neutrophils 59 and 69 per cent. In 8 other cases no cause for the pernicious anemia could be found except lack of proper food and ventilation. Two were materially improved and regained their earning capacity for twelve or eighteen months, but all in this group died in the course of two months up to three years. There was a history of syphilis in 2 twenty and eight years before. Achylia was pronounced in all this group.

The constancy of achylia in all his cases has convinced Moritz that insufficiency of the digestive tract is the basis for pernicious anemia. Fatty degeneration of the liver and hyperplasia of the spleen were found invariably at the necropsies. In 4 other cases young men succumbed to a fulminating acute anemia, some form of infection having evidently induced a hemolytic sepsis. One tabetic patient developed pernicious anemia. Moritz knows of only one case on record in which a young man with severe anemia after recent syphilis was completely cured with arsenic and calomel. One of the 8 patients with severe myeloid leukemia improved remarkably after he had treated himself à la Baunscheidt, a large number of superficial abscesses developed at the points of the multiple punctures of the skin.

All his chronic myeloid and 14 lymphatic leukemia patients improved under treatment, but the blood picture never returned to normal. One elderly patient with lymphocyte leukemia for two years was restored to clinical health under Roentgen treatment and the improvement has persisted three years to date. The leukocyte count in another was restored to normal but the patient died in an acute exacerbation. One elderly man had numerous very much enlarged glands and he was given Roentgen treatment for five or ten minutes a day, but the total in eleven days was not much over one erythem dose. No change was noticed until suddenly all the glands subsided rapidly in size, and fever and diarrhea set in, fatal in three days. With myeloid leukemia such mishaps are less to be feared. Benzol in 3 cases was followed by improvement but no cure was realized with any measures in any case of leukemia. All his 5 patients with Hodgkin's disease died; a lymphosarcoma was a necropsy surprise in one case, the patient the father of one of the young men with acute leukemia. In his 4 cases of Banti's disease, in 2 the spleen rapidly subsided in size after a severe intestinal hemorrhage. Extensive varices below the umbilicus were a marked feature of one of these cases. His experience suggests further a familial element in pernicious anemia and that every effort should be made to cure mild cases of anemia and ward off the pernicious form.

Norsk Magazin for Lægevidenskaben, Christiania

April, LXXV, No. 4, pp. 369-504

- 197 *Importance of Daily Physiologic Control during Training for Athletics. (Betydningen av anatomisk-fysiologiske undersøkelser av idrætsmænd.) P. Torgersen.
198 The Leukocyte Curve, etc., with Appendicitis. (Appendicitens patologi.) S. Widerøe.

197. **Anatomic-Physiologic Control in Athletics.**—Torgersen examined repeatedly 200 athletes, some of them world champions—a total of nearly 600 examinations, besides 1,200 examinations of members of a rowing crew. All his findings confirm anew the absolute necessity for skillful daily medical examination during training. There have been hitherto no standards to go by, and the tables and photographs here presented aim to supply this lack. A record should be kept of each individual, with the physical measurements, and findings in heart and lungs, kidneys, blood-pressure before

and after exercise, and vital capacity alone and proportional to the weight. One champion athlete had 71.8 c.c. vital capacity per kilogram of weight. His nearest competitors had only 68.1 and 64.7 c.c., respectively. The marathon runner with legs that measured 84.1 cm. won over those that measured 83 or 82.6. The marathon runners examined measured from 171 to 158.5 cm. and weighed from 65 to 49.5 kilograms, with a vital capacity of 4,500 to 3,600 c.c., much above the average.

The blood-pressure rises after brief exertion but then it falls, and the drop is earlier and lower the weaker the constitution and the less perfect the training. The younger set react with the most marked extremes. The appearance of albumin in the urine was always accompanied by an exceptionally low drop in the blood-pressure, accelerated pulse, great loss of weight and subjective ill feeling, all pointing to a disproportion between the effort and the physical capacity at the time.

One of his tables gives the average of 1,200 examinations of a rowing crew, and he urges others to keep records along the same lines, recording for each the weight the first and last day of training; the highest and lowest weight; the highest and lowest change in weight after rowing, and the average. Also the lowest and highest and average blood-pressure before and after the practice; the greatest, smallest and average drop, and the six similar findings for the pulse. His average for four juniors and four seniors was respectively: loss of weight after rowing practice, 656 and 527 gm.; blood-pressure before, 107 and 110; blood-pressure afterward, 96 and 103; drop in blood-pressure after rowing, 11 and 7; pulse before, 74 and 64; pulse afterward, 88 and 76; The range of loss of weight after a rowing course was, among the juniors, from 1,000 to 1,350 gm.; among the seniors, from 200 to 1,000. By examining in this way every day during training, a complete oversight of the physical equipment can thus be maintained, and the work be graduated to the physical capacity at the time. This is the only way, he insists, to get the best results from athletics for every one interested and avoid irreparable injury to those whose ambition outstrips their body.

Ugeskrift for Læger, Copenhagen

March 26, LXXVI, No. 13, pp. 540-596

- 199 Fluctuations in Weight of the Tuberculous during Sanatorium Treatment. (Vægtsvingninger hos Brystsyge under Sanatoriebehandlingen.) N. J. Strangaard.
April 2, No. 14, pp. 597-634
200 *The Balance-Sheet of Sanatorium Treatment in Denmark. (De paa Silkeborg Folkesanatorium opnaaede blivende Resultate.) S. Bang.

200. **Sanatorium Treatment of Pulmonary Tuberculosis.**—What has been accomplished by the public sanatoriums in Denmark during the thirteen years since they were founded is the question which Bang seeks to answer. He says that conditions are so different for men and for women that they should be considered separately. Five years after discharge from two sanatoriums, 38.9 and 36.6 per cent. of 731 and 1,304 men had full earning capacity; 44.9 and 31.6 per cent. had died. Classifying according to the stage of tuberculosis, it is surprising to find full earning capacity in 29 and 41.5 per cent. of those in the second stage, and in 10 and 15 per cent. of those in the third stage. He thinks that these figures show that in many cases an old stationary tuberculous affection was accidentally discovered and its torpid nature not recognized. The patient was sent to the sanatorium but the fact that the process kept mild and torpid should not be credited to the sanatorium, as the case would have progressed favorably with or without treatment. Going over the records of the cured cases one by one, he has found extremely few in which one could say that without the sanatorium treatment the course would have been unfavorable. Mere training in hygiene and prophylaxis does not require many weeks, so that he thinks a good part of the work done by the sanatoriums was wasted from lack of discrimination in selecting the persons who actually require and will benefit by the course of treatment.

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THE SYMPTOMATOLOGY OF TRIFACIAL NEURALGIA

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CHICAGO

Identified as a morbid entity more than 120 years ago,¹ seen by almost every practicing physician, and known now as always by its clinical features alone, some misbeliefs concerning the symptomatology of trifacial neuralgia, *tic douloureux*, are more or less current. Hence the following brief review of the subject based on 220 personal cases, although only 200 have been tabulated for statistical purposes.

So far as I have been able to ascertain, these were all cases of true trifacial neuralgia, typical *tic douloureux*, *la grande névralgie* of Lévy;² not migraine, not sinus disease, not herpes or other symptomatic pains about the face. For, as Head³ says, "This is a definite disease of the nervous system"; as a German colleague put it, *etwas für sich*, something *sui generis*, not to be confused in nature or doings with anything else. In most of my cases the diagnosis was confirmed by results of treatment. All doubtful ones have been excluded.

SEX

Of the 200 cases tabulated, 96 were in men, 104 in women. Some observers have found the disease more frequent in women, others more frequent in men.⁴ Probably the difference is negligible. At one time in my experience I had seen more cases in men than in women. Dana⁵ thought it "at least three or four times as frequent in women under 40 as it is in men" (ten women, three men), but probably larger statistics would change his statement. Of my cases which began under 40, twenty were in men and twenty-six in women. But the first seven with onset under 40 were all in women.

AGE

The age of the patients when seen by me has not been tabulated. As the disease had existed from a few weeks to more than twenty years, such a table would have no value and might be misleading. But the age at onset may be noted, especially in view of the opinion expressed by a great observer of wide experience that the malady is essentially one of "the degenerative period of life."⁵

TABLE 1.—AGE AT ONSET OF TWO HUNDRED CASES

| Decade | Number | Per Cent. |
|---------------|--------|-----------|
| First | 1 | 0.5 |
| Second | 3 | 1.5 |
| Third | 11 | 5.5 |
| Fourth | 37 | 18.5 |
| Fifth | 56 | 28 |
| Sixth | 59 | 29.5 |
| Seventh | 25 | 12.5 |
| Eighth | 8 | 4 |

The most precocious case in this series began at 7, and I have seen another not included in the table which began at 8. As these are quite exceptional cases, probably much more exceptional than my statistics would indicate, a few words about them seem to be in place.

CASE 1.—The first patient was 34 years old when first seen by me, at which time the disease was typical. He had been operated on nine times for the pain and twice for closure of a salivary fistula incidentally caused by one of the other operations. The operations for pain were followed by relief for about the usual period. I had him under observation for more than two years, relieved him by injections of alcohol, and the diagnosis never was in doubt. Of course, I have only his statement as evidence that the disease began at the age of 7, but he gave such a straight and characteristic history that I see no reason to doubt it. For the first four years he suffered for only a week or two each year—intervals which are not at all unusual in this disease—and the pain was confined to the right inferior maxillary branch. After that the periods of pain became more frequent and prolonged and spread to the middle branch. Throughout the pain showed the peculiar, almost pathognomonic features presently to be noted.

CASE 2.—The other patient, who was seen but once, in 1902, when he was 40 years old, began to have facial neuralgia on the left side at the age of 8. During boyhood the attacks recurred about every one to three months and lasted for about a month, though at 13 he had a free interval of one year. Since then the pain has recurred every few months, an attack lasting for from one to five or six months, and has been characteristic of trifacial neuralgia. His general health was good and the results of physical examination were negative except for a slight intention tremor, more distinct on the right side. A recent letter (Jan. 29, 1914) from his physician says that on the treatment I advised (castor oil and aconitin) he improved, but "his attacks still stay with him"; though "they are less frequent, less severe and of shorter duration than ten years ago. . . . His general health is and has been good."

In three cases the disease began at the age of 75, with nothing unusual in symptomatology. More than half the cases (57.5 per cent.) began between 40 and 60, about equally divided between the fifth and sixth decades. The latter may be placed within the involutional period; the former hardly. Certainly neither belongs to the realm of physiologic senility; but the question at once arises, Did not these patients belong to the precocious senile, not old in years but old in tissues? This question must be answered in the

1. Fothergill, 1792, Valleix, 1841.

2. Lévy, Fernand: *Essai sur les névralgies faciales*, Paris, 1906.

3. Head: *Allbutt's System of Medicine*, vi, 725.

4. Krause, 9 women to 3 men; Rose, women 5, men none; Horsley, 11 men to 8 women; Head, 7 men to 4 women. Bernhardt's compilation gave 97 men, 52 women; Erb's 51 women and 21 men. Dana's personal statistics were men 20, women 37.

5. Dana, Charles L.: *Natural History of Tic Douloureux*, THE JOURNAL A. M. A., May 5, 1900, p. 1100.

negative. Putting aside the wear and tear of pain, the pull-down of loss of sleep and the depletion of relative starvation, I cannot say that these patients were older than their years. Even if my observation and judgment on this point were at fault, how shall we account for the forty-eight cases (24 per cent. of all), beginning under 40? And how is it that only thirty-three cases (16 per cent.), began over the age of 60? How explain the cases in which the disease has existed for fifteen or twenty years without notable change in vessels or other organs? Further, many of the patients, aside from the neuralgia, presented a picture of robust manhood or womanhood. For instance, a patient now 57 years old, whose neuralgia began twenty-four years ago and was very severe for sixteen years but has been suppressed by treatment for the last eight years, is in perfect physical condition and seems much younger than she is.

A lawyer, aged 62, who did not look over 45, had not had a day free from pain for five years, "had not been in a bed for three months," but got some sleep in a chair after drinking from a pint to a quart of whisky each evening, and had taken not less than half a pint daily for five years, was physically sound. I followed the case for over three years, at the end of which time he showed signs of cirrhosis of the liver, but otherwise was unusually vigorous in body and mind.

Then, I have been asked whether the disease in old persons is not different; whether there is not a senile and juvenile type.⁵

This question, also, my experience answers in the negative. The symptomatology is the same in the young and the old, the strong and the weak, in those with intercurrent disease and in those without it. It is indeed a disorder eminently idiosyncratic; of unknown nature but of unmistakable individuality.

PREDISPOSITION

The diversity of opinions concerning predisposition almost forces one to conclude that nothing definite is known. Head⁶ says that these patients "are in no sense of the word neurotic," Oppenheim⁷ that "neuropathic predisposition (*Belastung*) plays an important rôle in the etiology," and Grasset⁸ that the nervous temperament is the principal predisposing influence. Lévy² divides them into (1) *des arthritiques*, (2) *des neuro-arthritiques* and (3) *des nerveux*. Exactly what a Frenchman means by "arthritic" is about as difficult to say as what an American means by "lithemic" or "rheumatic" or an Englishman by "gouty." The terms are all vague, essentially different but loosely synonymous.

The problem of neuropathic predisposition is a poor one for statistical solution. The answer must largely be one of opinion. I have the impression that my patients were rather more nervous than the average, but certainly as a class they have not been essentially or even notably neurotic. That there is no direct and similar heredity in facial neuralgia seems quite clear. Though in seven of my cases there was a history of this disease in ascendants or other relatives, in no case was a parent affected.* Not one of my patients had a psychosis, not one epilepsy, and

not one was mentally defective. Outspoken hysteria has been conspicuous by its absence. A few have been unstable and emotional, but when a person for two or ten or twenty years has had paroxysms of excruciating pain—pain started by eating, drinking, talking and washing the face—pain that may suddenly awaken him out of a sound sleep or jab him at any moment during the day—we cannot reasonably expect that mental stability and emotional equipoise called normal. Particularly worthy of note is the fact that only one of the 220 patients had really contracted the morphin habit. Of course many of them were taking morphin for the pain, but when treatment stopped the neuralgia, the patients stopped the drug. The exception was the man in whom the disease had begun at the age of 7, and his morphinism was not bad.

In one respect, however, trifacial neuralgia does seem to have a neuropathic relationship. Some years ago Putnam⁹ called attention to some relations of migraine to neuralgia, and Dana⁵ as well as Lévy¹⁰ and others have noted their frequent association. In my own cases of neuralgia, migraine has been by far the most frequent neurologic concomitant. Of 200 patients forty may fairly be said to have had migraine, certainly a much higher ratio than that observed in the ordinary run of patients.

SIDE AFFECTED

In 62.4 per cent. of the cases the trouble began on the right side, in 37.1 per cent. on the left, and in one case, 0.5 per cent., simultaneously on both. These figures agree fairly well with those of Sicard,¹¹ who has seen a very large number of cases. Dana's¹² figures are right, twenty-two, left, fourteen. The ratio changes somewhat if we consider the cases not at the time of onset but when under observation, because by that time some of them have become bilateral. My statistics are: right, 52.3 per cent.; left, 40.9 per cent.; bilateral, 6.8 per cent.¹³ In no case, however, was there severe neuralgia on both sides at the same time. In a few there was severe pain on one side, with more or less frequent twinges on the other. In the majority the pain on one side, having spontaneously disappeared or yielded to treatment, appeared on the other. In only one case, so far as I know, did this alternation occur more than once. In this case the pain alternated every few days. In one case the two infra-orbital nerves had been simultaneously operated on, with relief, and in another case cutting one infra-orbital nerve had relieved pain on both sides. For the preponderance of the right side I have no explanation.

BRANCH INVOLVED

One of the most current misconceptions of the symptomatology of trifacial neuralgia relates to the location of the pain. Apparently only those with considerable experience who at the same time have given the subject careful attention have noted the truth. Obviously much of the error is due to uncritical repetition of earlier statements. I have asked many general practitioners which branch they con-

6. Allbutt's System of Medicine, vi, 732.

7. Oppenheim: Lehrbuch der Nervenkrankheiten, Ed. 6, p. 736.

8. Grasset: Maladies du system nerveux, ii, 114.

* Since writing this passage I have seen one patient who says her mother has the same disease.

9. Putnam: Boston Med. and Surg. Jour., 1896, cxxxv, II; Jour. Nerv. and Ment. Dis., March, 1900, p. 129.

10. Lévy: Essai sur les néuralgies faciales, p. 47.

11. Sicard: Personal communication to the author.

12. Dana, Charles L.: Natural History of Tic Douloureux, THE JOURNAL A. M. A., May 5, 1900, p. 1100, footnote.

13. This includes cases not bilateral when first seen, but which became so during observation. Compared with the experience of others, this is a high proportion of bilateral cases.

sidered the most frequently involved, and have almost invariably received the same answer: the first or supra-orbital. From not a few good neurologists I have had the same reply. Needless to say, many standard text-books make the same statement. For instance, Bernhardt¹⁴ gives the relative frequency as first branch, 101; second, twenty-seven; third, eleven. Jelliffe¹⁵ says, "the ophthalmic branch the oftenest, the inferior maxillary least often." Wertheim Salomonson¹⁶ says that he found the first branch involved in 39 per cent., second branch in 20.2 per cent., and third in 32 per cent. He does not account for the remaining 8.8 per cent. Even Oppenheim¹⁷ in his matchless work says, "Particularly often is the first branch affected." This is wrong. It is by far the least frequently involved. My figures are as follows: The trouble began in the supra-orbital branch in only 8.5 per cent. of the cases, in the middle or infra-orbital branch in 49 per cent., in the third or inferior dental division in 25 per cent., and in two or more branches in 7.5 per cent. But even this small percentage for the first branch is greatly reduced if we analyze the cases as seen. In only two (1 per cent.) of the 200 cases when first examined by me was the pain limited to the first branch. Could all of the patients have been seen at the time of onset, I believe that the foregoing 8.5 per cent. would be considerably reduced because of a strange peculiarity of this disease, which will be described below but may be mentioned here. In some cases, while the pain is particularly troublesome in the first branch, it really originates in the second branch, which was primarily affected but in which the pain is less severe. Later on, in giving the history of his trouble, the patient forgets the trifling pain in the middle area and states that the pain began in the supra-orbital region. I may add that others who in the last few years have studied this disease have come to a conclusion similar to mine.¹⁸ The cause of this gross error, I believe, lies in the former confusion of migraine (long popularly known as "neuralgic headache"), the pain of sinus disease and probably supra-orbital herpes with true neuralgia.

For the other branches an analysis of my cases shows, in round numbers, the following incidence: Pain limited to the second division, 11.5 per cent. (right, 7 per cent.; left, 4.5 per cent.). Pain limited to the third division, 17 per cent. (right, 11; left, 6).

Pain in first and second divisions, 15 per cent. (right, 10; left, 5). Pain in second and third divisions, 28 per cent. (right, 16; left, 12). Pain in all three branches, 10 per cent. (5 per cent. on each side). The sum total of the involvement of each branch, whether alone or in combination, is shown in Table 2:

TABLE 2.—INCIDENCE OF PAIN ACCORDING TO BRANCH INVOLVED

| Branch | —Times— | | Cases Per Cent. |
|--------------|---------|-----------|--------------------|
| | No. | Per Cent. | |
| First | 71 | 18.5 | 35.5 |
| Second | 167 | 43.6 | 83.5 |
| Third | 145 | 37.9 | 72.5 |

The most useful conclusion to be drawn from all of these figures is that *pain limited to the supra-orbital region* probably is not neuralgia at all. Of consider-

able interest, however, is the fact that in 47 per cent. of the cases, pain was limited to one division of the nerve, in 43 per cent. to two branches, and that in only 10 per cent. were all three involved. These figures, it seems to me, make it difficult to assume that the disease is located in the gasserian ganglion. But of this more farther on. It is also to be noted that in no case was there pain in the first and third divisions, the second being free. Two branches being involved, the combination always was first and second or second and third, the latter combination being almost twice as frequent as the former.

CHARACTERISTICS OF THE PAIN

This is a short chapter, and yet here also are found some misapprehension and a little misinformation.

The pain of trifacial neuralgia is essentially *short-lived*. To this rule I have known only a single exception. Nearly always the disease begins with an instantaneous sharp pain and for some time is manifested by a repetition of such pains. Shoot, stab, jab, flash, dart, knock, zipp, twinge, sting, shock, are words patients have used in the description. Not infrequently the pain is likened to that caused by touching an exposed nerve or to the shock of an instantaneous electric current or to a bit of zigzag lightning in the face. Occasionally the inception is by a severe pain of appreciable duration, say a few seconds, and very rarely it is preceded for a short time by a vague sense of discomfort or paresthesia of some sort.

In exceptional cases the patient may have nothing but the instantaneous pains for years, but ordinarily after some months they become of longer duration, constituting a paroxysm, but they are always short. I have seen one case in which the single pains lasted fifteen minutes and one in which they were as long as five minutes. These were the longest. Pains of more than two minutes are very exceptional. In bad cases, patients may state that the pain continues for an hour or more; but these are instances of very rapid succession of brief paroxysms.

The moral is that any pain about the face, forehead or temple which is a steady ache, even with exacerbations, or which is continuous for half an hour or more, is not trifacial neuralgia. Nor does the pain of this disease throb with the pulse. My one exception is as follows:

CASE 3.—A woman, aged 58, who gave a history of migraine from the age of 30 to the menopause at 48, was seen, Sept. 22, 1908. Four years before she had begun to have a steady pain in the right upper alveolus. (There were no teeth.) The pain remained limited to this region until March, 1908, when it extended upward in front of the ear and for the last two months had involved the right forehead. The pain was constant, worse at night and so severe that she required morphin every night. The patient said that the pain was deep-seated, "in the bones." It was not aggravated by eating, talking or washing the face. Some months before the onset of the pain, two tumors, said to be sarcomas, had been removed from the scalp of the right occipital region. The heart was hypertrophied, second aortic sharply accentuated. The urine contained a trace of albumin and numerous granular and hyaline casts. Although I could find no other evidence of organic disease, and a competent rhinologist could find no disease of the accessory sinuses of the nose, I declined to treat the case as one of neuralgia and sent the patient back to her physician.

She returned just three years later to demonstrate my mistake. During the winter following her visit to me the

14. Bernhardt: Nothnagel's Specielle Pathologie und Therapie, xi, 245.
15. Jelliffe: Osler's Modern Medicine, vii, 777.
16. Salomonson, Wertheim: In Lewandowsky's Handbuch, ii, 16.
17. Oppenheim: Lehrbuch der Nervenkrankheiten, Ed. 6, p. 738.
18. Lévy: Essai sur les névralgies faciales, p. 147. Sicard: Personal communication. Alexander: Personal communication.

pain began to be paroxysmal. It was still more severe at night, though during the day she was seldom free for more than half an hour. Not until about a year before had she noticed that at times washing the face, eating, etc., would start the pain, but this characteristic feature (see below) had since then been constant. I found, however, that it required a sharp rub of the skin or percussion over the malar bone to start a paroxysm. Generally it was spontaneous. There was no more evidence of local or central organic disease than before, and she was relieved by injections of alcohol. After a time the pain returned, more typical in character, and June 28 and July 1, 1912, she was again injected, there being at this time no cause to question the diagnosis. A report from her physician, Feb. 21, 1914, says that "she is getting along fairly well, not enough pain to prevent her from going about normally." "She is gaining in weight and seems quite contented." So I think it is fair to conclude that the case is one of trifacial neuralgia and not pain due to some undiscovered organic disease.

The pain of trifacial neuralgia is *severe*. In the very beginning the little darts of pain may not be very distressing, and occasionally in a developed case the patient has between his paroxysms minor pains, or paresthesias or discomfort; but these are negligible features. The real pain, be it for one-tenth second or five minutes, hurts with a poignant, piercing hurt. In most cases it is excruciating. Consequently, any dull or throbbing ache, sense of pressure or weight or drawing, or a feeling of heat or cold, however distressing it may be, is not facial neuralgia.

One of the most striking features of the pain, one which is of paramount value in diagnosis, is that it is started by *relatively slight peripheral irritation*. A sharp rub with the finger somewhere on the face or in the oral cavity may be counted on to start it.¹⁹ This test may not apply at any given moment, but if repeated at different times it is practically certain to succeed. In many instances the peripheral stimulus may be wondrously slight. A touch on the moustache, a breath of air, a fly alighting on the face, simple nictitation may suffice.

If, then, we find that our patient is eating and drinking (especially cold liquids) washing the face and cleaning the teeth with impunity, we may be pretty certain that he is not suffering with trifacial neuralgia. A patient who has been *rubbing* the face with liniments, making cold applications or using massage,²⁰ has something else. Indeed, if the sufferer indicates the seat of the pain by touching the face, a doubt that he has neuralgia at once arises. Obversely, he is constantly on guard, warding off any contact in the sensitive area. He shrinks when the examiner approaches to test sensation.

This serves to introduce what I have called *dolor-genetic zones*.²¹ By such a zone I mean an area in which a slight irritation starts the pain. In a bad case with involvement of all three branches, a touch or momentary friction anywhere in the distribution of the fifth nerve may start a paroxysm. Sometimes, however, these zones are peculiarly restricted: a spot on the lip or at the wing of the nose no larger than a finger-nail. Such are the cases in which tapping a tooth, and only one, starts the pain. In the begin-

ning the pain may be confined to the point from which it is started: to what one might call the trigger area. I have seen one case in which a wedge-shaped piece had been excised from the lip because at the time of the operation the pain was started by touching this spot and was confined to it. We know how many hundreds of thousands of teeth, good and bad, have been sacrificed to this disease, though, of course, they were not all "trigger teeth."²² But an interesting and unexplained²³ variation of the pain-genetic or trigger zones is that the zone may be in one place and the pain in another. Touching the lower lip may cause a pain not there but in the tongue. Rubbing the nose may start a shoot of pain or a severe paroxysm in the upper lip, the nose being painless. Stranger still, the trigger zone may be in the distribution of one division of the nerve and the pain in another. Rubbing the chin may cause pain not in the inferior maxillary distribution but in the upper lip or wing of the nose. Ordinary use of the handkerchief may cause a shoot of pain over the eye. A number of times I have known the act of swallowing to cause pain in neither the second nor the third division, but in the supra-orbital branch. Indeed, this correlation of second to first branch is relatively frequent, but I recall only one case in which the reverse order obtained: the trigger area in the supra-orbital and the pain in the superior maxillary. With one exception, too, the trigger area has been in the same or in the adjoining division. In one case rubbing the lower lip caused pain in the forehead, none in the lower or middle branch; but this patient had been injected about two and a half years before.

Needless to say, the trigger zones are of considerable importance in relation to local treatment. Obviously it is useless to operate only on the supra-orbital nerve if there be a trigger zone on the cheek, or to attack the second division at the infra-orbital foramen if deglutition starts pain. In fact, it is better to attack first the branch supplying the trigger zone. In a number of cases treatment of the middle branch alone has sufficed to suppress pain in the supra-orbital.

Perhaps this is the best place to note that occasionally the pain irradiates into cervical nerves and even down the arms, and that in a couple of instances using the arms or percussion of them might start the facial pain.

Just here a few words may be said of the classic *tender points* or pressure-points of Valleix; and these words in substance are, *non sunt*. So far as trifacial neuralgia is concerned the points do not exist, many standard text-books to the contrary notwithstanding.²⁴ Firm pressure of any nerve of sensation against bone is painful—as witness the ulnar at the elbow. Consequently, pressure at the mental or infra-orbital foramen is painful, and every schoolboy knows that pressure at the supra-orbital notch hurts. It is also true that in tic douloureux, pressure at one of these points often will start a paroxysm of pain and that the patient is exceedingly timid about having them

19. For exception see Case 3.

20. I have known one or two exceptions to this rule. In a not very severe case the massage instantly starts the pain, but if persisted in may not continue to do so, and in one or two instances the patient thought that he felt more comfortable after massage. In the same way, when the patient begins to eat, the jabs of pain are frequent; but if he persists, after a little time he may eat in comfort.

21. Patrick, Hugh T.: The Technic and Results of Deep Injections of Alcohol for Trifacial Neuralgia, THE JOURNAL A. M. A., Jan. 20, 1912, p. 155, Alge-genetic would be better.

22. The last (sixth) edition of Oppenheim, which probably is the best existing exposition of modern neurology, contains the perfectly futile advice to remove all carious teeth that are sensitive to pressure or percussion, especially if a paroxysm can be started by such pressure or tapping. If a carious tooth, then why not a sound one? As a matter of fact, so far as I can ascertain, extraction of teeth never cures the disease.

23. Presumably these phenomena belong with the "referred pains" so fully described by Dana and Head; but a satisfactory explanation is still wanting.

24. So far as I know, Romberg (Arch. f. Psych., 1868) is the only one who categorically denies their occurrence.

touched; but by that same token brushing the skin lightly with the finger will also start the pain and, as before emphasized, the sufferer is mighty chary of touching the face anywhere within the trigger zone. Furthermore, these points are abnormally tender in manifold painful affections about the head and face. I may instance disease of the antrum and frontal sinus, alveolar abscess, specific periostitis, glaucoma and notably tenderness at the supra-orbital notch in frontal migraine. In short, the tender points of Valleix as such are absent in *tic douloureux*, present in many other affections, and are a semeiologic delusion and a diagnostic snare.²⁵

DURATION AND COURSE

Trifacial neuralgia is essentially chronic, with no tendency to recover. Dana⁵ believes that sometimes it is self-limited or tends to spontaneous cure. I know of no such case, nor have I come across a case of definite cure by other than surgical means.

If the disease always is persistent it is almost equally remittent. To be sure, there are cases in which it is continuous, not a day's respite for five, ten, even twenty years; but periods of remission are the rule, and such a spontaneous remission may last for two years, five years or even more. Quiescent periods of from four to six months are very frequent. In the same case they vary in frequency and duration. On the whole, the affection tends to grow worse with time, though the stage of instantaneous jabs at infrequent intervals may last for years. On the other hand, some patients have frightful paroxysms lasting from one-half to one minute almost from the beginning. Case 2, in which the pain began when the patient was 8 years old and has continued at intervals for forty-four years without material increase, is exceptional.

I have not observed that intercurrent disease has much to do with either course or duration of trifacial neuralgia; but it has seemed to me in several instances that worry, grief or prolonged emotional tension had a most unfavorable influence.

Ordinarily the season of the year has little or nothing to do with the pain, but occasionally it shows a tendency to recur in the winter or in the summer. Most patients are free from pain at night unless the bedding happens to touch a trigger zone, but in a few of my cases the pain was worse at night. I think that the preponderance of day cases is due to the unavoidable sensory stimulus of talking, eating, currents of air, nictitation, etc. Occasionally the recumbent posture aggravates the pain, but I have seen two or three cases in which, aside from peripheral stimulus and posture, the night season seemed to have an unfavorable influence.

TROPHIC AND VASOMOTOR MANIFESTATIONS

A great many authors, especially the older ones, have included trophic disorders in the symptomatology of facial neuralgia.²⁶ Hypertrophy, atrophy and deformity have been described. Vesiculation, hypertrichosis, alopecia and whitening of the hair have also been reported. I have seen none of these things.

25. Valleix described these points seventy-two years ago when almost any pain about the face was called neuralgia. His writings show that he found them in many troubles, especially in what Lévy calls *les petites névralgies*: fugitive facial pains due to tender teeth, "catching cold," "rheumatism," what I have been driven to call "the pain diathesis," etc.

26. Bellingeri, 1818-1834; Neucourt, 1849-1854; Berard, 1835; Trousseau, 1865.

Vesiculation, of course, belongs to herpes (zoster), a quite different disease. I have observed swelling (sometimes very chronic) and atrophy as a result of operation, swelling from cantharides or other irritating applications, excoriation and wearing away of hair from friction (see below), and thickening of the skin from the same cause, but no really trophic complication. Not at all rarely patients have stated that the face swelled during attacks of pain, but I believe that this was simply a sensation or an erroneous conclusion from the redness and vascular engorgement. During the paroxysms of pain, mild vasomotor and secretory signs are often seen. In my experience these have been confined to flushing, lacrimation, salivation, nasal flow and perspiration. I have never observed paling, nor have I seen perspiration confined to the painful area or even to the painful side. Sudoration from suffering occurs in this as in other painful maladies, and I have seen it more abundant on the painful side. Flushing or obvious dilatation of vessels restricted to the region of pain is rare. When the upper and middle branches are involved, lacrimation during the pain is rather frequent, and may be present when the upper alone is affected. Increased salivary flow²⁷ during the paroxysms is often noted in inferior branch cases. I have not been able to satisfy myself that it was present in the interparoxysmal period, though several patients have asserted this to be the case. I think the trouble was simply that the patients neither swallowed nor expectorated saliva because these acts caused pain. In one case, during the pain there was profuse watery discharge from the nose on the affected side, and in a few other cases this symptom was present to a minor degree.

In one case the teeth fell out after the onset of neuralgia.

THE ELEMENT OF TIC

The French name *tic douloureux*²⁸ or painful tic was given the disease not on account of the character of the pain but because of certain movements of the face which sometimes accompany it. Tic means an oft-repeated, abnormal movement with certain characteristics.²⁹ As applied to trifacial neuralgia it is a misnomer and, indeed, is being rapidly dropped by the French themselves. The motor element in facial neuralgia is non-essential and secondary. Indeed, immobility is much more characteristic than movement. In bad cases the patient not only avoids touching the face, but also holds the features so immobile as to interfere with speech and closely to simulate the facies of paralysis agitans. Even quick movements of the head and arms are avoided.

During the paroxysms of pain, various movements may be observed, none of them like tic. In a few cases one sees little fibrillary twitchings or quiverings of the facial muscles. These are exceptional in trifacial neuralgia and never occur in tic. All other movements in the former disease are purely voluntary and simply constitute the way in which the *individual* reacts to pain. Some persons contract the muscles on the painful side just as they probably would with severe toothache or if they were being cut with a knife.

27. André says that it is present in all cases. Notta and Valleix think it rare.

28. André, 1756.

29. Patrick, Hugh T.: Convulsive Tic, *THE JOURNAL A. M. A.*, Feb. 11, 1905, p. 437; *ibid.*, May 1, 1909; *Jour. Nerv. and Ment. Dis.*, January, 1909.

Others immediately begin to rub the face and, as mentioned above, this may be done so frequently and so vigorously as to excoriate the skin or wear away the hair of the beard or eyebrow.³⁰ Some patients puff out the cheeks with the greatest possible tension, some execute chewing, tasting, pouting or sucking movements, some lick the lips, some scream, some walk the floor and some sit as rigid and immobile as one in an attack of angina pectoris. But whatever the movements may be, and some of them are very bizarre, they are just about as nearly related to tic as was the voluble profanity of one patient or were the excessive potations of another.

COMPLICATIONS

These are of interest principally in relation to etiology and treatment but, I presume, belong to symptomatology. Some of the neurologic or neuropathic complications have been noted above. It has been thought³¹ that tabetic pains in the face may simulate trifacial neuralgia or that some cases of the latter disease are of tabetic origin. I have never seen a case that I thought belonged in either category, though I have had one case of facial neuralgia in a tabetic.

CASE 4.—The patient, a woman aged 49, presented all the most significant signs of tabes,³² and for fifteen years had suffered with typical lightning pains, chiefly in the legs, but occasionally in the arms and trunk. Thirteen months before she had begun to have pain in the left face. It was limited to the infra-orbital branch of that side, came in short jabs or paroxysms, and was started by eating, talking, washing the face, etc. These "crashes" of pain recurred from five to fifteen times a day, and since the onset she had not had one whole day free from them."

In this connection, the possible relation of syphilis to facial neuralgia may be mentioned. I have had but one case in which it seemed possible that lues might be the cause, and in this case the doubt never has been settled. On the whole, syphilis has been notable by its rarity, and when present has, I believe, been a coincidence.

Next to migraine, to my mind the most interesting complications are coincident or preexisting infections and irritations about the face but, I regret to say, my statistics on this head are not sufficiently definite and extensive to be of great value. It may clearly be asserted, however, that there is no uniformity or even great preponderance of such complications. I have the impression that they are more frequent in trifacial cases than in the ordinary run of patients, but of this I cannot be sure. Pyorrhea has not been frequent.³³ Carious teeth and alveolar abscess have been frequent, but they are common affections. Ten patients had at the time, or gave a history of, antral or other sinus infection; but as the incidence of such diseases in the community is not known, no just comparison can be made. The probable unimportance of such complications is indicated by the fact that in no case have I known treatment of a sinus or tooth

infection or extraction of carious or painful teeth to cure trifacial neuralgia.³⁴ On the other hand, treatment of neuralgia complicated by chronic sinus disease has been as successful as in uncomplicated cases. In a number of instances extraction of diseased or normal teeth has given relief for a period, generally a few days or weeks, but sometimes for a longer time. In one case filling a bicuspid cavity which apparently communicated with the dental canal was followed by cessation of the pain for two years. If mere infection in the fifth area were a causative factor, how many cases would we see due to acne pustules, boils, etc! In my experience infection or inflammation of eyes, ears, skin and throat has been too rare to merit notice.

In one case direct irritation of the inferior dental nerve apparently started the disease, which then ran a typical course. At the age of 29 the lower jaw was damaged in the extraction of a bicuspid or molar tooth. Severe paroxysmal pain immediately followed. A week or two later a surgeon who designed to remove dead bone and cut the nerve, fractured the jaw. The pain ceased for a year, and then recurred with great severity. I saw the patient at the age of 72. In the meantime she had been operated on seventeen times. History of the pain and results of operation were typical of trifacial neuralgia, and the paroxysms which I witnessed were unmistakable. She was relieved by injections of alcohol until her death from heart-disease three years later. I have always suspected that the tooth was removed not because of toothache but because of incipient neuralgia: in other words, that the neuralgia had begun before the traumatism.

In 1870 Gross³⁵ described a neuralgia of the toothless for which he cut away a part of the alveolar process. Later his idea was taken up and elaborated by Duplay³⁶ and Jarre³⁷ who operated in a similar way. I think that this *névralgie des édentés* is not an entity, and that the operation has now quite properly been abandoned.

That some toxic state is the cause of or is in intimate relation with trifacial neuralgia is the opinion or impression of many physicians. Ordinary investigation of my cases does not support this view. Metallic poison (especially lead) was present in none. Acute general infections were not unusually frequent and in only one case (typhoid) immediately preceded the onset of neuralgia. Chronic alcoholism was clear in only one case, though several of the men took large quantities of whisky to relieve the pain. Rheumatism and gout were not unduly frequent, and there was no case of outspoken arthritis deformans (rheumatoid arthritis). Diabetes was observed only once. Nine patients³⁸ showed evidence of chronic nephritis but, considering the age of the patients, this number does not seem high. Indicanuria was not sufficiently frequent to indicate a pathologic relation.

In view of frequent statements in text-books, it is worthy of note that malaria was present in not a single

30. The striking contrast of the *noli me tangere* attitude of the patient in the interparoxysmal period, with the vigorous scouring of the face the moment the pain starts, is something seen in no other disease.

31. Pierret: *Essai sur les symptômes céphaliques du tabes dorsalis*, Thèse de Paris, 1876. Lévy: *Essai sur les névralgies faciales*, p. 134.

32. This was before the time of the Wassermann, and no lumbar puncture was made. The husband had had a venereal sore prior to marriage, twenty-six years before.

33. It goes without saying that many patients have come with foul mouths, but this was because for weeks or months they had forborne to cleanse the teeth or even rinse the mouth, every such attempt starting a paroxysm of pain.

34. Hajek, whose book (*Erkrankungen der Nebenhöhlen der Nase*) is probably the best one on sinus disease, has never seen tic douloureux in such disease. Ed. 3, p. 14.

35. Gross: *A Form of Neuralgia of the Jaw-Bone* Hitherto Undescribed, *Am. Jour. Med. Sc.*, July, 1870.

36. Duplay: *Arch. gén. de méd.*, 1886; *Gaz. d. Hôp.*, 1894.

37. Jarre: *Acad. de méd.*, 1893; *Rev. de stomatol.*, 1894.

38. Six had albumin, three albumin and casts and two pus and albumin, the latter presumably due to the former.

case when seen and was very rare in the history; certainly not above the average in the territory tributary to Chicago.

SPECIAL SENSES

Various affections of the special senses have been described as part of trifacial neuralgia. In my opinion they do not exist. All such cases are examples of diagnostic error or mere coincidence. Especially is it to be stated that taste and smell are normal. Of still greater importance is the fact that trifacial neuralgia never causes blunting of sensation. In no case have I been able to find anesthesia or analgesia. Sensation for heat and cold has not been systematically examined. In other words, if, in a painful affection of the face, there be involvement of a special sense, either the latter is to be separately accounted for or the case is not neuralgia. If there be blunting of common sensation, it is due to organic disease, which probably also is the cause of pain, or to operation, or to thickening of the epidermis from friction or applications, or it is a hysteric symptom super-added. The last-mentioned I have never seen in facial neuralgia, but I have seen one or two cases of hysterical hyperesthesia.

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SYPHILIS AS A PUBLIC HEALTH QUESTION *

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While March 24 is memorable in the history of tuberculosis, let me remind you that there is another day in this month which is equally memorable in the history of another world-wide disease. It was on March 3, 1905, that Schaudinn first saw *Spirochaeta pallida*, the cause of syphilis. The account of this discovery, written by Schaudinn and Hoffmann,¹ is dated April 10, 1905, exactly twenty-three years after the publication of Koch's² paper on the etiology of tuberculosis. This mere coincidence in dates may serve to emphasize the truer connection of Koch's labors with the recent renaissance in our knowledge of syphilis.

Syphilis has been definitely known to our civilization since the last part of the fifteenth century. In regard to its earlier history, medical historians are not yet agreed.³ At all events, up to 1903 the disease had been studied clinically for over four hundred years and many of its symptoms and their treatment were well understood. The situation at that time has been described by Neisser, and no one was better qualified than he to describe it. Neisser⁴ says that, in spite of all the work that had been done, investigation of the disease had reached a dead level. The cause was unknown and animal experimentation was apparently impossible. No advances were being made because

the methods which had revealed the secrets of other infectious diseases were not being applied to syphilis.

In 1903, however, Metchnikoff and Roux⁵ showed conclusively that the disease could be transmitted to the lower animals and thus opened up the rich field of animal experimentation. In 1905 Schaudinn discovered the cause and thus made possible the certain identification of the disease as an entity. In 1906, Wassermann, Neisser and Bruck⁶ introduced the indirect method of diagnosis by the serum reaction, which reveals the presence of the disease when all outward symptoms have disappeared. In 1910 Ehrlich⁷ gave to the world salvarsan, a specific, synthetic spirocheticide, the result of many years of experiment. In 1911 Noguchi⁸ cultivated *Spirochaeta pallida* in pure culture and made his remarkable product, luetin, which detects the disease in its most obscure forms. In 1913 Noguchi⁹ demonstrated *Spirochaeta pallida* in the brain of paretics and in the cord of a tabetic, thus bringing these baffling conditions into simple relation with the rest of the disease and rounding out our conceptions of the whole infection.

As we look back on the unparalleled achievements of these ten years, we see that these results have all come, not from the clinic, but from the laboratory; not from professional syphilologists and psychiatrists, but from pathologists, parasitologists, serologists and experimenters. I make this point, not to try to belittle the work of the clinician, because, after all, he is the man on the firing-line, but to emphasize the comprehensive method of reconnoiter and the strategic method of attack. This is the etiologic method; to find the cause of an infectious disease in the specific lesions; to isolate and to study the parasite in pure culture; to introduce it into a lower animal and to observe the reactions of the tissues and the body fluids to the invading organism or its products; to trace the parasite through the different parts of the body; to determine how it leaves the body and passes from one person to another; to try to kill the parasite when and where it is most vulnerable, by disinfectants, internal or external.

Whose method is this but Koch's? To him more than to any one man or set of men we are indebted for the correct way to study infectious diseases and, therefore, it is only tracing the swelling stream of our knowledge of syphilis to its source when we meet "to honor the memory of Robert Koch and to recall his eminent services to the cause of public health."

What have been the practical results of these services so far, and what is the outlook for the future? Popular warfare on these parasites is the order of the day. Our age has already been characterized by the medical historian as one of social and preventive medicine.¹⁰ Society itself is considered a patient and members of society in general are more or less self-constituted physicians. This attitude is due directly to definite advances in the science and art of medicine. Following the increase in our knowledge of tuberculosis, we have for a number of years seen a splendid attack on the disease, in which institutes like this one are most effective agencies. As a result of the

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* Read at the Phipps Institute, University of Pennsylvania, Department of Medicine, Philadelphia, March 24, 1914.

1. Schaudinn: Arb. a. d. k. Gsndhtsamte, 1905, xxii, 527.

2. Koch: Berl. klin. Wehnschr., 1882, xix, 221.

3. Garrison: History of Medicine, W. B. Saunders Company, Philadelphia, 1913, p. 128.

4. Neisser: Die experimentelle Syphilisforschung, 1906, Julius Springer, Berlin, 1.

5. Metchnikoff and Roux: Ann. de l'Inst. Pasteur, 1903, p. 809.

6. Wassermann, Neisser and Bruck: Deutsch. med. Wehnschr., 1906, xxxii, 745.

7. Ehrlich and Hata: Die experimentelle Chemotherapie der Spirillosen, 1910, Julius Springer, Berlin.

8. Noguchi: Jour. Exper. Med., 1911, 99, 557.

9. Noguchi and Moore: Jour. Exper. Med., 1913, xvii, 232.

10. Garrison: History of Medicine, 1913, p. 594.

advances in our knowledge of syphilis, the popular attack on this disease has already begun, and, from the purely scientific point of view, we are in a much better position to attack syphilis than we are to attack tuberculosis. In most early cases we can ascertain how, when and where the disease was contracted. We can identify it on its earliest manifestation and we can cut it short by radical treatment. In the later stages we can make a diagnosis of its most obscure forms and can control its course in many instances, even if we cannot make a complete cure. We have effective methods of prevention.

With all this wealth of means at hand, it might seem a simple matter to put them into effect against the disease, and so it is in individual or selected cases. But when we come to the question of their general application we encounter an unusual obstacle which cannot be ignored. The extreme medical position is of course that syphilis should be attacked in the same way as other infectious diseases, such as tuberculosis, typhoid fever or diphtheria, by detection and removal of the sources of infection, by early diagnosis, isolation, prompt treatment and by various methods of protection. But this position is attacked by many social reformers, who say that the medical program is a failure in practice and that it tends to legalize immorality. The first objection concerns us professionally and the second one concerns us as members of society, because, as I take it, we are not indifferent to the moral welfare of society.

In regard to the strictly medical and hygienic program, let me say again, that, from the purely scientific point of view, we are in an excellent position to control syphilis. If we could have a free hand to apply well-known medical measures, we could appreciably reduce the amount of the disease. If the full force of our sanitary organizations were directed against syphilis as they would be against an invasion of cholera or plague, who can say that the disease would not be greatly restricted? To deny this is to ignore the splendid triumphs of preventive medicine in other diseases. Yet, as was said, some moralists¹¹ seem to take particular delight in pointing out the failure of preventive acts and regulations. No doubt these measures have more or less failed of their object, but they have failed, not because they are wrong in scientific principle, but because they have not been carried out thoroughly. When preventive measures are carried out thoroughly, as they can be and have been under military jurisdiction, the results are just as certain as they are in any other infectious disease, just as certain as any other natural consequence.¹²

But can these measures be carried out generally? Not in their entirety. To carry out these measures logically we must, indeed, legalize immorality and also invade personal liberty to such an extent that society would rebel. In other words, this disease is on a somewhat different footing from tuberculosis, diphtheria and typhoid fever. Syphilis is essentially a sexual disease and sexual relationships cannot be treated altogether like the other relationships of life. For example, our records in the Army show that only 6 or 7 per cent. of primary infections are extragenital and that only 1.5 per cent. are, as we say, in line of duty; that is, not the result of the patient's own mis-

conduct. In women, the percentage of innocent infection is much higher, Fournier¹³ says from 20 to 25 per cent., but even in these cases the disease is acquired sexually, so that extragenital infections, such as have been reported by Bulkeley and Scheuer¹⁴ as amounting to over twenty thousand cases, really form a comparatively small part of the total amount.

The endemic center of the disease is therefore in the irregular sexual life of the race, and a direct medical attack on the source of the infection is out of the question. It will be a long day before a sanitary map of a town will be made with dots for the cases of syphilis and placards for infected houses, and before sanitary inspectors set to work to trace down each infection and to examine contacts, etc. Nor would we wish to see this day if it were realizable, because it would involve too many social questions. But if a strictly medical program is impracticable, much can be done by a modified medical program. Even if society cannot recognize its enemy, it can protect itself in many ways.

Let us examine for a moment the alternative program of education and reform. We are in the midst of this movement now. On every hand the subject is being discussed. Plays have been written on it, eugenic societies are active, charitable organizations are concerned, laws have been passed and courses given in schools. Some of these activities are admirable, and especially where medical measures are involved, they are already producing results. But in some quarters the agitation has been overdone and already a reaction may be felt. Some enthusiasts have gone beyond the bounds of decency in their discussion of the subject. They seem to think that the naked truth has some special virtue and if sufficiently paraded will automatically settle the question. I see no warrant for any such position. The deeper we go into human nature the nearer we approach the savage, and the nearer we approach the savage the farther we go from morality and manners. If the uplifters point out the failure of sanitary measures, are they prepared to show any extraordinary practical results in the way of education and reform? If they decry sanitary measures as making for immorality, are they prepared to say that the activities of some of their members do not make for indecency? There may well be some things worse than syphilis; one may be legalized immorality; another may be tolerated indecency.

In brief, the subject of syphilis as a public health matter is an immense problem and calls for the cooperation of many agencies. It is not merely a medical problem, or merely a question of education and reform. The indications seem to be for us as physicians to find out what can be done in a medical way, and to stand ready to push purely medical means when they are practicable and to realize our limitations when such means are not practicable; in the homely phrase, to do the best we can.

PREVALENCE

If it is neither practicable nor desirable to put into effect a rigid sanitary program, what are the possibilities of a modified sanitary program? The first question which naturally arises is, What is the prevalence

11. Flexner: *Prostitution in Europe*, Century Company, New York, 1913.

12. Munson: *Military Hygiene*, William Wood & Co., New York, 1901, p. 836.

13. Fournier: *Treatment and Prophylaxis of Syphilis*, Rebman Co., New York.

14. Scheuer: *Die Syphilis der Unschuldigen*, Rebman Co., New York, 1910, p. 14.

of the disease in a given locality? No definite answer can be given to this question for most localities, and therefore we have, at the outset, a most pertinent and feasible field of inquiry. Time-honored estimates have been made, such as 12 per cent. for the adult population of Berlin by Erb, 15 per cent. in Paris by Fournier, and 12 per cent. in London. These figures really tell us little except that the disease is sufficiently prevalent.

What we need is an accurate statement of the amount of disease among the various groups of our population, such as children of different social position, men and women employed in various occupations, etc. This information is not easy to obtain by direct examination in most cases, but fortunately in the Wassermann reaction we have a means of obtaining a certain amount of information which can be applied on a large scale and with little offense. Apparently no better start can be made in a public health way than the initiation of Wassermann reaction surveys. Already municipal laboratories in several cities are making Wassermann reactions and various hospital laboratories have been so engaged for some time. These laboratories need not stop at the mere examination of specimens sent in, but should be the center for extensive records on various groups of the population. As examples of the possibilities, one can mention examinations of all the members of infected families, such as have recently been reported by Post¹⁵ of Boston; surveys of all admissions to hospitals, jails, almshouses, etc., and in time these examinations can be extended to civil services, to the police and fire departments, to railroad employees and so on. Of course the information gained in this way is only partial and must be interpreted by experienced physicians. A single negative Wassermann reaction, for example, does not rule out syphilis by any means. The results of these surveys will certainly be too low, because the reaction does not pick out 100 per cent. of cases in any stage of the disease. It is also subject to natural fluctuations and is much influenced by treatment and also by the use of alcohol.¹⁶ The results should therefore be supplemented by other methods of examination when possible. It is hardly necessary to say that this sort of work cannot be done without moral and financial support. Equipment is needed and practically one man's whole time must be devoted to the work if any considerable amount of information is to be obtained.

Most of the observations to date have been made on hospital cases, but the observations are already beginning to extend out into the general population. In regard to hospital cases, it has been shown that a large number are syphilitic, while usually entered under some other diagnosis. Thus out of 111 cases admitted to the Children's Hospital in Boston, Lucas¹⁷ found 31 per cent. infected. Churchill,¹⁸ in a hospital in Chicago, found that of 102 children, thirty, or nearly one in three, were infected, although none were admitted for syphilis. In New York, Holt¹⁹ found a much smaller number, 6 per cent. among more acute cases. In Glasgow, Browning²⁰ reports positive findings in 14 per cent. of children, and a much higher

percentage in defective children. In Australia, in a series of 100 obstetric cases in a public hospital, Piper,²¹ by the Wassermann reaction, found 16 per cent. infected, and obtained confirmatory clinical evidence in most cases. Among the negro insane in Alabama, of over seven hundred male and female patients, Ivey²² found 26 per cent. infected; one-half of the infections were latent. These few examples show how this method may be applied to large series of cases under diverse conditions. In regard to the endemic source of infection, Browning has recently found 100 per cent. of infection among 104 prostitutes, and among 109 men, women and children classed as tramps, 100 per cent. of infection.

The Army represents a selected class of the population at an age most exposed to infection. You may have heard something about venereal diseases in the Army and you may have received a false impression about their prevalence. The reason you hear about these diseases is that we have some knowledge about their prevalence among soldiers in contrast to our complete ignorance of the amount of disease in the population from which soldiers are drawn. In the Army the same medical supervision and discipline are used in treating and caring for syphilis that have demonstrated the wonderful value of antityphoid inoculation, and the conditions are favorable for obtaining information. In the Army as a whole the rate for syphilis for 1909 and 1910 was 2.5 per cent. In 1911 an interesting change occurred. The rate rose to 4.5 per cent. During this year the Wassermann reaction was in quite general use and salvarsan was introduced and many latent cases were detected or voluntarily applied for treatment.²³ In 1912 the rate dropped to 2.5 per cent. again. In one regiment of 950 men, Captain Reasoner²⁴ has made a Wassermann survey and he found forty-eight cases of syphilis, or about 5 per cent. of the command. Twelve cases gave no history of the disease, while eight with a history gave a negative reaction. Captain Reasoner believes 7 per cent. is a conservative estimate of all cases. In another regiment, Captain Bartlett made a careful study covering more than a year and found about 10 per cent. of the command infected. Regiments undoubtedly vary in degree of infection, depending on personnel, place of service, etc., but for the Army as a whole the rate seems to be something over 5 per cent. As we shall see later, this percentage is being reduced. No exact statistics are available as to the amount of syphilis among men coming to recruiting stations. Such information would be of great value from many points of view. We already know that venereal disease is the cause of rejection of more men than any other condition. The question of routine Wassermann reactions on recruits has been considered, but, as this measure would require about thirty thousand reactions a year, it has not yet been feasible. Since the adoption of the test for the Army, however, by Captain Craig and other medical officers, a great many reactions have been made in the Army laboratories on suspects among recruits and in this way many cases of syphilis are excluded from the service. It is probable that in a short time a survey of a

15. Post: Boston Med. and Surg. Jour., 1914, clxx, 113.

16. Craig: Bull. 3, Surgeon General's Office, 1913.

17. Lucas: Boston Med. and Surg. Jour., 1913, clxix, 423.

18. Churchill: Tr. Am. Pediat. Soc., 1912, xxiv, 149.

19. Holt: Am. Jour. Obst., 1913, lxxvii, 1228.

20. Browning: Brit. Med. Jour., 1914, i, 77.

21. Piper: Case of Cirrhosis of Liver with Recurring Ascites, Austral Med. Jour., 1913, new series, ii, 916.

22. Ivey: Med. Rec., New York, 1913, lxxv, 712.

23. Surgeon General's Rep., Bull. 3, Surgeon General's Office, 1913, p. 110.

24. Reasoner: Mil. Surgeon, 1910, xxvii, 189.

certain number of men coming to recruiting stations will be available.

Granted that by a Wassermann survey and other records we come to have a fairly accurate knowledge of the prevalence of the disease in a certain group of the population, what is to be done about it? Possibly the first impulse is to ostracize all syphilitics. But of course this move would not solve the problem, even if it were possible; but it is not even possible. Recently, in New York, a policeman was discharged because he had syphilis. He appealed to the courts, and as no effort was made to prove that the disease was acquired by his own misconduct, the court reinstated him with costs.²⁵ The mere fact that a man has syphilis is evidently not enough to warrant dismissal, but, in view of the nature of the disease, the burden of proof of an innocent infection should be put on the patient and, if this is not forthcoming, he should be penalized by loss of pay for any absence due to this disease. In candidates for various positions, tests for syphilis can be included in the physical examination and the presence of syphilis can be made cause for rejection, as is now the case in several cities. In this way an additional stamp of disapproval can fairly be put on the disease. As was said, however, these repressive measures do not really solve the problem because the disease remains and rejected candidates tend to swell the mass of discontent in society.

TREATMENT

This consideration brings us to the question of treatment, and here we find another field in which city governments and hospitals can do a great deal. The position of most hospitals toward syphilis needs revision. Most hospitals refuse to admit patients suffering from the early symptoms of the disease; the same hospitals welcome patients with aortic insufficiency, aortitis, aneurysm, optic neuritis, locomotor ataxia, etc., and yet these conditions may be just as much syphilis as a chancre or a secondary eruption. In other words, most hospitals admit patients when they get into such shape that little is to be expected from treatment, and they refuse to treat cases at a time when a great deal of good can be done. The attitude of hospitals was perhaps partly justifiable in the past, but with our present means of treating infectious lesions and with the awakened public interest, it would seem that hospitals are not doing their full duty to their clientele unless they make provision for treating the early stages of syphilis.

Scientifically, the most hopeful outcome of all the recent work in syphilis is the possibility of diagnosing the disease in the primary stage and of making an immediate and radical cure by the combination of salvarsan and mercury. Abortive treatment of the disease in the primary stage has been the dream of syphilologists for many years, but nearly all attempts have failed, or, in case of the few so-called successful instances, the diagnosis has been questioned. But with our present sure method of diagnosis by finding *Spirochaeta pallida* and using salvarsan, which is a more specific remedy than we have hitherto possessed, the dream has at last come true and this method of handling syphilis rests on a firm basis. It is something new and revolutionary. The best series of cases I have seen to illustrate this point has been recently

reported by Boas²⁶ from Copenhagen and is summarized in Table 1. The treatment in all cases was practically the same, that is, two intravenous injections of salvarsan and fifty inunctions of 3 gm. of mercury.

TABLE 1.—RESULTS FROM TREATMENT WITH SALVARSAN AND MERCURY

| Lesions | Cases | Months Observed | No Relapse | Relapse | Per Cent. |
|-----------------------------------|-------|-----------------|------------|---------|-----------|
| Chancre (Sp. + W. R. —) | 30 | 2 to 25 | 29 | 1 | 3 |
| Chancre (W. R. —) | 30 | 2 to 25 | 26 | 4 | 13 |
| Fresh Secondaries | 62 | 2 to 19 | 48 | 14 | 22 |

It will be seen that the percentage of relapse rises steadily as the disease goes on. As a control, a number of cases were treated with the same amount of mercury alone, as appears in Table 2.

TABLE 2.—CASES TREATED WITH MERCURY ALONE

| Lesions | Cases | Months Observed | No Relapse | Relapse | Per Cent. |
|-----------------------------------|-------|-----------------|------------|---------|-----------|
| Chancre (Sp. + W. R. —) | 8 | 2 to 5 | 0 | 8 | 100 |
| Chancre (W. R. —) | 13 | 1 to 6 | 0 | 13 | 100 |
| Fresh secondaries | 72 | 1 to 51 | 4 | 68 | 94 |

These cases illustrate the usual failure of mercury to abort the disease, and the four cases out of ninety-three which did not relapse probably passed into the so-called latent stage.

In the Army we have records of similar results. They are not very numerous as yet; partly because we are just beginning to work on a definite plan on a large scale and partly because field service conditions have interfered with continued observation in many cases. But we have had some encouragement and believe that we are on the right track.

The question may arise, Why is it necessary to use mercury at all if salvarsan really is the important factor in the results? The answer is, first, that the results of the combined treatment are better than those obtained by the use of salvarsan alone and, second, that if relapses occur after salvarsan alone, they are apt to be explosive and may do great damage if the nervous system is already infected, while if they occur after mercury, they are more gradual and give more warning.

Yet comparatively few persons receive the benefit of this great opportunity. Venereal sores are still powdered or cauterized and allowed to run on without a definite diagnosis. The same situation which has been so scored in the case of cancer prevails in the handling of syphilitics. Early diagnosis is neglected and radical treatment is substituted by palliation. The diagnosis of syphilis can be made on the first day the disease is noticed, in a few minutes and with no great amount of equipment; but very few dispensaries ever make the attempt. In 1903 Swift published figures collected in New York on eighteen dispensaries which treat these cases. Routine examinations for spirochetes were made in only five; only five had dark-field microscopes, and only five treated cases early.²⁷ Surely such a situation is indefensible either on scientific or social grounds. There is no question of morality here; the damage has been done and the cases are handled after a fashion—but not *secundum artem*. The attempt

25. Having Syphilis not Conduct Unbecoming an Officer, Medicolegal, THE JOURNAL A. M. A., 1914, lxii, 482.

26. Boas: München. med. Wehnschr., 1913, lx, 2620.
27. Swift: New York Med. Jour., 1913, xcvi, 1012.

to distinguish a syphilitic from a non-syphilitic sore by clinical appearances is in the same class with an attempt to distinguish a fracture and a sprain without the aid of the Roentgen ray. Sometimes the attempt is necessary and it is often successful. But, as a routine matter, why should we guess when we can know? And more important still, why should we lose critical time when we can act immediately? The practice of cauterizing or powdering venereal sores before a positive diagnosis is made is worse than treating a case of fever with quinin before the malarial parasite is found, because if a sore is syphilitic, the treatment not only lessens the chance of finding the spirochetes, but has no effect on the disease. The discharge from all venereal sores should be examined microscopically at the earliest moment before any local treatment is used. Facilities for such an examination should be available in municipal and hospital services.

In our series, over 50 per cent. of venereal sores have been found to be syphilitic and many of these could not be diagnosed by clinical signs or by blood examination. An analysis of these sores shows that the spirochetes were found at a time when the blood was negative on an average of seven days, the spirochetes were present and the blood was positive on an average of eighteen days and the spirochetes were not found but the blood was positive in twenty-four days. These periods mark the general invasion of the body and each day makes radical treatment less certain. We should therefore concentrate our efforts on early diagnosis and radical treatment. No disease offers more encouraging or fascinating work along these lines. No better opportunity to practice scientific medicine exists to-day than the opportunity to pit our skill against the pertinacity of *Spirochaeta pallida*. The requisites are the dark-field microscope and salvarsan and mercury. This armamentarium costs something and no municipality or hospital can expect to have results in this work without paying something for them.

STANDARD OF CURE

The introduction of etiologic tests for the presence of living spirochetes somewhere in the body have altered our whole conception about the efficiency of the treatment of syphilis. Only a few years ago it was taught that mercury was a specific, and the patient was often justly blamed for unsatisfactory results because he did not follow the prescribed course of treatment. But with the introduction of our modern tests we have come to realize that mercury, even when taken in strict accordance with rules, probably cures less than 50 per cent. of cases. The most striking example of the failure of the thorough treatment with mercury is seen in the subsequent development of tabes and paresis, which, as was said, we now know are due to the actual presence of the spirochetes in the brain and cord. But there are other forms of syphilis, especially the vascular form, in which the results are the same. Even with the addition of salvarsan we now recognize that there are many old cases that are practically incurable. This does not mean that the disease cannot be controlled; but it does mean that the spirochetes are still at work and may be transmitted to the next generation.

The question of establishing a standard of cure has been correspondingly simplified by these same etiologic tests. In the Army we believe we have unusual opportunities for following up cases and for observ-

ing the results of treatment. Each case of syphilis, therefore, is recorded in a register, in which the treatment and Wassermann results are entered and which follows the patient until cure or discharge. By this means we are gathering a great deal of information. Of course many cases are not followed up as carefully as they might be, but in general the syphilis situation is much better than it has been as a result of these records. Our standard of cure is as follows: One year without treatment, without any suspicious clinical symptoms, with several negative Wassermann reactions and no positive ones and at the end of the year a negative provocative Wassermann reaction or negative luetin test. If a man fulfils all these requirements we consider the case closed. If possible, it would be better to add an examination of the spinal fluid, because in some few cases a local infection of the nervous system is not revealed even by these tests, but for the present we would be satisfied if the other tests were negative in the bulk of patients. The difficulty of attaining this standard is seen in the relatively few cases we have which have fulfilled all the conditions. Thus only about a hundred cases out of several thousand treated have as yet satisfied the requirements, although the number is increasing now that we have a more definite plan of treatment.

If we have had only this partial success in the Army where our patients are under direct control, we cannot expect as much in every-day practice until this practice becomes more definite and systematic. Philip²⁸ has recently made a study of 1,433 cases infected in four years in Hamburg, and of these 4 per cent. took no treatment, 63 per cent. took only one course and 22 per cent. only two courses, so that a total of 89 per cent. was insufficiently treated. It seems possible that the follow-up system used in the tuberculosis campaign and in social service could be used to advantage in keeping track of patients, and this measure, together with the establishment of night clinics, may aid in handling the situation.

PREVENTION

In preventing the spread of the disease, general hygienic measures are of some slight avail, such as the abolishing of the common drinking-cup and towel, and the avoidance of promiscuous kissing. A classic example of the terrible consequences of a kissing game has been reported by Dr. Schamberg²⁹ of this city, in which seven girls were infected at a kissing party by a young man. Medical students, too, are in need of instructions in care of handling syphilis because the disease is one of the great occupational diseases for the doctor. Every physician who treats syphilis knows of a number of cases among doctors and dentists who have been infected by handling syphilitics. I have recently had personal care of four such cases. These infections occur chiefly when one does not suspect any danger. In dealing with a known infectious case, the ordinary methods of asepsis and antisepsis are entirely sufficient.

A more effective preventive measure is along the line of negative eugenics, that is, the prevention of the infection of families by the marriage of syphilitics. Whatever controversy there may be about eugenics or of laws on the subject, it is only common sense

28. Philip: München. med. Wchnschr., 1914, lxi, 245.

29. Schamberg, Jay F.: An Epidemic of Chancres of the Lip from Kissing, THE JOURNAL A. M. A., 1911, lvii, 783.

to prevent the marriage of such infected persons. Here the responsibility rests primarily on the physician and on the parents. The standard for marriage in my opinion should be the same as the standard for cure as given above. No doubt either parent may have a local infection in some part of the body which will not involve the offspring. But we have no way to distinguish these cases.

The decisive time and place to apply preventive measures is, of course, after sexual contact with infected persons, and this procedure can be made effective. It has been put on a firm experimental basis by Metchnikoff in the use of 30 per cent. calomel ointment. Probably the best demonstration of its value has been given by the Army and Navy services. The attitude in the service is this: No man has a right to deprive the government of his services and become a burden on the sick report through his own misconduct. He is therefore told that if he exposes himself to infectious diseases he must take measures to prevent becoming infected. Men returning to the garrison are ordered to report at the hospital if they have been exposed to venereal diseases and to receive a prophylactic treatment. This consists of a thorough washing, an irrigation of the urethra with argyrol solution to prevent gonorrhea and an application of 30 per cent. calomel in benzoinated lard to prevent syphilis. If a man develops disease without having used the prophylactic, he is punishable for disobeying orders. And in any case his pay is stopped while he is sick as a result of alcoholism or venereal disease, and it is now proposed in Congress to require him to make good the time lost.

That these measures can be made successful has been definitely demonstrated many times. One of the best illustrations is seen in the results recently obtained by Major Howard at the recruit depot at Jefferson Barracks, where ten thousand recruits are handled a year. In a series of 3,800 exposures, only one case of syphilis developed. Before the method was introduced the ratio of venereal disease was 227 per thousand; after introduction, among those who used the prophylactic, eighteen per thousand. Major Howard³⁰ says: "The system is entirely practicable as demonstrated by a full year's experience at Jefferson Barracks." Of course there are a great many places where the system may fail; the prophylactic may be used too late or not thoroughly enough. In one case the glans and prepuce were thoroughly disinfected, but the base of the organ was neglected and a chancre developed there. The results vary greatly with the interest of company and medical officers. The results for the whole Army, however, are encouraging. During the last year in which these measures have been used the rate for all venereal disease has fallen from 115 per thousand to eighty-five per thousand; for syphilis from twenty-five to twenty per thousand. It is difficult to say exactly how much weight the loss of pay has in making men more careful, but it seems likely that the prophylactic is the most important factor. The campaign which the Surgeon-General's Office has started on venereal diseases cannot in the nature of things be as successful as our campaign against typhoid fever; but the results are along the same lines. The more clearly it is understood that syphilis is a preventable disease, the fairer it is to penalize those who contract it. In regard to the

morality of these measures, we seem to have an excellent precedent in the practice of circumcision. The strongest argument for this practice has always been the one based on prophylaxis of disease. The operation is very commonly practiced and it is one of the rites of the race which has given the world its greatest moral teachers.

A debatable subject might arise if we had any prophylactic vaccine against the disease. But we have none and we have no prospect of any, because of the nature of the disease and lack of any acquired immunity to a second attack. All experimental attempts in this direction have failed. Salvarsan also has not robbed the disease of its terrors as was at first feared in some quarters. In spite of all our advances, syphilis remains as a sign-post for the straight and narrow road.

In conclusion, notwithstanding all the complex questions raised by this disease, let us hope that the labors of Metchnikoff, Schaudinn, Ehrlich, Noguchi and many others have not been in vain, and that science and morality can work together for the common good.

SUMMARY

1. The application of Koch's etiologic method for the study of infectious diseases, to syphilis, has greatly increased our knowledge of the disease during the last ten years.
2. A strictly medical campaign against syphilis is neither practicable nor desirable. A modified medical campaign both practicable and necessary.
3. The prevalence of the disease is still largely a matter of conjecture, and information on this point is to be obtained largely by Wassermann reaction surveys, carried out by municipal and hospital laboratories.
4. The most hopeful outcome of all the recent work on syphilis is the possibility of early diagnosis and radical cure. The possibility is still largely unrealized on account of lack of facilities in dispensaries and hospitals.
5. Our ideas about the efficiency of treatment and about a standard of cure are much more definite than heretofore, as a result of the application of etiologic tests.
6. Syphilis in most cases is a preventable disease, and this fact is an additional warrant for penalizing those who contract it.

CHAPARRO AMARGOSA IN THE TREATMENT OF AMEBIC DYSENTERY

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In recent years much has been written on the treatment of amebic dysentery. Perhaps no subject in all therapeutics has received such a diversified therapy as has this. The fact that so many drugs have been recommended is a potent proof of the efficacy of none of them. Ipecac is the drug that has been most widely used, and recently it has been supplanted by emetin (alkaloid). It is the purpose of this paper to call attention to chaparro amargosa as an amebicide.

My interest in the treatment of dysentery began with a case I saw with Dr. J. W. Nixon of Gonzales, Tex., about two years ago. At his suggestion, chaparro

30. Howard: Bull. 2, Surgeon General's Office, 1913, p. 42.

amargosa was given to the patient with the most happy results. Since this time I have used it in ten cases and am sure that it is the most efficient remedy we have at present for treating amebic dysentery, unless we except emetin.

We are indebted to the Mexicans for the name "chaparro amargosa." It means "bitter bush." It has been a domestic remedy among the Mexicans of Southwest Texas and Mexico for many years. It is said that General Zachary Taylor's soldiers learned its secrets during the Mexican War and profited no little from its use. Botanically, it is classified as *Castela nicholsoni*, Hook, and belongs to the *Simarubaceae*, of which family quassia and simaruba are also members. Putegnat¹ states that "it is hardly to be distinguished from the entire-leaved plants of the *Simarubaceae*," but places it in "the natural order *Ochnaceae*."

The first attempt to bring this remedy before the profession was made by Putegnat¹ of Brownsville, Tex., in 1883. He studied the plant botanically and chemically, recommended it as an antiperiodic and incidentally mentioned that it had been used in cases of diarrhea and dysentery. Nixon² of Gonzales, in 1893, emphasized the antidysenteric properties of the drug and established firmly its therapeutic value. He reported three illustrative cases and stated that he had had many others. Knox,³ one year later, published a personal experience and felt no hesitancy in attributing his recovery to chaparro amargosa. West⁴ of Galveston made a preliminary report on seven cases in 1895, using the fluidextract. In his words, "in every case under its use the frequency of the stools has diminished, the tormina and tenesmus subsided, the blood, mucus and ameba disappeared from the dejections. The patients left the hospital apparently cured after three or four weeks of treatment." Crittenden,⁵ the following year, cured a case of intractable dysentery of three years' standing by using fluidextract of chaparro amargosa. From 1896 to 1903 the literature to which I have access is surprisingly free from anything on this subject. Indeed, the articles which I have named are all that can be found. It is not mentioned in the *Index-Catalogue of the Surgeon-General's Library*, and there is no reference to it in the *Index Medicus*.

Chaparro amargosa is a small thorny bush, which is indigenous to Southwest Texas and Northern Mexico, growing on thin, rocky mesquite or post-oak land and having an especial tendency to be found on small, rocky hills. It grows to be a bush 2 or 3 feet in height, its size depending on the comparative richness of the soil on which it is found. Its leaves are small and lanceolate, its flowers pink and very small. The matured fruit is a red berry which is about the size of a pea.

All parts of the plant, from the root to the berry, possess the characteristic bitter taste and medicinal properties. It is on the market as a fluidextract, the dose being from 1 to 3 fluidrams before meals. My experience has been confined principally to the use of the infusion, which is prepared by boiling the plant —

roots, branches, foliage and fruit — in water for from thirty to sixty minutes. No definite weight can be used, as the weight of the plant will vary with the seasons and with its dryness. The infusion should have the color of moderately weak tea.

My routine treatment is as follows: The patient is kept in bed if practicable; the diet is restricted to liquids and semisolid articles; an ounce of magnesium sulphate is given three or four hours before treatment is begun and repeated every two or three days; 6 or 8 ounces of the infusion are given by mouth half an hour before each meal and at bedtime; rectal enemas of from 500 to 2,000 c.c. of the infusion are given in the knee-chest posture twice daily, and the patient is instructed to maintain this position for five or ten minutes, and afterward to retain the solution as long as possible. The length of time the fluid will be retained varies with the irritability of the rectum and the persistence of the patient; in some it will be only a few minutes, while others will be able to retain it indefinitely. If the large bowel contains fecal matter it is well to irrigate it with normal saline preliminary to giving the enemas. It is advisable to continue the treatment for a week or two after the subsidence of all symptoms.

The infusion as well as the fluidextract has an intensely bitter taste, but it is a "clean bitter," and no difficulty is experienced by patients in taking it. The bitter taste is easily overcome by eating a piece of bread or drinking a little coffee if necessary. As a matter of fact, the bitter taste is not undesirable, because of its tonic and stomachic effect. No nausea or other untoward symptoms have followed the administration of this drug and so far as is determined it exerts no detrimental influence on the human organism, even in large doses.

The active principle of chaparro amargosa has not been satisfactorily isolated. Putegnat¹ extracted an amorphous bitter principle to which he gave the name "amargosin"; but his work has not been confirmed. Tannin is not responsible for the action of the drug, as the detannated fluidextract is no less potent than the original fluidextract. Probably the therapeutic action depends on an alkaloid or a glucosid and this, when once isolated, may possibly be administered hypodermically.

I give the results of a few experimental observations to show the amebicidal action of chaparro amargosa: Under the microscope, 1:10,000 dilution of the detannated fluidextract at body temperature caused all *Entamoebae histolyticae* to cease moving instantly and to assume a spherical shape with sharp differentiation of ectoplasm and endoplasm; 1:100,000 dilution required from thirty to sixty seconds to accomplish the same result, and 1:1,000,000 from one to three minutes.

This drug is not indicated in ordinary diarrhea and is probably without action in other parasitic intestinal infections. One case of *Strongyloides intestinalis*, one of *Balantidium coli* and three of *Cercomonas intestinalis* were uninfluenced by it. One case of the last-named was apparently cured; this patient gave a history typical of amebic dysentery; but as no amebas could be found, it was not so classified.

This communication is based on the treatment of ten cases. Part of these were seen with other physicians, to whom I know take the opportunity to express my indebtedness.

1. Putegnat, J. L., Jr.: *Castela Nicholsoni*; Its Characteristics and Proximate Analysis, New Remedies, New York, 1883, xii, p. 102.

2. Nixon, J. W.: Chaparro Amargosa: A New Treatment for Dysentery, Texas Sanitarian, August, 1893.

3. Knox, R. T.: Chaparro Amargosa: A New Treatment for Dysentery, Texas Med. Jour., November, 1894.

4. West, H. A.: Discussion of paper by Ashton, Tr. State Med. Assn. of Texas, Galveston, 1895, p. 124.

5. Crittenden, W. I.: Chaparro Amargosa in the Treatment of Chronic Dysentery, Virginia Med. Jour., June, 1896.

REPORT OF CASES

CASE 1.—*History*.—O. V., farmer, aged 43, first seen Oct. 6, 1911, was having the first attack. The onset occurred two months previously with frequent and bloody movements and pain in the abdomen. The patient was in bed for three weeks. The symptoms decreased for three weeks, but became troublesome ten days before the patient was seen, when there were six or eight bloody stools a day, tenesmus and pain in the rectum. The appetite was poor, and there was nausea but no vomiting. The patient had lost 40 pounds in weight. He had taken various medicines without effect.

Physical Examination.—The patient looks ill; he is very anemic. The temperature is 100, the pulse 96. The general examination is negative. Proctoscopic examination is negative except for slight congestion of the rectal mucosa. The stools are mostly blood and mucus and have a characteristic "flesh-like" odor. Many characteristic *Entamoebae histolyticae* are present.

Treatment and Course.—The day after treatment was begun, the patient felt much better and had only one movement, which contained mucus but no blood. There were no living amebas. One clump of what appeared to be dead amebas was seen. At the end of a week the patient went home free from all symptoms. There had been no recurrence two years later.

CASE 2.—H. L. R., farmer, aged 55, first seen Nov. 13, 1911, was having the second attack. The first attack lasted four months. The present trouble had continued three months, with from two to twelve bowel movements a day. There were extreme abdominal pain and rectal tenesmus. The patient had lost 20 pounds in weight. The symptoms were not affected by silver nitrate irrigations or starch and laudanum enemas.

Physical Examination.—The patient is very thin and anemic. The temperature is 99, the pulse 84. The general examination is negative. In the left iliac fossa one can feel the sigmoid as a tender elongated mass. No ulcers can be seen in the rectum. The stools are semisolid, yellow and flecked with blood and mucus. Moderate numbers of motile *Entamoebae histolyticae* are seen.

Treatment and Course.—This man was sent to the hospital where he spent a very restless night; $\frac{1}{2}$ grain of morphin hypodermically was necessary to control the pain. He threatened to go home unless something was done. Chaparro amargosa was begun the following morning and by evening he felt much easier and slept all night. There were no stools until the second day, and then no living organisms could be found. On the morning of the second day the patient was found smoking a cigarette and said that he felt better than he had for months. He went home at the end of a week, feeling well and having gained 5 pounds. A letter four months later stated that he had gained 26 pounds in weight and that he was free from all symptoms. There had been no return two years later.

CASE 3.—D. F., aged 45, a refugee from Mexico, first seen Dec. 6, 1911, had had four attacks of dysentery in the past year, each attack lasting three or four weeks. The symptoms were eight or ten bloody stools a day, pain in the abdomen, tenesmus and loss of 10 pounds. Injections of linseed oil, ichthyol and silver nitrate, and medicines by mouth had not modified the symptoms.

Physical Examination.—The patient is rather pale and thin, and there is slight general abdominal tenderness. The temperature is 98.6, the pulse 90. The stools are almost pure mucus, flecked here and there with blood. Many blood- and pus-cells and many motile *Entamoebae histolyticae* are found.

Course and Treatment.—The patient was treated with chaparro amargosa by mouth and by rectum. He did not have a single bowel movement except when the injected fluid was expelled or when Epsom salt was taken. No blood or mucus was seen and no amebas could be found. The patient was feeling well and the appetite was fine. He reported two weeks later and I considered him well. This patient is at present a member of President Huerta's cabinet, and even under such exciting circumstances has not succeeded in precipitating a return of his dysentery.

CASE 4.—A. R., boy, aged 9, was first seen Dec. 24, 1911, during the first attack. There were abdominal pain, tenesmus,

blood and mucus in the stools, and there had been from two to four movements a day at intervals for six weeks. Purgative and salts by mouth and ice-water enemas had alleviated but not cured the condition.

Physical Examination.—The general examination is negative. The stools are semisolid, containing blood and mucus; there is a characteristic foul odor; microscopically, blood- and pus-cells and *Entamoebae histolyticae* are detected in large numbers.

Treatment and Course.—Routine treatment was given. Injections were retained from half an hour to two hours. No bowel movement occurred except when the fluid was expelled. Blood and mucus disappeared at once and no living amebas could be found after the first treatment. The child gained 4 pounds in a few weeks and has remained perfectly well up to the present time.

CASE 5.—Mrs. E. M. H., aged 62, first seen April 15, 1912, had shown symptoms of diabetes for several years and had had eight previous attacks of dysentery in the past three years, lasting from one to three weeks. There had been very acute symptoms for ten days; from ten to twenty bloody movements a day, tenesmus, abdominal pain and nausea.

Physical Examination.—The patient is acutely ill. The temperature is 101.6, the pulse 120. The urine contains sugar and acetone. The stools are almost pure mucus and pus, flecked with blood. Many amebas are found.

Treatment and Course.—The patient improved steadily from the first treatment. The bowels moved five times the first day, three times the second and only once on the succeeding day. The temperature came down to normal following the first treatment and remained normal. At the end of a week the patient was up and about and felt well, though there continued to be sugar in the urine.

CASE 6.—A. R., Mexican, man, aged 29, first seen June 24, 1912, had had symptoms of dysentery for two years, with only one intermission of three weeks. There had been from six to twenty bloody stools a day and the patient had lost 30 pounds.

Physical Examination.—The general examination is negative except for slight tenderness in the sigmoid region. The stools are semisolid and contain much mucus. A moderate number of *Entamoebae histolyticae* and a few *Cercomonades intestinales* are found.

Treatment and Course.—This patient went home and used the treatment himself. He returned in two weeks and reported that his recovery had been rapid and complete. There has been no recurrence.

CASE 7.—A. L., Mexican, man, aged 22, first seen June 24, 1912, had had acute bowel symptoms for three weeks. The appetite was poor, there had been nausea, vomiting, from six to twenty movements a day, severe intestinal pain and tenesmus, and blood and mucus were present in the stools. The patient suffered great weakness and had lost 20 pounds in weight. Bismuth and the usual antidiarrheal remedies had done no good.

Physical Examination.—This reveals an anemic, undernourished man. There is slight general abdominal tenderness. The stools are of fluid consistency, containing much blood and mucus. There are a moderate number of active *Entamoebae histolyticae*.

Treatment and Course. The patient greatly improved after the first treatment. There were no bowel movements till salts were taken. No motile organisms could be found. The patient improved steadily. He gained $2\frac{1}{2}$ pounds in five days and had no further symptoms. He remained well for three months, when he was lost sight of.

CASE 8.—B. H., negro, man, aged 24, first seen March 3, 1913, had had symptoms for six weeks; from six to fifteen bloody stools a day, pain in the abdomen, poor appetite, malaise, fever and loss of 5 pounds in weight. He had obtained no relief from the usual remedies.

Physical Examination.—The general examination is negative. A small stool passed in the office contains much blood and mucus; a few characteristic *Entamoebae histolyticae* and a few *Cercomonades intestinales* are found.

Treatment and Course.—The patient was begun on 2 drams of the detannated fluidextract of chaparro amargosa before

each meal, and he did not have a single dysenteric stool afterward. He was seen ten months later and felt as well as ever. No amebas or *Cercomonades intestinales* were found in the stool.

CASE 9.—W. C. N., merchant, aged 46, was first seen June 4, 1913. Onset had occurred four years before. He had slight dysenteric symptoms at Pleasanton, Tex., for three or four months. He went to México and there became acutely ill. There were from five to twenty bloody stools in twenty-four hours, high fever, sharp abdominal pain and tenesmus. He lost 35 pounds in weight. He was brought on a stretcher to El Paso, where he stayed in a hospital three months and received all sorts of treatment, including ipecac. He improved but was not cured. He had continued to have recurring attacks of dysentery which were liable to follow work or over-eating. The stools were never free from mucus. When seen, the patient had from five to ten bloody stools a day.

Physical Examination.—The patient is sparsely nourished; the complexion is sallow; the mucous membranes pale. The general examination is negative except that the sigmoid is palpable as a firm tender mass. The stools are yellow, liquid and contain no blood or pus. A moderate number of very active *Entamoebae histolyticae* are found.

Treatment and Course.—Chaparro amargosa was given by mouth and by rectum. This was followed by immediate improvement; there was one formed movement the first day and one the second; there was no pain in the abdomen. Only one active ameba seen after treatment was begun. The patient says that for the first time in months he does not "have to run" when he rises in the morning. Treatment was continued for two weeks. At the end of a month he felt fine and had gained 8 pounds in weight. The bowels were moving once daily. No amebas could be found in the stools and there has been no recurrence.

CASE 10.—W. G. L., a carpenter, aged 52, first seen Jan. 6, 1914, reported the onset as having occurred eighteen months ago with acute symptoms which lasted two months. There had been from twenty to twenty-five bloody movements a day, very severe abdominal pain and tenesmus, fever, nausea, general malaise and weakness. Since this time he had never been free from symptoms, though at times he had been somewhat better. He had not had a normal stool since the onset. When seen he was having from ten to fifteen bloody stools a day; there had been fifteen stools the day before. He had lost from 20 to 30 pounds weight. The patient felt very weak and was troubled much with palpitation of the heart.

Physical Examination.—The patient looks sick. The tongue is coated and the mucous membranes are very pale. The temperature is 98.6; the pulse 90. Hemoglobin is 50 per cent. The abdomen is slightly distended and tender over all. The sigmoid is markedly thickened and tender. A stool passed in the office is almost pure blood and mucus, containing a great many active *Entamoebae histolyticae*.

Treatment and Course.—One liter of the infusion of chaparro amargosa was given by rectum each morning and 8 ounces by mouth before meals and at bedtime. The bowels moved three times the first day and once each day subsequently, and this after 1½ ounces of Epsom salt on the first day. All pain and tenesmus ceased after the first treatment. A small, semisolid yellow stool passed the morning of the second day was free from blood macroscopically and microscopically, and no amebas could be found in it. All symptoms including palpitation, ceased from the very first. The patient gained 3 pounds in two days and was able to go to work on the fifth day—something he had not been able to do for eighteen months.

SUMMARY

This is a report of ten cases of undoubted amebic dysentery of from three weeks' to four years' standing. Nine patients were given the infusion of chaparro amargosa and one, the detannated fluidextract; all were cured and there has been no recurrence so far as can be determined, the period of freedom from symptoms ranging from ten months to two years, omitting the last case; in only one case was a living ameba

found in the stools after treatment was begun; these cases averaged less than two days before the stools became normal; there were no liver abscesses or other complications; experimental data prove the amebicidal action of chaparro amargosa no less surely than do the clinical results, the drug undoubtedly having an elective affinity for the protoplasm of *Entamoeba histolytica*.

EXPERIENCE WITH CROTALIN AT THE OAKBOURNE EPILEPTIC COLONY*

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PHILADELPHIA

The treatment of epilepsy by the injection of rattlesnake venom has attracted some attention. Those of us who are connected with the Pennsylvania Epileptic Hospital and Colony Farm have been besieged by inquiries as to its value. Information was sought in person and by telephone, and letters were received from different parts of the country. The glowing reports heralded throughout the land in the lay press reached our patients and their families, some of whom almost insisted on our using crotalin. The matter became somewhat troublesome and, since we were without personal knowledge on the subject, there seemed sufficient reason for our giving the venom a trial.

Observations on epileptics made under colony supervision should be useful, since the life there is the most regular and healthful possible. Patients are not left to report on their own condition—a method of gathering information which may be most unreliable. Attacks often occur while patients are asleep, and frequently there are manifestations during the day of which these persons are unaware. Again, seizures may prevent them from reporting regularly to the physician. These conditions and others detract from the value of the work when the patients are not kept under close observation.

For the purpose of this study a fair group of patients having idiopathic epilepsy was selected for three months' treatment. Afterward came the work of leveling up to determine as nearly as possible just what effect crotalin had on these patients. This was a difficult problem, and a few words parenthetically may not be out of place.

Epilepsy is perhaps the most peculiar disease known. Aside from their epileptic phenomena and characteristic temperament, some of these patients are in moderately good physical condition. All paroxysms may cease for a time without known cause and in very rare instances a spontaneous cure has occurred. An acute illness usually holds the seizures in abeyance, and pregnancy occasionally does the same. Some epileptics have attacks only when asleep, and there are a few whose disease is never suspected. Seizures may be so mild as scarcely to be observed even while the patient is watched, or status epilepticus may supervene at any time, and this condition is often fatal by the third attack. About one out of ten epileptics has frequent insane episodes which occur precipitately, and there is no more dangerous form of insanity. Self-consciousness may be lost suddenly,

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* From the Pennsylvania Epileptic Hospital and Colony Farm and the Department of Neurology of the University of Pennsylvania.

and in this state of automatism the worst of crimes have been committed without the subsequent knowledge of the patient. When in such a condition the subject is no more responsible for his actions than we are for our dreams.

There is a great deal more to epilepsy than fits; indeed, the cardinal symptom of epilepsy is the disturbance of consciousness and not the motor manifestation.

In a series of cases no course of treatment has been highly gratifying, and sometimes disappointment comes when it is least expected. A patient now under observation is a case in point. She is a 14-year-old schoolgirl at our colony, and was having on an average twenty-five seizures a month. Under active thyroid treatment she made decided improvement in every respect, and for six months was without attacks. Of course we thought we were on the right track. And then, without known cause, she began with a few isolated attacks and a little later suddenly broke into a series of 142 seizures which were by far the worst she has ever experienced.

Our observations were made on six patients who had idiopathic epilepsy. All but one were given an intramuscular injection of crotalin once a week for three months. We began with $\frac{1}{200}$ grain, and the amount was gradually increased to the strength mentioned in each case.

A distinct psychic influence is often observed in the treatment of epileptics, and in view of this the purpose of the injections was kept as much as possible from the knowledge of the patient.

CASE 1.—A. P., a Hebrew girl aged 16, had been a resident of the colony for two years. Her attacks began at 8 years of age without obvious cause. She was one of the best pupils in our school, but still was just a shade below the average girl in mentality. The seizures were both major and minor. She had never had status epilepticus, nor had there ever been an insane episode. When treatment was begun her attacks were about as frequent as at the time of admission. The injections were gradually increased to $\frac{1}{50}$ grain. This girl always had an irritable disposition; she improved somewhat in this respect. For the year previous to treatment she had an average of eighteen attacks a month and during treatment there was an average of seventy-nine seizures a month.

CASE 2.—J. C., a boy aged 16, had been a resident of the colony for four and a half years. His attacks began in infancy without known cause. The clinical history of this patient showed two attacks of status epilepticus which were followed by stupor for about four weeks. He was feeble-minded. For the year previous to treatment there had been an average of twenty seizures per month. After treatment for a month his attacks began to increase in number, and then status obtruded itself and this was followed by a stuporous state which persisted throughout the treatment. The final injection was $\frac{1}{40}$ grain. The status was somewhat confusing but so far as we could determine, this patient was uninfluenced by treatment.

CASE 3.—L. M., a woman aged 34, had been a resident of the colony for three years. Her attacks had begun fifteen years ago and were about as frequent as at the time of admission. She was feeble-minded. The final injection was $\frac{1}{30}$ grain. For the year previous to treatment her attacks occurred twelve times a month and during treatment there were about thirteen a month. This patient was apparently uninfluenced by treatment.

CASE 4.—E. M., a woman aged 32, single, had been a resident of the colony for nine years. The first attack occurred at 19 years of age just after the death of her mother. The attacks were both major and minor and at the time of admission were occurring about five times a day. Occasionally the seizures were in series. The intelligence of this patient is

that of the average epileptic. She has always showed some mental depression and has suffered frequently from headache. At one time she was placed for three months on a drug prominent in the armamentarium of the epileptologist, and made very decided temporary improvement. During the last month of this period she had only four very light attacks; she was mentally alert and showed less depression than at any time during her residence at the colony. Unfortunately she, like so many others, relapsed. It was thought that this patient might prove responsive temporarily to crotalin also, but an unusual condition developed. After the first injection her arm became intensely swollen, much more so than those of the other patients. For the week following she had twenty attacks. The second injection, which was $\frac{1}{150}$ grain, gave rise to more marked local reaction and for the ensuing week there were fifteen attacks. The third injection was $\frac{1}{125}$ grain, and the local disturbance resulting was most intense. During the following week there were twenty-two seizures and these were more severe than any that had occurred during the patient's nine years' residence in the colony. In addition to the cellulitis there was prostration, extreme mental depression, loss of appetite and nausea; she had constant and severe headache. Because of these symptoms the injection for the following week was omitted, when her condition promptly improved and she had only twelve minor attacks. A week later, $\frac{1}{100}$ grain was given, and ten attacks were recorded with a return of all the toxic symptoms. Another injection was tried the next week, with the result that fifteen severe convulsions followed and the toxic symptoms which ensued were so severe as to cause us to feel that further trial was unjustified.

CASE 5.—C. A., a man aged 35, a clerk, had been a resident of the colony for seven years and was usefully employed there. He was married at 27 years of age and his first seizure occurred four months later. Epilepsy developing at that age is sometimes on a syphilitic basis. The ophthalmologic examination by Dr. H. Maxwell Langdon, the Wassermann test by Dr. Corson-White and the absence of luetic neurologic findings all spoke against syphilis. Some years before there had been an insane episode of two days' duration. This patient's mental condition was better than that of any other of the adult colonists. He was considered a good subject for treatment because of his preserved mentality, and beside he was exceedingly desirous and we may say almost insistent on treatment. He had come to the city and consulted a physician and would have left us to take the crotalin treatment had he had the money to do so. Attacks for the year previous to treatment were about as frequent as at the time of admission and amounted to three severe seizures a month occurring in series. The final injection was $\frac{1}{25}$ grain. During the treatment he had an average of five attacks a month, he was exceedingly irritable and quarrelsome and his memory was somewhat impaired. He realized that he was worse than before and asked that the treatment be discontinued.

CASE 6.—The family of this patient was exceedingly anxious that the treatment be given. J. C., a man aged 23, single, had been a resident of the colony for one year and three months. His attacks began at 9 years of age without known cause. His clinical history showed that he had had a few brief periods of mental aberration. The last injection given was $\frac{1}{25}$ grain. Previous to treatment there were on an average of thirteen attacks a month, and during treatment there were twelve attacks a month; but in the midst of the course he had an insane period of three weeks' duration during which time he was free from seizures. His subsequent history included three insane periods of short duration and three series of major epileptic attacks. The last series occurred two and a half months after treatment had stopped. During the last series, which was of two days' duration, sixty convulsions occurred and then he died.

Briefly stated, our experience with crotalin in the treatment of six cases of idiopathic epilepsy was this: Two patients were uninfluenced; two were worse during the treatment; one, early in the course developed

such intolerant toxic symptoms that further experimentation was unjustified, and the last patient died two and a half months after treatment. While we did not feel that death resulted from the use of cro-talin, the patient's disease certainly was not benefited by the treatment.

2005 Chestnut Street.

THE NORMAL AND PATHOLOGIC PHYSIOLOGY OF THE VIS- CERAL NERVOUS SYSTEM

WITH ESPECIAL REFERENCE TO VAGOTONY
AND SYMPATHICOTONY: A REVIEW *

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If one contemplates the contemporaneous literature, one is greatly impressed with the volume of work which is being done on the sympathetic nervous system.

It was Langley who, in the latter part of the nineteenth century, first called our attention to a more correct notion of the autonomic nervous system. He showed that the conception then current—that the sympathetic nervous system served wholly as a nerve pathway through which the so-called sympathetic actions of distant organs were affected and that it did not, as Bell taught, arise from the brain by branches connected with the fifth and sixth cranial nerves—was wrong. His views in the main are those of the present-day conception.

ANATOMY AND PHYSIOLOGY OF THE VISCERAL NERVOUS SYSTEM

The autonomic nervous system, better termed the vegetative nervous system, is that system of efferent fibers arising from the sympathetic and related ganglia which supplies the organs of involuntary processes of the body and possesses a certain independence of the central nervous system. Its anatomy is too well known to be given here in detail. Briefly, it includes some of the cranial and sacral nerves and the sympathetic system proper. The latter is composed of a chain of ganglia lying on each side of the vertebral column. One ganglion, as a rule, is present to each spinal nerve-root. In the cervical region only two ganglia are found, namely the superior and the inferior cervical ganglia. These are united by the cervical sympathetic trunk. The upper three to four thoracic ganglia are condensed to form the stellate ganglion. At the bottom of the chain only one coccygeal ganglion is found for the coccygeal vertebrae. All these constitute the first system or the "lateral ganglia."

The second system of ganglia in the abdomen, called the "collateral ganglia," has a special connection

with the abdominal viscera and includes the semilunar or solar ganglion, and the superior and inferior mesenteric ganglia.

The third system of ganglion cells, called the "terminal ganglia," including Auerbach's, Meissner's and the cardiac plexuses, is found in the viscera themselves. These have, as a rule, no connection with the fibers of the sympathetic system, but lie on the course of impulses descending by other nerves of the vegetative system, for example, the vagus or pelvic visceral nerves. This system is capable of some independence of the other nervous systems.

The sympathetic ganglia are connected with the spinal nerves just after they have given off their posterior divisions by means of rami communicantes, which are of two kinds: (1) white rami, consisting of small medullated fibers, and (2) gray rami, almost exclusively non-medullated fibers. The white rami are formed by fibers which have their origin in the spinal cord and perhaps in the posterior root ganglion. The gray rami represent fibers which, arising in the sympathetic ganglia, run back to join the spinal nerves.

The outflow represented by the white rami is limited from the first thoracic to the third or fourth

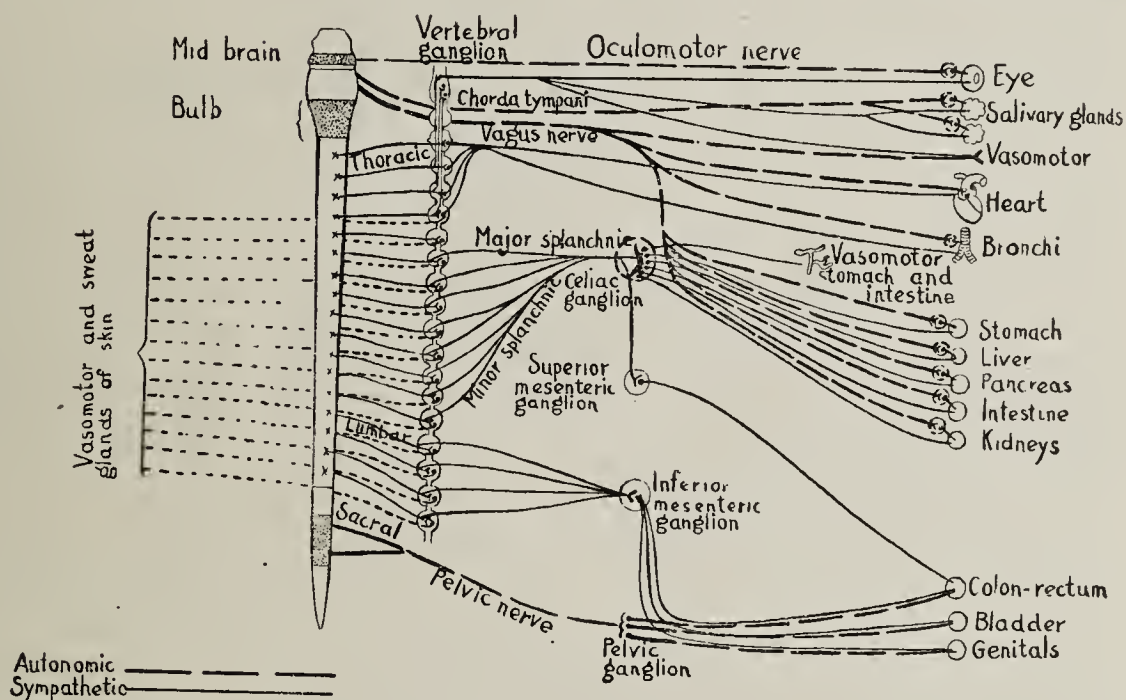


Diagram of the anatomic relations of the autonomic and sympathetic systems (from Meyer and Gottlieb, *Experimentelle Pharmakologie*, 1911, p. 128).

lumbar nerve-roots; whereas gray rami pass from the sympathetic to all spinal nerve-roots. Thus it has been shown by experiment that stimulation of a limited number of white rami produces all the effects that can be evoked by stimulation of the gray rami, showing that impulses leaving the cord pass upward and downward in the sympathetic system and are broken somewhere in their course, being transferred to a fresh relay which, by means of non-medullated nerves, carries them on to their destination.

Langley, therefore, has shown that each fiber of the sympathetic nervous system can be regarded as being made up of two sections: (1) preganglionic fiber, which is medullated, arises in the central nervous system and passes down to a ganglion, and (2) postganglionic fiber, usually non-medullated, which arises from the ganglion and continues to its peripheral distribution.

Some authors state that between the muscle or gland and the nerve terminal an intervening substance

* Read before the San Francisco County Medical Society, Feb. 10, 1914.

(myoneural, adenoneural) is present, in which the ions of the various elements exert their specific action.

Besides the main sympathetic nerves derived from the spinal cord region, certain cranial and spinal nerves, namely, the third, fifth, seventh, ninth and tenth cranial nerves and the nervi erigentes from the sacral region of the spinal cord, have visceral fibers belonging to the vegetative nervous system, not directly connected with the sympathetic or the central nervous system. Those visceral fibers connected with the cranial nerves are termed the cranial autonomic nervous system, those in the sacral region, the sacral autonomic nervous system, the whole constituting the autonomic nervous system, sometimes termed the vagal system.

The visceral fibers of the third cranial nerve are called the midbrain autonomics. These pass as preganglionic fibers to the ciliary ganglion in the orbit, where they end. The postganglionic fibers from this ganglion form the short ciliary nerves which innervate the sphincter pupillae and ciliary muscles.

The visceral fibers connected with the other cranial nerves constitute the hindbrain autonomics.

The visceral fibers of the seventh cranial nerve arise from the medulla and intermediate nerve of Wrisberg (which is practically the anterior continuation of the ninth, tenth and eleventh cranial nerves), and give rise to the chorda tympani, which supplies the vasodilator nerves to the tongue, submaxillary and sublingual glands besides supplying secretory fibers to these glands. The preganglionic fibers to the sublingual and submaxillary glands end in the submaxillary ganglion.

The seventh cranial nerve also sends preganglionic visceral fibers to the sphenopalatine ganglion, whence the postganglionic fibers run with branches of the fifth cranial nerve to supply secretory and possibly vasodilator fibers to the mucous membrane of the nose, soft palate and upper pharynx.

The visceral fibers of the ninth cranial nerve, namely, the otic ganglion, produce vasodilatation and secretion of the parotid gland. Also a few dilator fibers go to vessels at the back of the tongue.

The visceral fibers of the tenth and eleventh cranial nerves arise in the same column of cells as the seventh and ninth. Most of these fibers run in the vagus, and include motor fibers to the esophagus, stomach and small intestines as far as the ileocolic sphincter and inhibitory fibers to the heart and smooth muscle of the bronchial and gastric glands. The preganglionic fibers end in the jugular ganglia. (It has been shown that the ganglia of the trunk of the vagus is probably the cell station for afferent fibers in this nerve.)

The nervus erigens contains all the pelvic visceral fibers and is connected with the ganglia lying in the hypogastric plexus. It has the following functions:

1. Dilator to the vessels of the penis.
2. Motor to the bladder, colon and rectum.
3. Inhibitory to the sphincter of the bladder.
4. Inhibitory to the retractor penis.

The afferent fibers of the visceral nerves probably arise from the cells of the posterior spinal ganglia.

In general it may be said, according to Langley, that the supply of afferent fibers of the viscera is very small in proportion to that of the outer surface of the body. For example, in the hypogastric nerve and also in the splanchnics, only about one-tenth of

the medullated fibers are afferent. In the mouth, anus, lung and bladder, where both somatic and visceral innervation are represented, the afferent visceral supply becomes much greater in proportion; for instance, the pelvic visceral nerve contains about one-third afferent fibers.

Notwithstanding their afferent nerve-supply, ordinary stimulation of the viscera, such as handling, etc., produces no sensation of pain to the patient; but pathologic stimulation, such as stretching, compression and other effects of disease, is productive of pain which, as Head and Mackenzie have shown, is not referred to the diseased viscus, but is referred to certain parts of the cutaneous surface, hypersensitivity of which localizes in large measure the position of the diseased viscus.

In describing the visceral fibers coursing with certain cranial nerves, the functions of these fibers was hinted at. The fibers of the vegetative nervous system, it may be stated generally, are not equivalent in their functions; for example, the heart-beat is quickened by stimulation of the accelerators (sympathetic) and slowed by stimulation of the vagi (autonomic). Again, the functions of the vagus for the greater part

TABLE 1.—EFFECTS OF ELECTRIC STIMULATION

| Nerve or Region Stimulated | Result |
|--------------------------------------|--|
| Oculomotor nerve (autonomics).... | Pupillary contraction. |
| (Midbrain) | Accommodation spasm. |
| Sympathetic (in the neck)..... | Pupillary dilatation. |
| Vagus (autonomics) | Slowing of heart or stoppage of heart. |
| Accelerators (sympathetic) of heart. | Quickening of heart-beat. |
| Sympathetics | Arrest of secretion of salivary glands. |
| Autonomics (chorda tympani)..... | Salivation. |
| Sympathetic (splanchnics) | Decrease in tonus of stomach and intestines. |
| Autonomics (vagus) | Increase in secretion of gastric juice. |
| | Increase in tonus of stomach and intestines. |
| | Decrease in secretion of gastric juice. |
| Sympathetic | Relaxation of detrusor of bladder. |
| Autonomics (pelvic visceral nerve). | Contraction of detrusor of bladder. |

of the gastro-intestinal canal are motor, while those of the splanchnics (sympathetic) are inhibitory. These two examples not only show that the functions of the two sets of visceral fibers are antagonistic to each other, but they also cite what is true for most of the viscera: that generally the viscera are innervated by both the craniosacral (autonomic) nervous system and also by the sympathetic nervous system with functions reciprocal to each other. The functions, moreover, of any one set of fibers for a given viscus are not always sharply outlined; for instance, the colonic branches of the superior mesenteric ganglion are motor (constrictor) for the blood-vessels and inhibitory for the muscular walls of the colon; also the sympathetic, being inhibitory to the intestines generally, is also motor to the ileocolic sphincter, and sends both motor and inhibitory fibers to the bladder. Again, the nervi erigentes are not only dilator to the vessels of the penis and motor to the colon, bladder and rectum, but inhibitory to the sphincter of the bladder and to the retractor penis.

The adequate stimuli capable of producing effects through the visceral nervous system may be summed up under the following captions:

1. Electric stimuli.
2. Mechanical stimuli.
3. Chemical stimuli, including those of:
 - A. Exogenous origin.
 - B. Endogenous origin: (a) hormones, (b) internal secretions, (c) toxins, etc.
4. Emotions (probably ultimately chemical).

1. The effects of electric stimulation are given in Table 1.

2. Mechanical stimulation of the same nerves causes in general the same effects as produced by electric stimulation.

3. Chemical substances, whether exogenous or endogenous, are found to exert their influence on the vegetative nervous system, sometimes affecting one system exclusively, sometimes another, and sometimes both.

A. Exogenous chemicals:

1. Nicotin interrupts conduction at the junction (synapse) of the preganglionic and postganglionic fibers of both the autonomic and sympathetic systems.

2. Pilocarpin, muscarin and physostigmin and digitalis stimulate the vagus system (autonomics) and are therefore called vagotropic or vagotonic drugs. The signs produced by these drugs are similar to those produced by electrical stimulation of the autonomics, namely, myosis, bradycardia, salivation, etc.

3. Atropin, scopolamin and other products of the belladonna series produce their effects by paralysis of the terminals of the vagus system (autonomics), especially the cranial autonomics, and are termed vagoparalytic drugs. The well-known effects of administration of these drugs—for instance, mydriasis, dry mouth, tachycardia, etc.—are very similar to the effects produced by stimulation of the sympathetic.

4. Picrotoxin has been shown to stimulate the preganglionic fibers of the autonomic system (vagus system).

5. Ergotoxin has a paralytic effect on the terminals of some of the sympathetic fibers (sympatheticoparalytic), and can be compared to the effects of atropin, etc., on the autonomic terminals.

6. Cocain stimulates all the sympathetic fiber terminals, producing mydriasis and exophthalmos; the effects of cocain are not produced after degeneration of the sympathetic fibers. It has also been shown that cocain sensitizes the sympathetic fibers to epinephrin (which see), and that so-called cocain poisoning is not really the effects of cocain, but rather an epinephrin effect.

B. Endogenous chemicals, hormones, toxins, etc.

7. Epinephrin stimulates the sympathetic system only at the terminal of the postganglionic fibers. It is sympathicotonic or better, sympathicotropic in action, and its effects are similar to those produced by electric stimulation of the sympathetic system.

8. Iodothyrim stimulates the sympathetic, especially in the cervical and thoracic regions.

9. Pituitrin causes vasoconstriction other than renal, and also produces contractions of the bladder and uterus.

10. Cholin (extracted from the cortex of suprarenal glands) produces results similar to pilocarpin, that is, vagotonic.

11. Recently Voegtlin and Macht isolated from the cortex of the suprarenal bodies a sympathicotonic substance whose effects were longer lasting than those of epinephrin.

12. The internal secretion of the pancreas favors inhibition of the sympathetic and is antagonistic to epinephrin, that is, vagotonic.

Many other less important substances could be included in this list, but we can at once see that electric stimuli and certain chemical stimuli are iden-

tical in their effects for a given set of fibers, and also that when organs are doubly innervated a certain effect can be produced by either the stimulation of one set (for instance, the sympathetic), or by paralysis of the other (that is, the vagus). Again it might be well to cite an example of this: a dilated pupil could be produced by paralysis of the vagus system or by stimulation of the sympathetic system in the neck (both of which conditions could, as stated above, be produced by chemicals).

Epitomizing the effects of chemical stimulation on the vegetative nervous system, we can make the classification given in Table 2.

4. Cannon and de la Paz have shown that psychic excitement and fright are associated with stimulation of the vegetative nervous system and are capable of producing: (1) sympathicotonic effects such as pallor, mydriasis, tachycardia, and (2) vagotonic effects such as epiphora, sweating, etc.

Grouping all the foregoing effectual methods of stimulation of the vegetative nervous system together, it can readily be seen that the effects of various stimuli to the autonomic system (vagus system), and to the sympathetic system are in general specific and reciprocal.

SIGNS OF VEGETATIVE NERVOUS SYSTEM DISORDERS

When one considers the wonderful balance which is maintained, not in the peripheral nervous system

TABLE 2.—EFFECTS OF CHEMICAL STIMULATION

| Part or System Affected. | Effect | Drug Used |
|--|-------------------------|--|
| Synapse: autonomic (vagus system) sympathetic. | Paralysis ... | Nicotin. |
| Autonomic system..... | Stimulation.. | Muscarin, pilocarpin, physostigmin, picrotoxin, digitalis and its derivatives, cholin, internal secretion of pancreas. |
| Autonomic system..... | Paralysis of terminals. | Scopolamin, atropin and belladonna derivatives. |
| Sympathetic in part..... | Paralysis (terminals). | Ergotoxin. |
| Sympathetic wholly or in part. | Stimulation.. | Epinephrin, iodothyrim, pituitary extract, cocain. |

only (as evidenced by the action of opposing muscles in the acts of walking, standing, etc.), but especially in the vegetative nervous system, examples of which are manifold (as the equality of the pupils and the effects of light and other stimuli; the tone of the capillary system, and the rate of the heart-beat and its various rate modifiers), he is likely to give to the latter-named system the clinical weight which it so richly deserves, but which, for lack of definite knowledge of the effects on it of various agencies such as chemicals, ductless glands and metabolic disturbances on the various organs, is now being actively pursued.

The neurologist of to-day must needs fasten his attention, not alone on the study of the central nervous system, but also on the study of the vegetative nervous system—visceral neurology. How many are the cases which, when studied in this light, yield data which have helped to decide the correct and logical course of treatment instead of the formerly much-abused empirical course?

At this point it may be well to call attention to a renumeration of some of the more important symptoms and signs which the visceral neurologist must take heed of, given in Table 3.

Many other examples could be cited, but Table 3 constitutes a good framework on which one can build a classification of certain groups of diseases showing a predomination of vagotonic or sympathicotonic signs. Many of these signs and symptoms can be produced by decreased functioning of one of the systems with corresponding overfunctioning of the other; for example:

Tachycardia could be produced by paralysis of the vagus or overexcitation of the accelerators (sympathetic), etc.

Acrocyanosis, by paralysis or paresis of the vasoconstrictors to the skin.

Low blood-pressure by lessened sympathetic tonus.

Pigmentation of the skin in decreased sympathetic tonus.

IMPORTANT SYMPTOMS AND SIGNS

| Vagotonic Symptoms and Signs | Sympathicotonic Symptoms and Signs |
|--|---|
| 1. Myosis. | 1. Mydriasis. |
| 2. Accommodation spasm. | 2. Paralysis of accommodation. |
| 3. Epiphora. | 3. Dryness of eyeballs. |
| 4. Hyperhidrosis. | 4. Dryness of skin. |
| 5. Frequency of winking. | 5. Infrequency of winking (Darwin's sign). |
| 6. Salivation with constant spitting. | 6. Dryness of mouth. |
| 7. Hyperacidity of stomach contents. | 7. Low gastric acidity. |
| 8. Arrest of secretion of gastric glands (achylia). | 8. Increased gastric secretion (gastrosuccorhea). |
| 9. Hypermotility of stomach and intestines. | 9. Lessened intestinal tonus. |
| 10. Vomiting. | 11. Constipation. |
| 11. Diarrhea (8 to 10 times daily). | 13. Faulty convergence of eyes (Moebius' sign). |
| 12. Spastic colon. | 15. Wide eye-slits. |
| 14. Biliary colic (inhibited by atropin). | 16. Exophthalmos. |
| 16. Enophthalmos. | 17. Tachycardia. |
| 17. Bradycardia. | 18. High blood-pressure. |
| 18. Low blood-pressure. | 19. Vasoconstriction as seen in (a) peripheral anemias, (b) intermittent claudication, etc. |
| 20. Pollakiuria. | 20. Relaxation of detrusor of bladder (incontinence) |
| 22. Asthmatic attacks. | 21. Urticaria. |
| 23. Esophagism. | 25. Atony of stomach. |
| 24. Mucous colitis (analogue of bronchial asthma). | 26. Gastroparesis. |
| 25. Gastrosplasm and pylorospasm. | 27. No dermatographia. |
| 27. Dermatographia. | 28. Tonsils small and atrophic. |
| 28. Outspoken status thymico-lymphaticus. | 29. Gag-reflex marked. |
| 29. Gag-reflex almost absent. | 30. Eosinopenia. |
| 30. Eosinophilia. | 32. Tachypnea with dyspnea (not affected by atropin). |
| 31. Pulsus irregularis respiratorius, which disappears with atropin. | 33. Dry hands and feet. |
| 32. Irregular breathing (disappears with atropin). | 35. Aschner's phenomenon produces no change in pulse. |
| 33. Clammy hands and feet. | 37. Steatorrhea. |
| 34. Priapism. | 38. Lowered carbohydrate tolerance before and after epinephrin administration (i. e., epinephrin hypersensitivity). |
| 35. Aschner's phenomenon produces slow pulse. | 39. Pilocarpin causes no salivation. |
| 36. After atropin-pressure on eyeballs produces no slowing of pulse. | 40. Locwi test. |
| 37. Increased fat tolerance. | |
| 38. Increased carbohydrate tolerance before and after epinephrin administration. | |
| 39. Pilocarpin causes extreme salivation. | |

TESTS

The following tests are used in the physiologic and pharmacodynamic studies:

1. *Loewi's Test*.—From 2 to 3 drops of a 1:1,000 epinephrin solution, instilled into the eye of a normal person, produces vasoconstriction but no pupillary dilatation. In some forms of hyperthyroidism, especially with lowering of autonomic sensibility, a pupillary dilatation occurs. This is also produced in pancreatic diabetes, that is, hypersusceptibility of pupils to epinephrin.

2. *Aschner's Phenomenon*.—Pressure on the eyeballs for from one-half to one minute produces no change of pulse in normal persons. When vagotonia exists there is a rather sudden slowing of the pulse with this procedure. (This effect is caused by pressure on the eyeballs stimulating the trigeminus and reflexly the vagus, stimulation of which causes bradycardia and stoppage of respiration in the expiratory phase.)

3. *Pilocarpin Test*.—Pilocarpin, $\frac{1}{40}$ grain (hypodermically), causes extreme salivation and bronchial secretion in vagotonia. No salivation is noted in sympathicotonia.

4. *Fat Tolerance*.—The normal fat tolerance is from 100 to 150 gm. in twenty-four hours. The patient is given 200 gm. of butter, with meals, to be eaten in twenty-four hours. The stools are saved and examined for fat for forty-eight hours following. Fat-free stools indicate a vagotonic condition. Marked steatorrhea indicates a sympathicotonia.

5. *Carbohydrate Tolerance*.—Normally 100 gm. of glucose can be taken on a fasting stomach without a resulting glycosuria. In sympathicotonia a spontaneous glycosuria is produced, whereas an increased tolerance for glucose is present in vagotonia. The test is performed in the following manner:

On the fasting stomach 100 gm. of glucose with 400 c.c. of water are given at 6 a. m. The patient immediately urinates and hourly thereafter for five hours. The specimens are to be saved separately and examined for glucose. The first specimen is used as a control. The tolerance for carbohydrates can be determined then by increasing or decreasing the amount of glucose at each test until a faint reduction to Fehling's solution is produced.

6. *Epinephrin Hypersensitiveness*.—One hundred gm. of glucose by mouth and 1 mg. of epinephrin hypodermically are given from a quarter to half an hour later, and the carbohydrate tolerance test, just described, followed out.

In vagotonia no glycosuria is produced by this procedure. In sympathicotonia about 6 gm. of glucose are excreted in the urine in five hours.

7. *Pulsus Irregularis Respiratorius (Hering)*.—On deep inspiration and on expiration only slight normal physiologic difference is noted in the rate and size of the pulse. In vagotonic states, inspiration causes increase in the rate of the pulse and decrease in the size; expiration causes slower pulse and increase in size (best shown by tracings).

8. *Dermatographism*.—A. After blushing (Polonski) produced by rubbing the skin, pathognomic of loss of equilibrium in the vegetative nervous system, probably deficient sympathetic tonus.

B. "Perverse reaction" (Hess and Konigstein).

Rubbing the skin produces stimulation of the pilomotor fibers and vasoconstriction, that is, sympathicotonia. Patients in this group usually have pallor of the face which gets paler under psychic stimuli (whereas the normal result should be blushing).

To attempt a clinical classification at this time with the foregoing data is without the scope of this paper, but it would not be amiss to give in general the results of observation in twenty-three cases studied from the point of view of vagotonia and sympathicotonia. These cases include 11 of exophthalmic goiter, 6 of neurasthenia, 1 of bronchial asthma, 3 of hyperthyroidism, and 2 of gastric ulcer.

In general, it was found that one case reacted according to the vagotonic or to the sympathicotonic classification only. Just one case of gastric ulcer could be considered pharmacodynamically and symptomologically vagotonic alone.

The hyperthyroidism and neurasthenic cases portrayed as many vagotonic as sympathicotonic signs, and were just as sensitive to epinephrin as to pilocarpin.

One case of bronchial asthma, clinically vagotonic, reacted violently to epinephrin with marked rigor,

tremor, chill, increased blood-pressure and glycosuria. This patient was also pilocarpin-sensitive. Atropin had no therapeutic effect on the attack.

Patients with exophthalmic goiter follow the clinical classification described in the outline, and a very interesting fact was noted in these cases. The region most affected, the eye, heart, etc., was more sensitive pharmacodynamically than were others not so implicated. When tachycardia was marked, epinephrin caused greater relative increase of the tachycardia than it did on the blood-pressure or tremor when these were not so marked. One case showed 2 per cent. eosinophilia, after pilocarpin; this increased to 5 per cent.

The chief symptoms produced in patients sensitive to pilocarpin were: marked salivation and sweating, lowered blood-pressure and slight nausea, and capillary dilatation, increase in surface temperature sometimes amounting to 1 degree. In one case the pulse was *slowed*. Eosinophilia was noted twice in the series.

Epinephrin-sensitive patients reacted with tremor, tachycardia, increased blood-pressure (in one case by 20 mm. Hg), glycosuria and rigors.

Hemmeter has emphasized that "patients who already have an organic disease of the stomach will answer more readily to chemicals that excite the secretions and motions of the stomach than normal individuals." The same can be said of the heart, kidney, skin, ductless glands and the general nervous system.

The subject of vagotonic and sympathicotonic states is still in its infancy, and the sharp lines drawn by the originators of this conception will in time be so modified that a clearer conception of disease entities due to disturbances of the vegetative nervous system will be ferreted out.

Neuroses of various kinds, ductless gland disorders, vicious cycles, etc., will then be classified into rational clinical and pharmacologic bases. The fruits of these studies will not only enrich the fields of normal and pathologic physiology, but will also help to dispose of many fallacious conceptions existing in these realms.

Visceral neurology has come to stay. It will be found a stalwart weapon for attack on the diagnosis of many obscure conditions now classified under neurasthenia, neuroses, etc. The etiology of many common diseases, such as gastric ulcer, cardiospasm, constipation, ductless gland disturbances, etc., will be cleared up, thereby permitting a rational method of therapy.

At some future date an exposition of the cases will be given, and it is hoped that this paper will serve to stimulate active work in this fascinating subject.

I am greatly indebted to Dr. R. L. Wilbur for the use of patients in his wards.

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Heredity.—Heredity is not, as is often imagined by biologists, a necessary property of living matter, comparable to the inertia of matter, a sort of biologic postulate which does not require a genetic explanation for itself. It is, like all biologic phenomena, a product of evolution; it is an adaptation, the prototype of all adaptations. Moreover, it is of fundamental importance, because without it life itself could not have been preserved, nor could there be any stability of form or of mechanism.—Lugaro, Problems in Psychiatry.

THE SURGICAL TREATMENT OF POST-OPERATIVE PALATE DEFECTS

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Acquired openings through the palate, if surgical or due to accidental injury, show an active tendency to repair which quite often results in the ultimate closure of fissures that under other conditions might not be expected to close without surgical operative interference. When these lesions occur as a result of syphilis, the hard-palate defects show remarkable ability to close themselves if the parts are kept properly clean and protected by a suitably adjusted plate; but when luetic ulcerations have destroyed any portion of the velum the characteristic contractions of scar tissue usually so deform the soft palate that it suffers not only the ill effects due to the tissue actually lost, but also still greater injury through the deformity, which often is exceedingly difficult to overcome when restoration is attempted.

Aside from considerations pertaining to the nature of the cause of the palate fissure, and those which concern the constitutional treatment necessary to preparation for operation in individual cases, the actual surgical requirements do not differ materially from those demanded in closure of the postoperative palatal defects of congenital cases.

Bearing in mind these exceptions we may therefore include them all in the following classifications:

1. Contraction and arrested development of the hard palate, associated with intranasal and extranasal defects and irregularities of the teeth due to forcible compression in an effort to close the palate fissure in early infancy.
2. Defects in the anterior portion of the hard palate augmented by imperfect labial connection in this region, as found almost invariably when the premaxilla has been removed or destroyed in closure of double harelip, and sometimes when the premaxillary portion of the palate has not been perfectly joined to the other maxillary divisions in infant operations.
3. Openings through the central portion of the hard palate alone.
4. Opening at the junction of hard and soft palates involving both.
5. Hole in the central portion of the velum palati.
6. Defect occurring on one side at the posterior border of soft palate.
7. Fissure between the uvulae.
8. Imperfect form of the faucial arches due to defective operative results.
9. Velum too short.
10. More than one defect, including any of the forms previously described.

Each of the foregoing conditions may be subject to many clinical subdivisions with reference to form and situation, and each requires distinct recognition in determining the operative steps to be followed in attempting their correction. Failure in this respect means almost invariably an ineffectual result. The measure of an operator's success in the treatment of these cases, presenting as they often do, histories of many previous unsuccessful attempts to close such palatal fissures completely, will be determined largely by his ability to detect and overcome the underlying opposing factors in each case, and the accuracy with

which his operative methods may be modified to meet the existing adverse conditions.

Although good results have been reported by surgeons who have reoperated soon after it became apparent that the sutures of a previous operation would not hold and that sloughing of the parts was actively destroying tissue at the line of apposition beyond the hope of success, this does not seem to me to be an advisable procedure. It is altogether probable that such benefit as may have been secured in this way has resulted not, as has been asserted, so much from an improved local resistance due to leukocytosis as from the fact that separation of the mucoperiosteal tissue was more efficiently accomplished at the second than at the first attempt. Thus tension was more effectually overcome and the result consequently better.

In my own practice I am governed by the belief that once the mucoperiosteal flaps have been raised and moved across in an attempt to close the palate fissure, it is better, if possible, to allow a period of from nine months to one year to elapse before again undertaking the same kind of operation because it takes time to reestablish circulation in these tissues sufficiently to give them a dependable resistance. The underlying principle of all my operations has been to restore the parts in such form as to maintain as nearly as possible the natural relation of all of the tissues involved. The necessity for this I referred to at length in an article¹ illustrated by pictures of dogs' palates on which I operated according to different methods.

In undertaking the surgical closure of palatal defects, the omnipresent question invariably arises. Shall tissue be secured to cover the openings by dissecting free a sufficient area from one side and turning it over so that the structures are reversed with an attached pedicle on the inner border of that side and suturing the free edge to the freshened border on the opposite side in accordance with the principles governing the Davies-Colley and other similar operations in the performance of uranostaphylorrhaphy, or shall mucoperiosteal flaps be raised and brought together by taking advantage of the arch of the palate supplemented by liberating incisions on each side to aid in effecting coaptation along the central line after the methods of von Langenbeck as modified at the present time?

The objection that I have previously urged against flap-reversing operations is that they do not appear to give the best results in the course of postoperative development. This does not hold in anything like the same degree against the employment of these methods in closing small openings because the importance of periosteal activity in bone production in these cases is not so great. Nevertheless, I feel that it is worth every effort to try to gain the desired results without disturbing the natural mucoperiosteal relationship to the bony portion of the palate, whether the opening be large or small. Although conditions favorable to bone formation are not so vital as when a large palatal fissure is involved, there is always the possibility of more or less sloughing in spite of every care. It is therefore better to keep the parts in such form that subsequent granulation of the wound surfaces will tend to fill in any opening that might still exist. If it does not fill in completely by granulation the result on the surrounding structures ought to be favorable

rather than unfavorable to successful closure at a later operation, should one be necessary. The loss of a flap so raised and reversed as to leave a corresponding surface of bone denuded might render further surgical operative measures practically useless because this portion of the palate might not be completely restored, and any such bare surface would at best be covered only by a thin layer of tissue that would not be dependable or serviceable for flap purposes.

The difficulties which are to be overcome, or through which in my experience defects most often result are:

1. Separation at the line of coaptation and sloughing may result from tension on the sutures caused by tying too tightly in the effort to force the parts together when the mucoperiosteal flaps have been insufficiently freed from the bone surfaces, or are too scant to cover the palatal opening without tension.
2. The contraction of scar tissue following the granulation process that reduces the size of the aperture during the weeks or in some cases months following the previous operation usually gives a more or less funnel shape to the hole with the slope, more marked in a direction from above downward toward the outer surface. The effect of this is that if a complete paring of the tissue at the inner border of the open space is made entirely through from the palatal to the nasal surface much valuable tissue will be lost unnecessarily. If the raw surfaces are secured by splitting the tissue without paring the borders, there is too much tendency to resumption of the original form of the tissue borders during the healing process and this is not favorable to union along the line of tissue coaptation. Usually a sufficient paring can be made to secure raw contact surfaces without serious tissue loss, by careful estimation of the portions of the flap borders that will meet when sutured.

The first of the difficulties enumerated that are due to tension should be overcome by freeing the mucoperiosteal flaps from the bone surfaces as for uranoplasty according to the modified von Langenbeck method, but there is an added adverse factor in the cicatricial tissue that is formed from previous operative procedures which sometimes makes removal very difficult because the mucoperiosteum under these conditions clings tightly to the bone surfaces, and being less elastic than it is under normal conditions is easily injured if too much force is applied in its separation or if the effect of the stress be in a wrong direction. To avoid unnecessary traumatic injury the firmly attached fibrous bands should be completely severed by a thin-bladed knife at just the right angle to make separation between the soft tissue and the bone without injuring the former, otherwise they will be very apt to cause prompt contraction after operation with disastrous results. The denudation of the tissue border surrounding the opening is best performed by following the slant of the openings sufficiently to give a broad raw surface up to the point at which the constriction is most evident. Splitting from this point all round will then give an added thickness without undue loss of tissue.

3. The greater scar tissue contraction on the nasal surface which results from securing raw surfaces by stripping the mucoperiosteum from the bone surface tends to cause retraction, which must be unfavorable to success unless counteracted.

1. Brown, G. V. I.: The Speech Relation of Cleft Palate Operation, THE JOURNAL A. M. A., Oct. 19, 1912, p. 1440.

4. In the endeavor to secure tissue flaps that may be sufficiently large or free from tension when sutured, the blood-supply may be so reduced that necrotic conditions are inevitable.

5. In many cases the parts have not been properly approximated at the previous operations, yet sufficient union has taken place to keep up uneven muscular action. For example, one side may be a little more forward or higher up than the other. Always when the parts are again freed and sutured unless this inequality is corrected there will be a tendency to reassertion of wrong action of muscular fibers that should coordinate. I have found in large numbers of cases that operation after operation had been uselessly performed, because no form of tension suture could hold against the inequality of the strain of ill-united tissues yet readjustment of the parts to more natural anatomic lines gave prompt and perfect union.

6. Sometimes the tissue covering the bony palate, especially at the posterior central portion, is so thin that the combined periosteum and overlying glandular vascular and mucous structures when raised together to form a mucoperiosteal flap are insufficient to resist the bacterial and muscular counteracting influences.

7. There may be an almost denuded bone surface on one side of the palate and an abundance of tissue on the other.

The inequalities due to wrong coaptation, particularly in the region of the soft palate, must receive due consideration. When the borders are loosened from the bone surfaces and ready to permit coaptation of the flaps in the central line without tension, this must be done so that there will be the nearest possible approximation to normal lines. Not infrequently, when several unsuccessful operations have been previously performed, all one can hope to accomplish immediately is readjustment of the parts which will make complete closure later on more easily secured. When this is accomplished, then any defect that may still remain is readily closed; but if it be overlooked the result may leave the palate in worse condition instead of better. When there is almost total absence of tissue on one side due to extensive sloughing or ill-advised destruction at the previous operation with the tissue full on the opposite side it is sometimes necessary to bring about the transposition of good tissue from one side to the other so that at the final operation there may be at least a reasonable measure of tissue from both sides from which to construct flaps. This is done by making a complete closure of the opening and carrying the flap from the good side to the poorer one in such manner that tension will be so distributed that the opening will occur between the two points. In a number of instances I have been able ultimately to close perfectly palates that seemed to be utterly hopeless because there was practically no available tissue left on a sufficient portion of one side of the bony palate.

A large proportion of the most difficult postoperative defects are found among the patients who have been operated on in early infancy by compression or forcing together of the maxillary bones with silver wire and lead plates in an attempt to close the fissure. These may present any of the foregoing defects and in addition such persons almost invariably have nasal defects, quite often with histories of middle-ear and mastoid troubles also, and deformities of the mouth due to contracted

palates and loss of tooth germs through their destruction in the course of the insertion of the wires. Teeth in these cases are frequently found in nearly every conceivable form of irregular development.

The treatment of these mouths naturally involves questions which pertain to health as well as defective speech and facial deformity. In addition to the operative corrections which are the same as for other cases, much may be done by expansion of the upper arch and proper alignment of the irregular teeth. As a rule it is difficult to accomplish this safely by any of the well-known orthodontic methods except with such modifications as may prevent too active separation of the upper maxillae, but in the course of time such treatment may give considerable benefit even though the results can never be as perfect as if there had been no compression of the bony parts.

445 Milwaukee Street.

MEDICAL AND SURGICAL WORK ON BOARD A U. S. BATTLE-SHIP

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The question is often asked not only by laymen but also by members of the civilian medical profession: "What do you do aboard ship to pass away your time? You have only men, and they are healthy, or you would not take them." The following brief and more or less general notes on what we have done during the six months between Oct. 1, 1913, and April 1, 1914, on board this ship — U. S. S. *Wyoming* — might serve to dispel some erroneous ideas. This particular period is not taken because it happens to be exceptionally full. Our reports are sent to the Navy Department quarterly, and the foregoing period includes two complete quarters, thereby making the data more easily tabulated.

Every large cruising ship with hundreds of men aboard has to deal practically with the same conditions, depending, to a certain extent, on the part of the world in which it happens to be. We had to be particularly careful during the cruise of the battle-ship fleet around the world. Thousands of men were given liberty in every port visited, in many of which cholera, plague, leprosy, yellow fever and small-pox were endemic.

Life aboard ship is unnatural under the most favorable conditions, and life aboard a battle-ship is particularly so. We are constantly being exposed to frequent, sudden and severe changes of climate. For example, take the past winter's cruise. We spent the winter months in Cuban waters, sailed north March 15, shifted from white uniforms into blue March 18, and on March 20 we ran into a stiff norther with a blinding snow-storm.

A modern battle-ship is perhaps the highest type of concentrated mobile power developed by the mind of man, containing a greater variety of mechanisms than any other structure as yet constructed. It is a mass of machinery controlled by steam and electricity which must be operated by man. Both officers and men are engaged in a hazardous occupation at all times, night and day, such as handling boats in bad weather, working around the machinery, engine- and fire-rooms, drilling with guns and turrets, coaling the ship, hand-

ling ammunition, and performing a thousand and one other things which go to make up our daily life. The constant noise, bugle-calls, vibrations, artificial light and ventilation, routine and irregular hours tend to bring out very quickly any weak mental strain of which, previous to enlistment, the man was not aware. The life is one of the "survival of the fittest," and the unfit are soon discharged, either by medical survey, undesirability or court-martial.

The ship to which the following notes refer is the U. S. S. *Wyoming*. It is a battle-ship of the super-dreadnought class, of 26,000 tons displacement. The armament consists of twelve 12-inch guns mounted in six turrets, together with twenty-one 5-inch guns and two submerged torpedo-tubes. It is the fleet flagship of the commander-in-chief of the United States Atlantic Fleet. This ship has been in commission one and one-half years, during which time I have served on board as the senior medical officer. Our complement of officers and crew comprises a total of 1,157.

The sick-quarters are ample, well-arranged and thoroughly equipped. They consist of the sick-bay proper, containing twenty-four bunks; an isolation ward of four bunks; an operating-room with all the modern sterilizing apparatus, pedal sinks, lights, etc.; bath-room; a venereal dressing-room; dispensary, and surgeon's office. We have two "battle dressing stations," both below and behind armor, which would be manned during battle, the present sick-quarters being abandoned. Our equipment is practically perfect, instruments, microscopes, test cases, dressings, drugs, typewriters, medical books and weekly medical journals being liberally provided by the Bureau of Medicine and Surgery of the Navy Department.

Our peace working force consists of a junior medical officer, a hospital steward, who is an expert dispenser of drugs, and an excellent clerk, seven hospital corps men who are trained attendants, and myself. During battle twenty members of the crew are detailed for special duty as first-aid men.

During the past six months we have visited New York; Hampton Roads, Va.; Malta; Naples, Italy; Villefranche, France; Culebra, U. S. W. I.; Guacanayabo, and Guantanamo, Cuba. We have cruised approximately 15,000 miles. We have passed through four separate periods of target practice, a four-hour speed run and an endurance run of twenty-four hours.

The fleet is usually accompanied by a hospital ship, and we endeavor to send all of our serious cases, contagious and chronic cases, etc., to her; but, of course, when we are at sea this is not practicable. Then again, as there is only one hospital ship, it is obviously impossible for her to accompany all of the ships of the United States Navy at one time.

We have many large naval hospitals situated in the large ports on the Atlantic and Pacific coasts of the United States, and also in Honolulu, Yokohama, Manila and Samoa. When a cruising ship gets in touch with these hospitals the cases unsuitable for aboard ship are immediately transferred. We must constantly keep before us the object of a man-of-war, but we must also use good judgment and not transfer patients who will soon recover aboard ship.

It might be stated here that a medical officer alternates between duty aboard ship and duty ashore, usually the length of each period being three years.

The young medical officer has a tendency to transfer more cases than necessary before he has become accus-

tomed to the peculiarities of naval life. He brings with him from civil life ideas of "absolute quietness," "milk diets," a "large, inexhaustible and extremely varied supply of drugs," etc.; but he soon becomes accustomed to the use of a small but necessary collection of medicines and his "milk diet" consists of evaporated cream from cans, or soups. Noise does not seem to have much effect on the bluejacket. He grows so accustomed to it in his daily life that the firing of a salvo of 12-inch guns from the deck over him does not disturb him in the least. Target practice has become so common that some of the sick sleep calmly through it, and a convalescent from appendicitis does not show a rise in temperature of even a tenth of a degree.

Before I present a tabulation of our work it might be stated that the clerical work of our department is of no small detail. The records of all injuries, no matter how insignificant, and notes on all diseases must be recorded carefully on each man's individual health record, and particular attention is given as to whether or not the injury or disease is in the line of duty. This record accompanies the man throughout his entire enlistment and serves as important memoranda for succeeding medical officers. After expiration of enlistment this record is forwarded to the Navy Department and kept on file for future use by the Pension Bureau.

We also have quarterly and annual reports, sanitary reports, reports of various boards, laboratory reports and the careful filling out of a man's discharge papers on expiration of enlistment.

Following is a brief record of some of the medical, surgical and hygienic conditions with which we have dealt aboard this ship during the six months mentioned. The greater number of the major operations were performed when we were under way, sometimes in bad weather, and at other times when we were engaged in battle maneuvers at full speed. The junior medical officer was absent about two months on special temporary duty in Haiti during one of the recent political disturbances. During that time a member of the hospital corps acted as my first assistant. The hospital steward administered anesthetics.

The bugle announces sick-call at 8:30 o'clock every morning. The men present themselves and there are usually between fifteen and forty who need attention. Those actually on the sick-list are excused from all duties and are placed in the surgeon's division. The signed report of the number of sick is sent to the commanding officer before 10 o'clock. The daily average number on the sick-list for the past six months has been 8. There is an evening sick-call at 8 o'clock for any special cases. Naturally, frequent calls are made at the sick-bay at odd hours.

Under the heading of medicine we have had the usual bronchial and intestinal diseases, Bright's disease, lobar pneumonia, tapeworm, a great variety of skin affections, tuberculosis, measles, mumps, malaria, erysipelas and enuresis.

Various forms of insanity, epilepsy and mild mental affections were dealt with. One is sometimes called as a witness, either common or expert, when one of these persons commits an offense.

While in the tropics we treated a number of severe sunburns, stings by jelly fish, cases of dengue and thermic fevers.

Extraction of teeth was a common occurrence.

Heat prostrations while at work in the fireroom provided some cases.

We had four deaths. These were due to drowning. One of our boats capsized. Three bodies were lost. One man was pulled out of the water in an unconscious state. We tried the usual means of resuscitation, but to no avail. One other death, that of our late commanding officer, occurred, but at a hospital four days after transfer.

RECORD OF SURGICAL WORK DURING SIX MONTHS

| Operations: | No. | Anesthetic |
|---|-----|---------------|
| Appendicitis | 5 | Ether |
| Hernia, inguinal..... | 8 | Ether |
| Varicocele | 2 | Ether |
| Osteotomy (metacarpal) | 1 | Ether |
| Adenectomies | 3 | Ether |
| Hemorrhoids (clamp and cautery)..... | 2 | Ether |
| Amputations: | | |
| Right arm, elbow..... | 1 | Ether |
| Index-finger | 1 | Cocain |
| Pterygium | 5 | Cocain |
| Circumcisions | 7 | Cocain |
| Salvarsan and neosalvarsan, intravenously. | 28 | |
| Aspiration, chest..... | 1 | Ethyl chlorid |
| Nasal polyps..... | 2 | Cocain |
| Innumerable abscesses, boils, cellulitis affections, buboes, ingrowing nails, etc., under local anesthetic. | | |

Injuries:

Dozens of cases in which cinders, coal-dust, pieces of steel, etc., had become embedded in the cornea.

Hundreds of cases of mild lacerations and cuts which required one or more stitches.

Many cases of sprains and bruises.

Fractures:

| | |
|---|---|
| Compound comminuted of fibula opening ankle-joint.... | 1 |
| Simple, multiple, of tibia and fibula..... | 1 |
| Metacarpal bones | 5 |
| Phalanges | 2 |
| Nasal bones..... | 5 |
| Ribs | 1 |

Genito-Urinary Diseases:

| | |
|---|----|
| Syphilis | 12 |
| Gonorrhea | 62 |
| Chancroid | 45 |
| Wassermann tests are obtained when we are near a hospital or a hospital ship. | |

Sounds were frequently passed and bladders irrigated.

A special room is fitted up for venereal prophylaxis and any man presenting himself with a venereal disease, who has not taken prophylaxis, is subjected to disciplinary measures. Exceptions are made for an extended liberty or leave where there is lack of facilities.

| | |
|----------------------|-----|
| Vaccinations | 254 |
| Typhoid vaccine..... | 10 |

These are men who for reasons of unexpected transfer, etc., have not been properly protected at training-stations.

Laboratory Examinations:

| | |
|--------------|-----|
| Urine | 282 |
| Sputum | 55 |
| Blood | 8 |
| Pus | 13 |

In addition to the foregoing, which may be considered as being directly in the province of a medical man, the following other duties have been performed.

Two hundred and ninety-eight men were examined for transfer to other ships. This is a routine examination and consists in examining the heart, lungs and inguinal rings; looking for venereal diseases, and noting the general physique and cleanliness. A similar examination, but a little more complete, is made of all men joining the ship. During these examinations the health records and enlistment records are

verified and any corrections made. Nine men were examined for reenlistment.

The eyesight of all gun-pointers, men in the range-finder group, spotters, signalmen, etc., were examined as a routine by the vision test-card.

Commissioned and warrant officers are examined carefully once a year to determine whether or not they are physically fit to take the prescribed walk every month, and as to their physical fitness for sea duty. Fifty-nine officers were examined in January.

Divers are examined before they go down; diving is not unusual, as this is necessary when anchors are lost, when torpedoes go astray and when for some reason it is necessary to examine some valve in the hull of the ship. All men are examined before engaging in any official boxing contest.

All fresh provisions, meats, ice-cream, etc., were examined and passed on by a medical officer before they were accepted.

Weekly and, sometimes, more frequent lectures or talks to the crew on venereal prophylaxis, personal hygiene and first aid were carried out.

Special instruction in first aid and transportation of the wounded to a special group of men, detailed for such duty in the medical department during battle, was given at frequent intervals.

Special instruction, for one and one-quarter hours, five days a week, to the hospital corps in common-school branches and on the subjects pertaining to our special department is compulsory.

Frequent examinations, particularly for the percentage of carbon dioxid of the air in the various compartments below decks, and routine examinations of the water distilled for the determination of sodium chlorid is made. It can readily be conceived how careful we must be in this matter.

The senior medical officer inspects daily the ship's cells, water-closets, wash-rooms, barber-shop, galleys and pantries, and notes, at all times, the state of cleanliness among the crew.

Once a week, in company with the commanding and executive officers, he makes a complete inspection of the whole ship, including the holds, store-rooms and living-spaces. Any recommendations regarding cleanliness and general sanitation are made to the captain. A complete inspection of this ship takes about four hours.

The regulation of the heating and ventilating system is under our complete supervision, and this is no small matter aboard a ship of this size.

Briefly, our system of heating is what is called the "indirect heating and ventilating system." The air is drawn through numerous ventilators by means of fans. It then passes over a collection of steam coils called thermotanks, where it is heated, if necessary, and then distributed to the various compartments. Constant supervision of the thirty-one blowers, twelve thermotanks, various hatches, etc., must be kept.

Besides all this, the medical officers are ordered on various boards, courts martial, courts of inquiry, boards of investigation, etc.

When arriving at a foreign port the medical officer acquaints himself with the prevailing diseases, quality of the water, and anything which may be of value as to the recommendations which he may make to the commanding officer concerning the liberty of the crew.

In January, while we were engaged in war maneuvers off Culebra, U. S. W. I., the junior medical officer

with members of the hospital corps landed and engaged in sham battles.

There are weekly and daily drills such as battle-drills (general quarters), fire-drills, abandon ship, landing force, fire and rescue, man overboard, etc., in which we all have our station.

From the foregoing it will be seen that our work is varied and rather extensive in its scope. When at sea one cannot call in a specialist or a consultant. We must be prepared to amputate a leg, do an appendectomy, trephine a skull, perform a mastoid, enucleate an eyeball, or extract a tooth.

We must be ready to diagnose and treat pneumonia, immediately recognize and isolate contagious cases, be watchful for feigned illness, and our microscope must be in use constantly.

The medical officer must have the military efficiency of the ship in mind at all times and keep all the men, if possible, at their duties. He must know men and learn to command them.

The successful naval and the successful military surgeon must combine in himself the qualities that make a good doctor, a successful surgeon and a hygienist of the highest order.

Our duties and the conditions we should have to meet in time of battle will not be discussed here.

It can readily be seen that military organization, our proximity to the sphere of activities, and a well-equipped department are the conditions which make possible the accomplishment of the foregoing.

THE COMPARATIVE VALUE OF MODERN FUNCTIONAL KIDNEY TESTS

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SAN FRANCISCO

The great importance if not absolute necessity of functional kidney tests prior to operation as well as for diagnostic and prognostic purposes is now conceded not only by urologists but also by the profession at large. Notwithstanding this fact, a great difference of opinion exists as to the relative value of the various tests used at present. Rovsing prefers the urea test. Thomas of Philadelphia declares chromo-ureteroscopy with indigocarmine the most valuable. Geraghty and Rowntree exclude other tests as unnecessary if phenolsulphonephthalein be used. On the other hand, Ware of New York adduces evidence to show that the latter is practically valueless. Kapsammer asserted that the phlorizin test is even more conclusive than exploratory incision, while, going to the opposite extreme, Gaillard of Philadelphia in a recent article mentions the phlorizin, phenolsulphonephthalein, urea and the other functional tests only to condemn them. He considers them a waste of time and states that microscopic examination of catheterized ureteral specimens give positive proof of all we desire to know regarding renal sufficiency and insufficiency.

Especially since the introduction of phenolsulphonephthalein by Geraghty and Rowntree, much has been written regarding the practical value of these tests. In the medical literature of this country one finds almost weekly new publications based on experiments with that drug. In fact, the whole question of renal function seems to center around the phenolsulphonephthalein output. It seems to me that other tests have

been recklessly and unjustly abandoned in favor of phenolsulphonephthalein, and I would venture the opinion that the question of the reliability of functional kidney-tests has not been greatly advanced by the application of a single test only. It therefore seems appropriate to compare some of the older tests with the phenolsulphonephthalein, in order to settle the question as to whether or not the application of one test is sufficient and if the phenolsulphonephthalein test really deserves the unlimited confidence which, especially on the American continent, it at present enjoys.

This report is based on the application of 108 tests, using in the majority of cases after catheterization of the ureters the phlorizin, phenolsulphonephthalein and urea tests simultaneously for the determination of comparative functional value. In many cases in which conditions warranted it, the determination of total renal function has been accompanied by blood cryoscopy, and in other instances in which cystoscopic features seemed to indicate its application, indigocarmine has likewise been used.

I wish to state that in order to speak authoritatively on the efficacy and value of renal functional tests, one must be thoroughly familiar with the technic of their employment. This is particularly true with the phlorizin test. The slightest error may be responsible for a negative or poor result. Unless the phlorizin crystals be entirely dissolved and the solution recently prepared, the excretion of sugar will either be late, small in amount or altogether absent. It is possible that a great deal of the adverse criticism directed against phlorizin is due to this error in technic. Likewise with the phenolsulphonephthalein test, one must be careful to inject the entire amount of the dye into the vein and also to use ureteral catheters of sufficient size and equal caliber. It is true that leakage of urine does occasionally occur along the sides of the catheters. This objectionable feature can be entirely obviated, however, by the use of tapered occlusive catheters.

METHOD

The method of procedure in this series of cases was as follows: An ordinary examining cystoscope was first introduced for the purpose of determining the general cystoscopic features such as the outline of the sphincter, the appearance of the trigon, fundus, etc.

After the withdrawal of this instrument the double catheterizing cystoscope was immediately inserted and the ureters catheterized to the pelvis of the kidneys. Whenever a catheter was inhibited in its progress, careful note was made of the distance of introduction. Three sets of two bottles, each numbered 1, 2 and 3, were kept ready for use. They were labeled R and L and in them was collected the urine from the right and left kidney, respectively. As soon as the ureters were catheterized, 2 c.c. of a 0.5 per cent. phlorizin solution were injected intramuscularly. While the appearance of sugar was being awaited, enough urine was collected in bottles numbered 1 for microscopic examination and for the comparative quantitative urea estimation. As soon as the reduction of heated Fehling's solution contained in the test-tubes became apparent on both sides, the bottles numbered 1 were changed for the bottles numbered 2 and the urine collected for fifteen minutes. At the expiration of this time 1 c.c. of a phenolsulphonephthalein solution containing 0.06 per cent. of the dye was injected intravenously. The urine from each kidney was then permitted to flow into the two test-tubes containing a 2 per cent. solution of sodium hydroxid. As soon as the characteristic discoloration occurred in both tubes, the time of appearance was recorded in the usual manner and the urine collected for fifteen minutes in bottles numbered 3.

In cases of urinary obstruction in which operative procedure was contemplated, an estimation of total function was made by means of blood cryoscopy and by the determination of the amount of phenolsulphonephthalein contained in the bladder-urine during a period of two hours and ten minutes after the injection of the dye.

Following these tests a note was made of the microscopic findings, particular stress being laid on the presence of leukocytes and degenerated small round epithelial cells. The amount of urea was determined by two Doremus ureometers, and the quantity of sugar by means of two Lohnstein saccharimeters. The quantitative phenolsulphonephthalein estimations were made by means of colorimetrically graded test-tubes as described by Hugh Cabot. These were found sufficiently accurate for ordinary practical purposes.

RESULTS

In normal kidneys, after the injection of phlorizin, sugar made its appearance in the urine in from nine and a half to thirty-one minutes. The average interval was $18\frac{1}{10}$ minutes on the right and $17\frac{8}{10}$ minutes on the left side. The quantity of sugar varied from 0.1 to 3.2 per cent., and averaged 1.1 on the right and 1.08 on the left side. The amount of urea averaged 0.14 per cent. on the right and 0.16 on the left side. The time of appearance of phenolsulphonephthalein varied from 3 to $9\frac{1}{2}$ minutes. The average interval was $4\frac{17}{18}$ minutes on the right and $5\frac{1}{18}$ minutes on the left. The amount of phenolsulphonephthalein varied from 2 to 30 per cent., and averaged 15.6 per cent. on the right and 16 per cent. on the left.

In cases of unilateral pathologic kidneys, sugar appeared after phlorizin injection in from 18 to 65 minutes, averaging 35 minutes, while it was excreted from the normal kidney in from 10 to 25 minutes, averaging $15\frac{7}{10}$ minutes. The amount of sugar in the same pathologic cases varied from 0.3 to 0.78 per cent., averaging 0.29 on the functionally insufficient side, while on the normal side the amount varied from 0.44 to 4 per cent., and averaged 1.91. The amount of urea varied from 0.002 to 0.011 per cent., averaging 0.007 from the functionally insufficient kidney and from 0.013 to 0.15 per cent., averaging 0.04 from the normal kidney. In unilateral as well as in bilateral pyelitis the time of appearance of phlorizin and phenolsulphonephthalein as well as the amount of phlorizin, phenolsulphonephthalein and urea was the same on both sides.

CONCLUSIONS

1. In normal cases the time of appearance of sugar and phenolsulphonephthalein is comparatively the same on both sides.

2. In normal cases the phlorizin, phenolsulphonephthalein and urea tests show almost identical values for both kidneys, their efficiency as comparative tests thus appearing to be about equal.

3. In pathologic cases all three tests show almost equally low values on the diseased as compared with the healthy side, thus demonstrating their almost equal practical value.

4. The simultaneous application of the preceding tests in the manner described tends toward greater accuracy of results, is not especially time-consuming, is not complicated and does not require more than the ordinary skill, which can be attained by an intelligent nurse. Moreover, it gives positive assurance as to which kidney is performing the greater amount of work, thus rendering unnecessary a repetition of ureteral catheterization for the purpose of gathering additional evidence regarding renal functions.

5. In pathologic cases a coincident diminished functional value on one side in all three tests points unmistakably to a marked defect in the corresponding kidney. This in the presence of a normal functional value on the opposite side, and satisfactory total functional values as ascertained by blood cryoscopy, the bladder phenolsulphonephthalein test, etc., would permit of the removal of the diseased organ.

6. A single renal functional test may lead to erroneous deductions and does not give sufficient assurance to justify a radical operation such as removal of the kidney.

7. Prior to operation, comparative functional tests should be strengthened by tests of total renal function.

8. The urea test consumes the least time and is accompanied by a minimum of discomfort to the patient. Moreover, it is not based on the elimination of a foreign substance.

9. As compared with the phlorizin test, the phenolsulphonephthalein test is subject to fewer technical errors and is less time-consuming, a factor of no little importance to the patient as well as to the physician. On the other hand, the quantitative estimation of the excreted dye even with the Duboscq colorimeter is subject to a not negligible amount of error, while following phlorizin injection the estimation of sugar by means of the Lohnstein saccharimeter is mathematically correct.

Shreve Building.

A CASE OF TAY-SACHS AMAUROTIC IDIOCY WITH A POSITIVE WASSERMANN REACTION *

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PHILADELPHIA

The following case is reported not because it is a typical example of Tay-Sachs amaurotic idiocy, but on account of a positive Wassermann reaction having been obtained from the patient's blood-serum, and the possible bearing this may have on the etiology of the affection.

B. L., boy, aged 16 months, Hebrew, of Russian parentage, examined March 3, 1914, was said by the parents to have seemed normal until about 2 months old. He did not take any notice or sit up at the usual time, had never talked and had never attempted to walk. His first tooth was cut when he was seven months old. The child seemed backward in every way and had one convulsion two months prior to the examination in which he lost consciousness, became rigid, the eyes being open and staring. After the attack, he started to cry, then fell asleep. Since this convulsion, the baby had seemed dull and had not helped himself as much as formerly. He drops objects placed in his hand. Other attacks are described as follows: "He will become nervous, red in the face, hold his breath for a second or two, his arms and legs will stiffen, he will then cry."

The child was born at full term, the labor being normal. He is said to have weighed 7 pounds at birth and has contracted none of the infectious diseases of infancy. He is the only living child, the parents having had one other child which died shortly after birth from a "hemorrhage of the navel."

The father and mother are both living and in average health. A paternal aunt, one of twelve children, had convul-

* Reported at the meeting of the Philadelphia Neurological Society, March 27, 1914.

sions. A maternal uncle had spasms until 9 years of age, when they left him. There is no case of blindness in the family, nor any history of nervous or mental disease except as mentioned above.

On examination the child was found to be well-formed and well-nourished, but with general muscular weakness. The reflexes were preserved and Babinski's sign was present.

Impairment of vision was evident and it was learned that the child had been under the care of Dr. L. Webster Fox. On communication, Dr. Fox gave me a report of the ophthalmoscopic findings, which were as follows: "Double optic atrophy with a red spot in the region of each fovea centralis, surrounded by a whitish or grayish areola." Dr. Fox had seen cases of amaurotic idiocy at Tay's clinic in London and stated that the fundus changes in this case were identical.

Dr. Thomas B. Earley made a Wassermann test of the blood and reported it positive ($\frac{1}{2}$ unit). An examination of the cerebrospinal fluid of the child and of the blood of the mother was refused.

In 1881, Mr. Warren Tay¹ of London presented a case in which the baby, then 1 year old, had been noticed at the age of 2 to 3 weeks to have very little power in holding up its head or of moving the extremities. This was a weakness, not an absolute paralysis. The child seemed cerebrally deficient. With the ophthalmoscope, Tay found the optic disks apparently healthy, but in the region of the yellow spot in each eye "there was a conspicuous, tolerably defined, large white patch, more or less circular in outline, and showing at its center a brownish-red, fairly circular spot, contrasting strongly with the whitish patch surrounding it." Some months later, Tay found no change in the child's condition except that the disks were becoming atrophic.

Sachs² of New York, delivering the presidential address before the New York Neurological Society in 1896, described a family form of idiocy, associated with blindness, which he designated as amaurotic family idiocy. In this communication, he referred to an earlier paper, read in 1887 before the American Neurological Association, in which he described a similar case under the title "Arrested Cerebral Development with Special Reference to its Cortical Pathology." He concludes that Tay's case and his own are similar in type and collects altogether nineteen cases presenting the same symptom-group.

The chief symptoms as originally described by Sachs are mental impairment, a more or less general paresis or paralysis which may be either spastic or flaccid, with corresponding changes in the reflexes; a diminution or loss of vision with the characteristic eye-ground changes, marasmus; a fatal termination, usually by the end of the second year, and the occurrence of the affection in several members of the same family. Occasional symptoms were nystagmus, strabismus and hyperacuity of hearing. In a later paper, Sachs³ accepts two additional symptoms mentioned by Falkenheim: explosive laughter and disturbance of deglutition.

Since these earlier papers, cases have been accumulating fairly rapidly in the literature. As far back as 1908, Apert⁴ collected eighty-two indisputable cases with twenty-seven additional cases occurring in brothers, sisters or relatives of the eighty-two, but not actually seen by the authors recording them.

Then, as might be expected, came reports of cases more or less closely resembling the original Tay-Sachs type, yet presenting certain distinct differences. Thus Vogt in 1905 described a form of family amaurotic idiocy, beginning in early youth, with gradually oncoming blindness usually associated with paralysis. In this form the characteristic macular changes are not found. Death occurs after several years and the disease shows no predilection for the Hebrew race. Vogt contended that the juvenile form he described and the Tay-Sachs disease represented different degrees of the same process. Gifford⁵ quotes Vogt and reports a case of the same type.

Dercum⁶ reported three brothers, aged 11, 6 and 2 years, who were normal until the ages of 16 months, 6 years and 2 years, respectively; then developed paresis of the extremities, spastic in type and associated with imbecility. In these cases, although vision appeared defective, an examination of the eye-grounds could not be obtained.

Other cases, more or less resembling the Tay-Sachs syndrome, have been reported by Hirschberg, Gordon, Nettleship, Behr and others.

The pathologic findings are chiefly microscopic and consist primarily in lesions of the gray matter throughout the entire central nervous system, with secondary changes in the tracts of the white matter. The cells are swollen, the nuclei displaced, the Nissl bodies lose their regular arrangement and the neurofibrils are destroyed. According to Coriat, chromatolysis is more marked than neurofibrillar destruction. The optic nerves are atrophied and there is marked involvement of the retinal cells, especially in the region of the fovea centralis. Thickened skull, thickened and adherent dura, pallor and edema of the convolutions have been found. Changes in the blood-vessels have not been reported. I think that none of these findings would exclude the possibility of hereditary syphilis as an etiologic factor.

The chief interest in amaurotic idiocy at present centers about this question of the etiology. Sachs believed it to be a type of agenesis and accepted Gower's term of "abiogenesis" as most fitting. In Sachs' article³ of 1903 he defends his agenetic theory, but says that "the toxic nature of the degenerative process has been argued from the resemblance of the cell pictures to those found in cases of poisoning of various kinds." Turner⁷ reports two cases of amaurotic family idiocy, one occurring in a child not of Jewish extraction, and after reviewing the pathologic findings in his own and previously reported cases, says, "Can syphilis be so certainly excluded from the causation as Carlyll would have us believe?" Turner believed that in both his cases there were points suggestive of syphilis and further quoted Gordon Holmes who had recorded a case of amaurotic idiocy in which the periadventitial cellular infiltration was, in Holmes' opinion, suggestive of congenital syphilis. Turner, however, seemed to consider as equally tenable, the theory of glandular deficiency or anomaly.

Frey does not agree with Sachs that the condition is merely agenetic, but considers the changes found to be post partum and analogous to the state known as amyotrophic lateral sclerosis in adults. This view of Frey's is of especial interest because of the finding of

1. Tay, Warren: Symmetrical Changes in the Region of the Yellow Spot in Each Eye of an Infant, *Tr. Ophth. Soc. U. Kingdom*, i, 56.

2. Sachs: *New York Med. Jour.*, May 30, 1896.

3. Sachs: *Jour. Nerv. and Ment. Dis.*, 1903, xxx, No. 1.

4. Apert: *Semaine méd.*, Jan. 15, 1908.

5. Gifford: *Ophth. Rec.*, 1912, xxi, No. 11.

6. Dercum: *Jour. Nerv. and Ment. Dis.*, 1897, p. 396.

7. Turner: *Brit. Jour. Child. Dis.*, 1912, ix, 193.

positive Wassermann reactions in a considerable percentage of cases of amyotrophic lateral sclerosis.

Coriat⁸ holds that Tay-Sachs disease is not due to any arrest of development because of the normal myelinization, and asserts that the macroscopic and microscopic changes are not in any sense those of idiocy. Furthermore, he contends that his cases showed normal mental characteristics up to the ages of 4 and 10 months, and says, "The disease, therefore, is not really an idiocy, but a form of dementia." Coriat suggests the name of "amaurotic family dementia" as being more appropriate than "amaurotic family idiocy."

Studies in the metabolism of amaurotic idiocy by Heiman, Bookman and Crohn⁹ in 1912 revealed nothing abnormal.

Views as to the importance of hereditary syphilis as a cause of idiocy have undergone considerable change since the introduction of the Wassermann test. Dean,¹⁰ in a most instructive article, after citing the findings of numerous observers who had examined the blood-serum of idiots by the Wassermann test, gave the results of his own work in the examination of 330 inmates of an asylum for idiots at Potsdam, in which he found the reaction positive in fifty-one cases, or 15.4 per cent. He also found that the younger the patient, the higher the percentage of positive Wassermanns obtained. Thus, at 10 years or younger, 21.27 per cent. were positive; from 16 to 20 years, 6.06 per cent.; from 21 to 30 years, twenty-four idiots gave three positive reactions, and eight idiots, ranging in age from 31 to 44 years, all gave negative reactions. A striking point in Dean's paper was the fact that of the fifty-one cases giving positive reactions, only seven showed conclusive evidence of congenital syphilis from a clinical point of view.

The lack of certain knowledge regarding the etiology of Tay-Sachs disease, the varied opinions expressed, the character of the pathologic findings and the positive Wassermann reaction in the case which I report would seem to be sufficient ground to reopen the argument that hereditary syphilis may be the cause of amaurotic idiocy. I fully realize that "one swallow does not make a summer," and my chief object in reporting the case is to stimulate interest in the subject with the hope that, as opportunity presents, careful laboratory investigation will throw more light on the point in question.

I wish to express my indebtedness to Dr. Fox for his courtesy in giving me the ophthalmologic report and for references, and to Dr. Earley, who went to considerable trouble and expenditure of time in the fruitless effort to obtain a spinal puncture in the case of the child and an examination of the blood of the patient's mother.

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8. Coriat: *Arch. Pediat.*, 1913, xxx, 404.

9. Heiman, Henry; Bookman, Samuel, and Crohn, Burrill B.: *Studies in Metabolism of Amaurotic Family Idiocy*, *Am. Jour. Dis. Child.*, October, 1912, p. 234.

10. *Brit. Jour. Child. Dis.*, 1912, ix, 385.

Food Poisoning.—Food poisoning is rarely, if ever, ptomain poisoning; that is an intoxication due to a preformed poison of alkaloidal nature, derived from a breaking down of the protein in the food. The cases which have been carefully worked out in recent years have, on the contrary, proved to be due to infection with specific bacteria, or to intoxication with the toxins or synthetic products characteristic of these microbes.—C. E. A. Winslow.

HOW DEEP SHOULD THE TUBE BE INTRODUCED IN INTRA- TRACHEAL INSUFF- FLATION? *

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NEW YORK

In my first description of the procedure of intratracheal insufflation as I developed it for practical use in intrathoracic surgery and for anesthesia, I stated that "a long catheter or stomach-tube is introduced through the larynx and pushed down the trachea until it meets an obstacle. The lower end is usually deep in the right bronchus. It is then withdrawn about an inch and a half, which brings the lower end of the tube to about the level of the bifurcation."¹

The same statement I repeated a year ago in describing insufflation.² "After the tube enters the trachea it should be pushed gently forward until it meets with a resistance; the end of the tube is then usually in a deep place in the right bronchus. The tube should then be withdrawn about 5 or 6 cm."

It ought to be clear to any intelligent reader that the resistance which the tube meets consists of the smaller bronchi, the lumen of which is larger than the diameter of the tube. In the literature on the subject, however, a misunderstanding crept in. There are writers who apparently believe that by the resistance I meant the bronchial partition at the bifurcation, and some³ are even criticizing my supposed statement, because, as they say, they did not find that the tube touches the partition wall. This misunderstanding, however, is of little significance and would not have caused me to write a special article on that subject. A fact of greater importance causes me to write the present article, namely, that practically all surgeons and anesthesiologists who employ intratracheal insufflation—and the number is now very large—do not follow my repeated advice. It has seemed to them that instead of pushing the catheter first deep into the bronchus and then withdrawing it to the bifurcation, it is a more simple procedure to introduce it from the start only as deep as the bifurcation. After finding that the average distance from the bifurcation of the trachea to the teeth is in an adult about 27 cm., a catheter is now used which has a mark about 27 cm. away from its lower end, and it is simply pushed into the trachea until the mark is at a level with the teeth. This practice, however, as I found out, deprives the surgeons of an important diagnostic point without which they are liable to be led into a serious error. I have observed this result in two cases and I have reason for my misgivings, that it occurs more often than it is suspected.

The diagnostic point in question is to make sure that the tube is indeed in the trachea and not in the esophagus. As a rule, at the time of the introduction, the patient has to be well anesthetized and does not respond with a characteristic reflex cough when the tube passes the larynx or touches the bifurcation; besides, some patients respond with a cough when merely the posterior wall of the pharynx or the entrance of the larynx is touched. The presence or

* From the Department of Physiology and Pharmacology of the Rockefeller Institute for Medical Research.

1. Meltzer, S. J.: *Med. Rec.*, New York, March 19, 1910, p. 481.

2. Meltzer, S. J.: *Keen's Surgery*, 1913, vi, 971.

3. Lautenschläger: *Berl. klin. Wchnschr.*, 1913, p. 2093.

absence of a short reflex cough is no indication where the tube is. The point which is generally relied on to indicate that the tube is correctly placed in the trachea is the appearance of rhythmic expiratory and inspiratory changes of air-pressure at the mouth of the catheter, which can be heard or seen by the use of a bit of cotton. The conclusion is based on the supposition that such respiratory changes could not take place if the catheter were in the esophagus. This supposition and the conclusion are entirely erroneous. The respiratory variations within the esophagus are considerable, and they are present not only in the thoracic, but also in the cervical part of the esophagus.

These respiratory variations in the esophagus have been used by ourselves and by many others for obtaining a graphic presentation of respiration. I obtained respiratory tracings from my own esophagus about thirty-four years ago. Several years ago Auer and I⁴ studied the respiratory changes of pressure at the various levels of the posterior mediastinum by means of a balloon at the end of a tube kept at various depths in the esophagus. The tracing published in the article reporting those studies shows the considerable respiratory variations in the esophagus in the various levels of its thoracic part; they are especially large in the entire lower section, located between the base of the heart and the cardia. In short, the appearance of respiratory variations at the mouth of the catheter is no evidence that the catheter is in the trachea; it may have been inserted in the esophagus. This was the case, as referred to above, in two instances in which I was an eye-witness. Men of experience in handling the method of intratracheal insufflation, who were present, seemed to have been sure that the tube was in the trachea, just on account of the presence of definite respiratory undulations at the mouth of the catheter. In neither of these cases was there any distention of the stomach.

It is well to bear in mind that this is not a necessary result in all cases when the tube is in the esophagus. When the lower end of the catheter is placed in the esophagus only 27 cm. away from the teeth, the lower end of the tube may still be above the base of the heart, and air and ether which come out from the lateral opening of the catheter will escape more readily upward through the esophagus and the mouth than into the stomach, especially when the reflexes and the tonus of the esophagus are completely abolished by the previous deep etherization. Furthermore, the upward escape of ether through the pharynx might even keep up the anesthesia; it is then a sort of pharyngeal anesthesia.

In my first paper on pharyngeal insufflation, about two years ago,⁵ I stated that by this method animals were brought easily and profoundly under the influence of ether anesthesia, so that sometimes the spontaneous respiration disappeared, to return only half an hour after the ether has been discontinued, during which time, of course, artificial respiration had to be maintained. Similar results I obtained recently by inserting the tube in the esophagus, the lower end of the tube being in the upper section of the thoracic part. Not only did the animal become deeply narcotized, but it also lost its spontaneous respiration

and had to have artificial respiration for several minutes.

In parenthesis I wish to make the following remark concerning the use of pharyngeal insufflation for anesthesia:

While I was one of the first to recognize and state the fact that pharyngeal etherization is capable of producing profound anesthesia, I did not then say anything in favor of its use. Now I do not hesitate to go on record as advising against its use. Of the various reasons I have for the stand I take, I shall mention only this one, namely, that this method is capable of driving infectious matter from the pharynx into the lungs and there causing injury and infection. If the use of pharyngeal anesthesia should happen to be extensive and the results are honestly reported, I have no doubt that the number of postoperative aspiration pneumonias will be greater than after the usual drop-method of anesthesia. It could hardly be otherwise. In the drop-method the aspiration of foreign matter is accomplished by an inspiration which is greatly weakened by the anesthesia; while in pharyngeal insufflation that foreign matter is driven through a non-sensitive relaxed glottis by a virile mechanical insufflating force. With intratracheal insufflation it is, of course, just the opposite; the virile mechanical force of the insufflation is employed to keep off the foreign matter from entering into the larynx instead of driving it in.

What I said here of pharyngeal anesthesia holds true, of course, also of "esophageal anesthesia," that is, if the intratracheal tube, instead of getting into the trachea, is inserted into the esophagus at a depth from which air and ether escape readily upward. The insufflation, instead of preventing the occurrence of aspiration of foreign matter into the respiratory tubes, will rather assist in facilitating such an occurrence. These possibilities ought to be kept in mind when analyzing and collecting certain data for statistical purposes with reference to the occurrence of complications and sequelae attending the use of intratracheal insufflation.

At any rate, the appearance of respiratory phenomena at the mouth of the intratracheal catheter is no evidence that it is in the trachea; it might be in the esophagus and at a place from which air and ether escape upward and thus maintain anesthesia. I have witnessed two cases of the kind, and there is a well-founded suspicion that more of them have occurred, especially in the hands of uncritical men.

A reliable evidence that the catheter is in the trachea is the encountering of an undoubted resistance, while pushing the catheter downward—provided, of course, that stenosis or a diverticulum of the esophagus do not come into consideration. When a catheter fitting for an adult is pushed down into the trachea about 33 cm. distance from the teeth, the catheter is bound to meet bronchi of a lumen smaller than the diameter of the catheter and therefore cannot be pushed farther. If it can be pushed down still farther, the catheter is surely in the esophagus, and the lower end of it is still about 6 or 7 cm. above the cardia. While a catheter may bear a mark which indicates a distance of 27 cm. from the lower end, in order that it may be known safely to what point the catheter should be withdrawn again, it has to have also a mark at a distance of 33 or 35 cm. from the lower end. If the catheter, while pushed downward into the trachea does not encounter any resistance when it reaches the last-mentioned mark, it can be safely assumed that it is not within the trachea and therefore ought to be immediately withdrawn. With exceptionally tall persons, perhaps an allowance of 2 cm. more may be made; but under all circumstances a resistance must be looked for and not missed. The practice of inserting the tube only to a place above the bifurcation must be discontinued.

4. Meltzer and Auer: Jour. Exper. Med., 1910, xii, 34.

5. Meltzer, S. J.: Pharyngeal Insufflation, a Simple Method of Artificial Respiration, THE JOURNAL A. M. A., May 11, 1912, p. 1414.

In this connection I wish also to urge the discontinuance of the use of catheters which have only lateral openings. For the sake of etherization as well as for an efficient artificial respiration when needed, it is of some advantage to have the opening at the end of the catheter, as I have stated in previous papers. I shall not, however, enter here on a special discussion of this point.

Rockefeller Institute for Medical Research.

THE CULTIVATION OF THE PLASMODIUM FALCIPARUM IN VITRO *

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PHILADELPHIA

In 1911, C. C. Bass¹ of New Orleans reported the successful cultivation of the plasmodium of malaria *in vitro*. He stated that he had been able to accomplish this by maintaining anaerobic conditions and a temperature of 40 C. (104 F.). Following these suggestions, Sinton² of London as reported in August, 1912, attempted the growth of the organisms from five patients, but he was not successful in any case. One of the reasons for his failure became apparent two months later when Bass, in conjunction with Johns, published³ in detail his technic, which included, besides the facts previously mentioned, the addition of a small amount of dextrose to the collected blood. Bass and Johns did not explain the action of the dextrose, but stated that they thought it had other influences than the control of oxygen, possibly by reason of the largeness of its molecule decreasing the permeability of the red blood-cells to substances in the serum that were deleterious to the organisms. They stated that by their technic, the details of which need not be repeated here, they had succeeded in cultivating the *Plasmodium vivax* from six patients and the *Plasmodium falciparum* from twenty-nine; and Johns had previously reported the growth of the *Plasmodium malariae* from one case. In some cases they were able to maintain the growth through the fourth generation. They found, however, that growth did not occur beyond the first generation unless the white blood-cells were removed, and this they explained on the theory that the leukocytes, when present, destroyed the merozoites.

In some recent work with this method an interesting observation was made which is worthy of note. The case was from the service of Dr. Alfred Stengel, and Dr. O. H. Perry Pepper was associated with me in the study of it. The blood was taken for culture one hour after a chill and showed at that time, in addition to crescents of the estivo-autumnal type, many small ring-forms with only a small amount of nuclear chromatin and without pigment. There were no forms showing further development. Smears from the culture fifteen hours later showed that the rings were increased in size and there was more chromatin, but still no pigment. The crescents were less crescentic and more oval in outline. The twenty-four-hour smears pre-

sented even larger rings, the protoplasm filling the vacuole in some instances, the chromatin spread out and dividing, and pigment had appeared. The crescents were still more rounded and their protoplasm stained less deeply. After forty-eight hours large schizonts and segmenting forms with definite small masses of pigment had appeared, and in some cases the pigment had divided into from two to fifteen parts. The crescents could by this time be made out only because of their pigment, the outlines of the protoplasm having disappeared. Finally, in the sixty-one-hour smears from the culture, some of the red blood-cells presented small ring-forms, precisely similar to those present in the blood at the time of its collection. There were present no older forms of the asexual cycle in these smears, and similar small rings had not been observed in any of the intermediate smears. Thus it would appear that in this case the beginning of a second generation had occurred without the removal of the leukocytes.

RESULTS OF AN IMPROVED PUBLIC WATER-SUPPLY AT COHOES, NEW YORK

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For many years Cohoes suffered from the inevitable results of a polluted public water-supply. The average death-rate per hundred thousand for typhoid fever for the past ten years was 83.8. Previous to 1911 Cohoes used the grossly polluted Mohawk River water without purification. In July, 1911, a gravity mechanical filter-plant was installed.

Chart 1 shows the marked reduction in the rates for typhoid fever and diarrhea and enteritis which promptly followed the furnishing of filtered water. The seasonal prevalence of both typhoid fever and "enteritis of children" was what might be expected in cities with polluted water-supplies; that is, excessive rates prevailed in the winter and spring months.

TYPHOID

A study of the seasonal prevalence of typhoid in Cohoes shows that during the months of July, August, September and October, which period has been termed the "regular typhoid season," the rates for typhoid have not been excessive. The rates from December to June have been very high. In Cohoes from 1908 to 1913, 75 per cent. of the deaths from typhoid occurred from January to June, and if we include December in the winter months, 90 per cent. of the typhoid deaths from 1908 to 1913 occurred in the months from December to June, inclusive. In other words, the months of July, August, September, October and November, including the "regular typhoid season" in which the great bulk of typhoid cases usually occur, furnished only 10 per cent. of the typhoid deaths.

With the seasonal prevalence so sharply defined for a period of many years, it is most interesting to note the effect of substituting a safe for a polluted public water-supply. Here again the expected happens. Chart 2 shows the annual typhoid death-rate by months. The period 1908-1911 (before filtration) is represented by a dotted line. The period 1912-1913

* From the William Pepper Laboratory of Clinical Medicine.
1. Bass, C. C.: A New Conception of Immunity, THE JOURNAL M. A., Nov. 4, 1911, p. 1534.
2. Sinton: Ann. Trop. Med. and Parasitol., 1912, vi, 371.
3. Bass and Johns: Jour. Exper. Med., 1912, xvi, 567.

(since filtration) is represented by a solid line. Enormous reduction since filtration is evidenced in December, January and February, and a very great reduction in March and April. The difference is not so great from May to November. The low rates in the summer months indicate that the Mohawk River water for some reason was much safer from July to October than at any other season. Hence the effect of the filter-plant would be less on the typhoid rates for these months.

ENTERITIS

Diarrhea and enteritis under 2 years is an important factor in our mortality statistics. It probably includes a number of different diseases of diverse etiology.

One large portion of this mortality, the so-called summer diarrhea of children, seems to be independent of water-supply conditions. This mortality has its maximum intensity in July and August. It is greatest in large industrial centers, "mill-towns" and slum-

districts of our large cities. A close study of the statistics and the sanitary con-

rates, which are probably due to conditions other than water.

It must not be inferred from the foregoing that the results of filtration at Cohoes leave nothing to be desired. Filter-plants are not infallible, fool-proof mechanisms. They are operated by human agency and not always intelligently operated and efficiently controlled, and undoubtedly there are times in the operation of all plants when the purification is inadequate. In dealing with a grossly polluted raw water, a safe effluent is obtained only at the price of eternal vigilance and absolute efficiency at all times. There is such a thing as an unreasonable burden and an unreasonable responsibility for any filter-plant, and the grossly polluted raw water accepted as the burden for many of our filter-plants is like a sword of Damocles, constantly threatening with disaster. The eternal vigilance necessary to prevent the slip which might cause disaster is an imposition of excessive responsibility on any purification plant. The fact that the burden can be borne and under ideal conditions the grossly polluted raw water can be converted into a safe effluent does not justify a *laissez faire* policy in the unrestricted discharge of sewage into the stream.

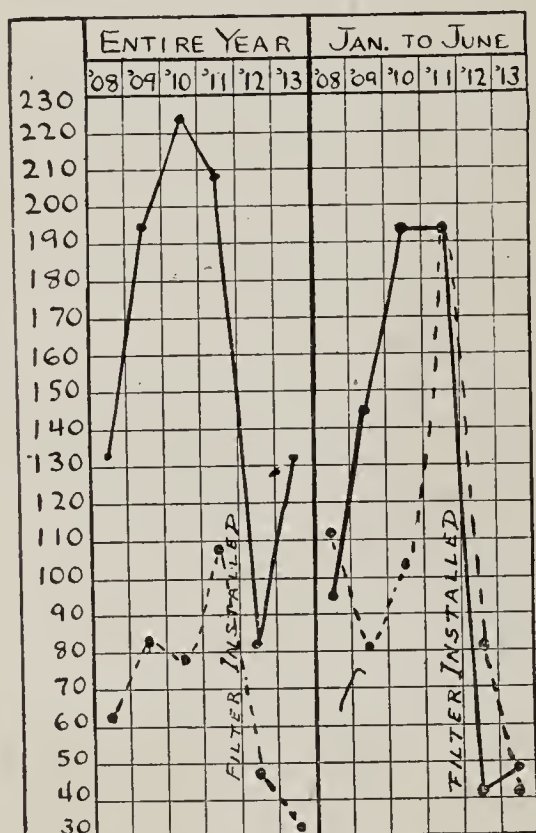


Chart 1.—Annual death-rate per hundred thousand at Cohoes, N. Y. Enteritis is indicated by the solid line and typhoid by the broken line.

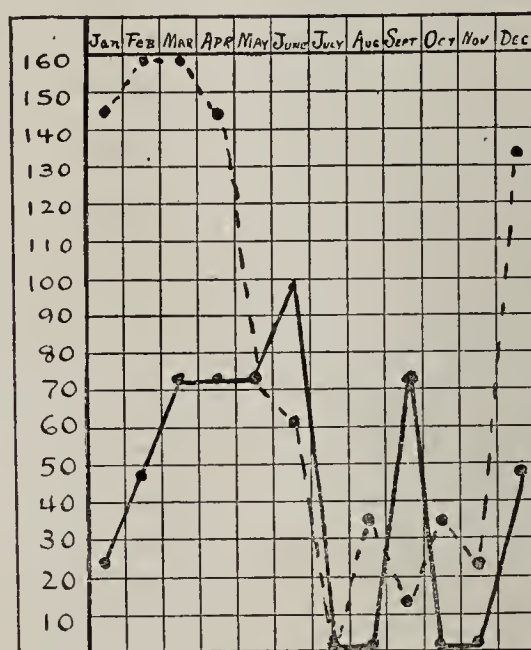


Chart 2.—Annual death-rate per hundred thousand by months at Cohoes, N. Y. The average of typhoid fever during 1908-1911 is indicated by the broken line and the average during 1912-1913 by the solid line.

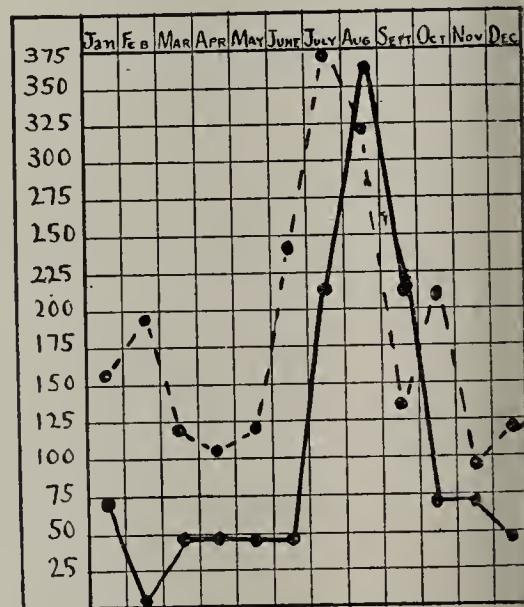


Chart 3.—Annual death-rate per hundred thousand by months at Cohoes, N. Y. The average of enteritis under 2 years during 1908-1911 is indicated by a broken line and the average during 1912-1913 is indicated by a solid line.

ditions in our cities¹ shows that if the water-supply is safe, the mortality from diarrhea and enteritis under 2 years is very low during the winter and spring months. On the other hand, it will show that in cities with grossly polluted water-supplies there is a very considerable mortality from diarrhea and enteritis of children during the winter and spring months.

Cohoes has the industrial, social and economic conditions which would justify fairly high rates for enteritis in the summer months. In addition, previous to 1912, it possessed rates for enteritis in the winter and spring months which were very high, ranging from 100 to 190 deaths per hundred thousand. Chart 3 shows the striking effect of the filter-plant on these rates. The rate for January fell below 75 and the rates for December, February, March, April, May and June were below 50. The furnishing of filtered water, as might be expected, had little effect on the summer

In streams used as sources of water-supply, sewage treatment should be carried far enough to ensure raw water at the water-works intakes which would not impose an unreasonable burden or responsibility on the purification plant. By improving the character of the raw water, not only is the "load" on the plant reduced, but also in the case of the inevitable, though perhaps, infrequent accidents an additional safeguard is afforded which the public has a right to demand.

Street Accidents in the United Kingdom.—Consul-General John L. Griffiths at London reports that highway accidents have increased rapidly in the United Kingdom since the introduction of motor vehicles, so that, for the year 1913, there were 2,099 deaths and 42,544 injuries. In the city of London proper, which embraces the mile square in the financial section, 17 persons were killed and 1,210 injured. In the metropolitan police district 579 were killed and 18,365 injured. The number of persons injured by motor vehicles other than street railways increased from 560 in 1910 to about 1,200 in 1913.

1. McLaughlin, Allan J.: *Sewage Polluted Water-Supplies in Relation to Infant Mortality*, Pub. Health Rep., reprint No. 77.

THE TREATMENT OF FRACTURES BY AUTOPLASTIC BONE PEGS

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CHICAGO

When a simple fracture of a long bone is immobilized by external splints in such a position that its medullary canal is patent, an internal callus is produced across the fracture-line as a part of the process of support and repair of the fracture.

The internal callus ossifies and becomes a medullary plug of bone, aiding in the immobilization and giving support to the fragments during the formation and ossification of the permanent callus.

In the physiologic process of the healing of bone the internal callus is a natural medullary bone splint, remaining as long as its support is required by the injured bone, and then gradually absorbed and the medullary canal reestablished, as the permanent callus becomes effective.

If the processes of Nature were imitated in the open operative treatment of simple fractures by bridging the fractures with autoplasmic bone pegs, the non-absorbable foreign body proposition would be eliminated.

In the cases reported, bone-splint material was taken from the tibia of the same individual and pegged across the fracture-line, use being made of the medullary space as a canal when practicable.

The following six cases were selected as types of the series to illustrate the application of the bone peg in simple fractures:

CASE 1.—*Fracture of both bones of the left leg.*—L. K., American, laborer, aged 33, was admitted to Cook County Hospital, Jan. 10, 1914, immediately following injury.

Roentgenoscopy revealed a spiral fracture of the tibia, with $\frac{3}{4}$ inch of overlapping of fragments, and a slivered

impacted fracture of the fibula (Fig. 1). Manipulation and extension failed to reduce the fracture, evidently because of the impaction of the fragments of the fibula.



Fig. 1.—Case 1, after attempted reduction; unreduced spiral fracture of tibia with high-up impacted fracture of fibula.

The patient suffered from delirium tremens for one week, after which an open operation was done and an autoplasmic bone splint inserted into the medulla of the tibia across the fracture defect. Reduction could not be accomplished until the fibula was fractured with a chisel on a level with the fracture in the tibia. Material for a bone splint, 3 inches long and $\frac{1}{2}$ inch in width and thickness, without periosteum, was taken from the opposite tibia. The medulla of the upper fragment was cleaned out with a sharp spoon so that the bone splint would slip in very loosely. The leg was bent at an angle at the point of fracture and the bone splint was driven a part of its length into the marrow of the lower fragment of the tibia. The lower fragment, containing the projecting bone peg, was manipulated so that the end of the splint entered the medullary opening of the upper fragment, and the leg was then swung into normal position. Muscular contraction held the fragments firmly together (Fig. 2).

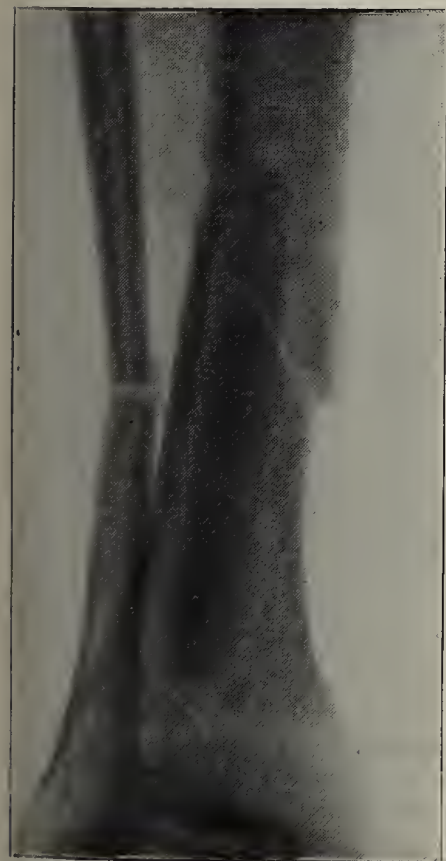


Fig. 2.—Case 1, fifty-eight days after insertion of autoplasmic bone splint into the medulla of the tibia; note outline of the bone splint with ample callus between the fragments of the tibia.

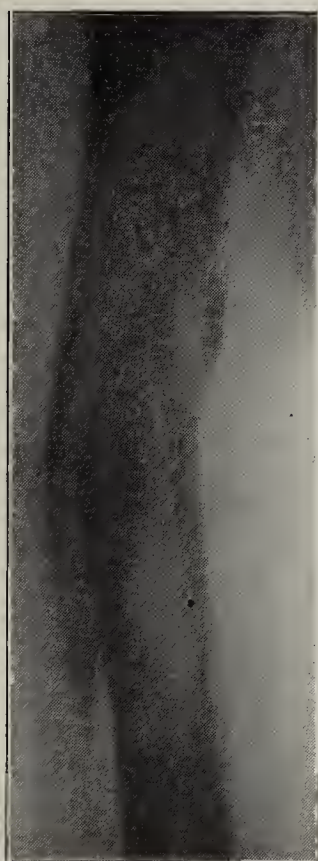


Fig. 3.—Case 2; long spiral fracture of the shaft of the humerus.

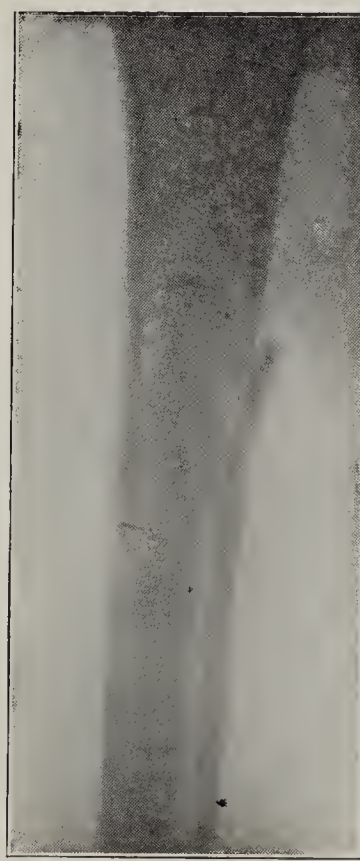


Fig. 4.—Case 2, forty-one days after operation; note shadow of a 5-inch bone peg in medulla of humerus across the fracture defect.

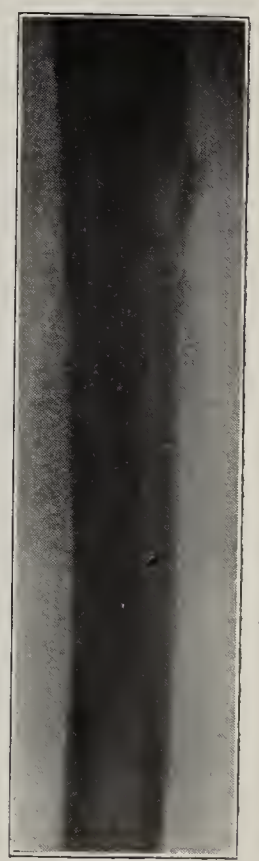


Fig. 5.—Case 2, fifty-six days after operation; note callus formation apparently following line of spiral.

It was necessary to have the cavity in the upper fragment larger than the bone splint, because the splint could not enter the medullary canal directly in its axis, but must enter in the arc of a circle, the radius of which was equal to the projection of the bone peg above the soft parts, dur-

CASE 2.—*Fracture of left humerus.*—O. S., American, clerk, aged 37, was admitted to Cook County Hospital immediately after injury to arm, with angular deformity.

Roentgenoscopy revealed a spiral fracture with a 3-inch defect and with the fragments overriding 1 inch (Fig. 3).

With the same technic as in Case 1 a bone splint taken from the tibia, 5 inches in length and $\frac{1}{2}$ inch in thickness in each direction, without periosteum, was inserted into the medulla of the humerus, each end of the splint projecting into the medullary canal 1 inch beyond the fracture defect (Figs. 4 and 5). Firm union resulted, with palpable callus and perfect bone line, four weeks after operation.

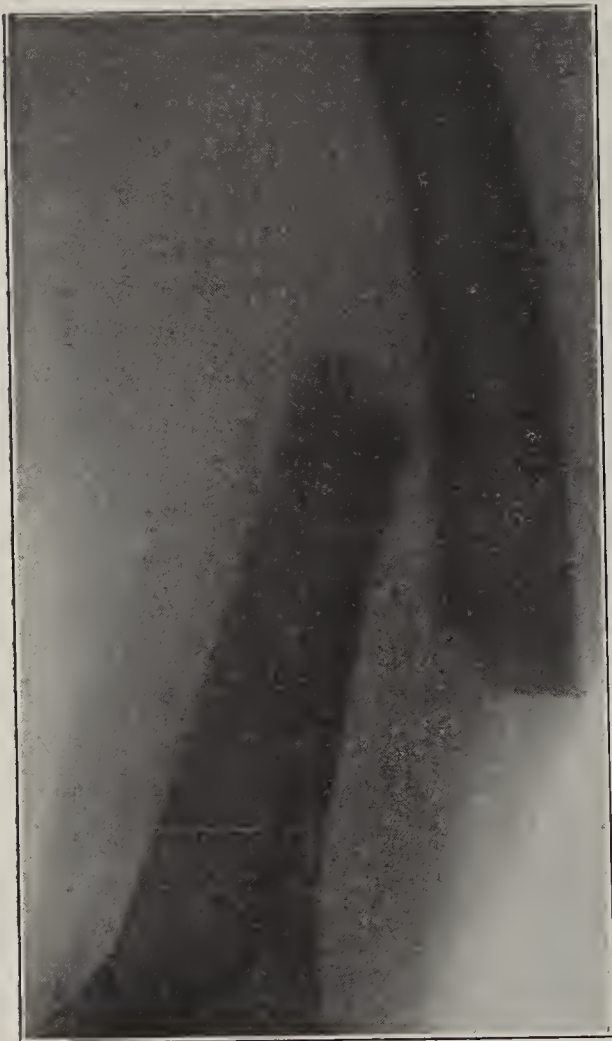


Fig. 6.—Case 3; transverse fracture of shaft of femur with displacement of fragments.

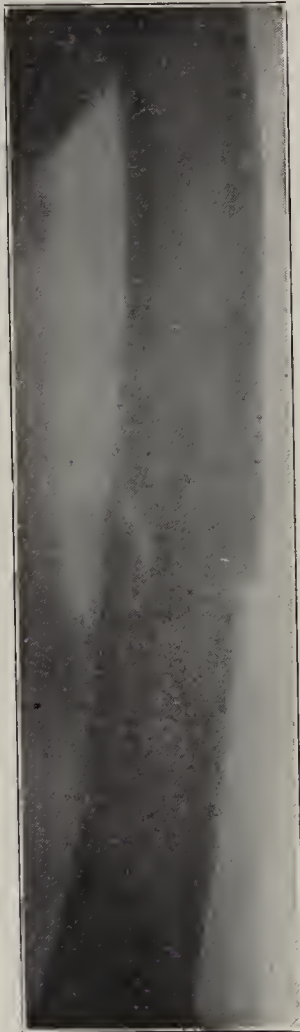


Fig. 7.—Case 3, thirty-one days after operation; note a shadow of the bone peg in the medulla of the femur across the fracture line.



Fig. 9.—Case 4, forty days after operation; note autoplasmic bone peg crossing the fracture line in the medulla of the neck of the femur, securely fastening the head and neck to the shaft in their proper alignment and relation.



Fig. 8.—Case 4; fracture of the neck of the femur with backward displacement of the upper fragment.

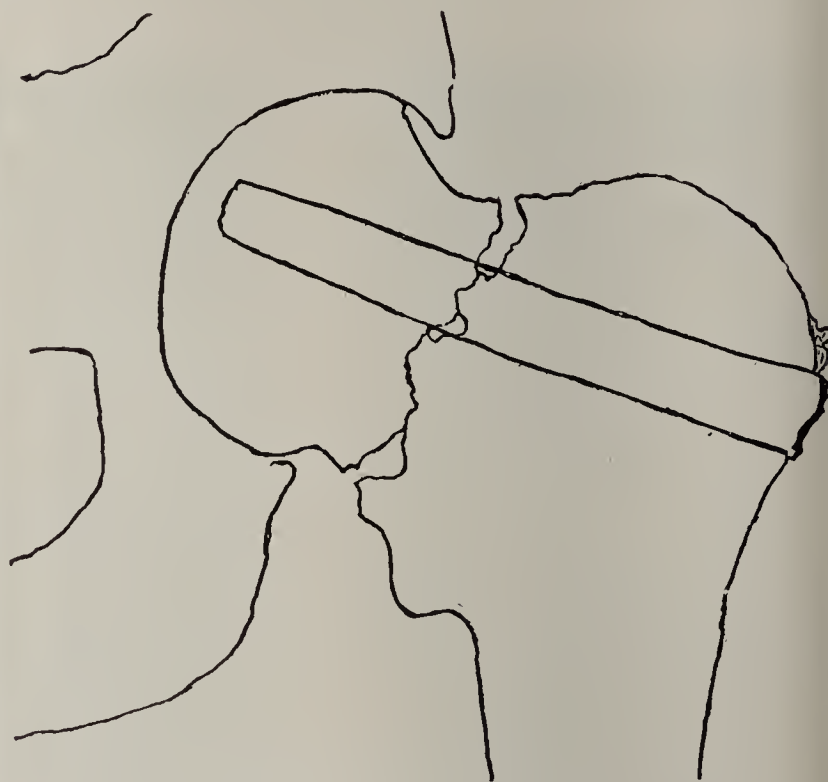


Fig. 10.—Case 4; Roentgen-ray tracing of Figure 9.

ing the manipulation of swinging the lower part of the leg into position.

The patient, when discharged, was walking with a painless, flexible ankle and with a substantial callus at the fracture.

CASE 3.—*Fracture of the shaft of right femur.*—R. B., Russian Jewess, housewife, aged 63, was admitted to Cook County Hospital suffering from decubitus and pulmonary congestion of the lungs, following a fracture of the shaft of the right femur. Roentgenoscopy revealed a transverse fracture of the shaft of the femur, with overlapping of fragments (Fig. 6).

With the usual technic an autoplasmic bone splint, 3 inches long, was placed at the defect in the medulla of the femur. Because of the precarious condition of the patient, spinal anesthesia was used, and a rapid transfer of bone from the tibia of the same extremity was made without appreciable shock (Fig. 7). Convalescence in the Fowler position was uneventful.

CASE 4.—*Fracture of the neck of the right femur.*—A. S., Swedish cabinet-maker, aged 47, was admitted to Cook

County Hospital after injury by direct violence, with Bryant's line $1\frac{1}{2}$ inches short. Roentgenoscopy revealed a fracture of the neck of the femur, with elevation of the great trochanter (Fig. 8). Under anesthesia the leg was held in an extension apparatus in the position of normal rotation and length. The great trochanter was exposed and an opening made in the outer compact bony wall of the femur in the axis of the neck. Through this opening a small bone curet was passed, following the medulla of the neck of the femur, to line up the fragments, to make a canal to receive the bone peg and to obtain the length of bone required for the splint. A splint 5 inches long was taken from the tibia, the opening in the compact bone opposite the neck of the femur was enlarged to fit the large end of the splint, and it was driven snugly into position until the small end reached the head of the femur (Figs. 9 and 10).



Fig. 11.—Case 5; transverse intertrochanteric fracture of femur with displacement and overlapping of fragments.

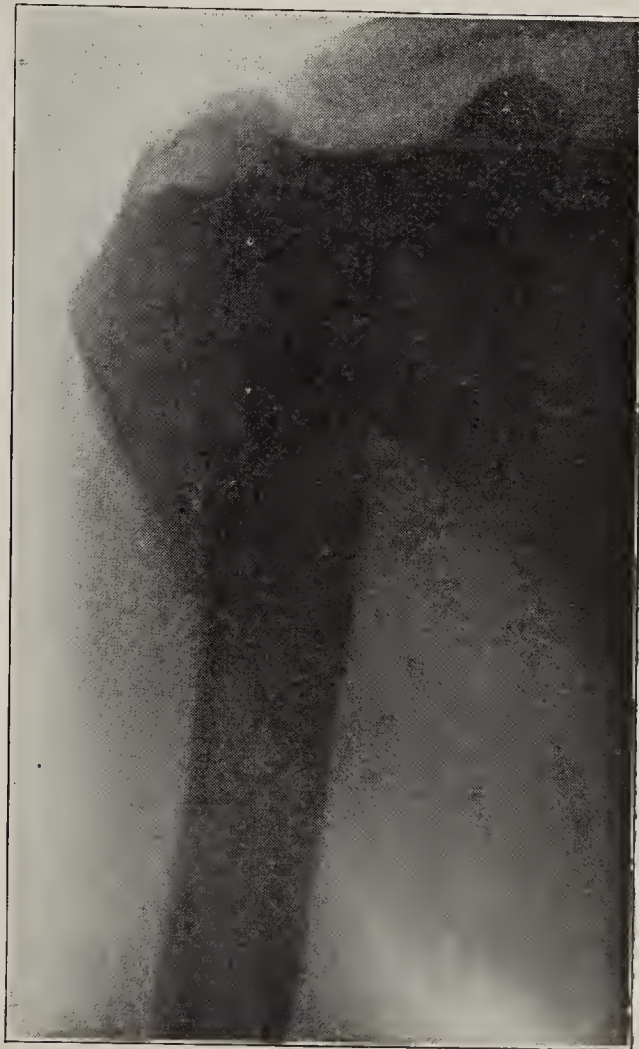
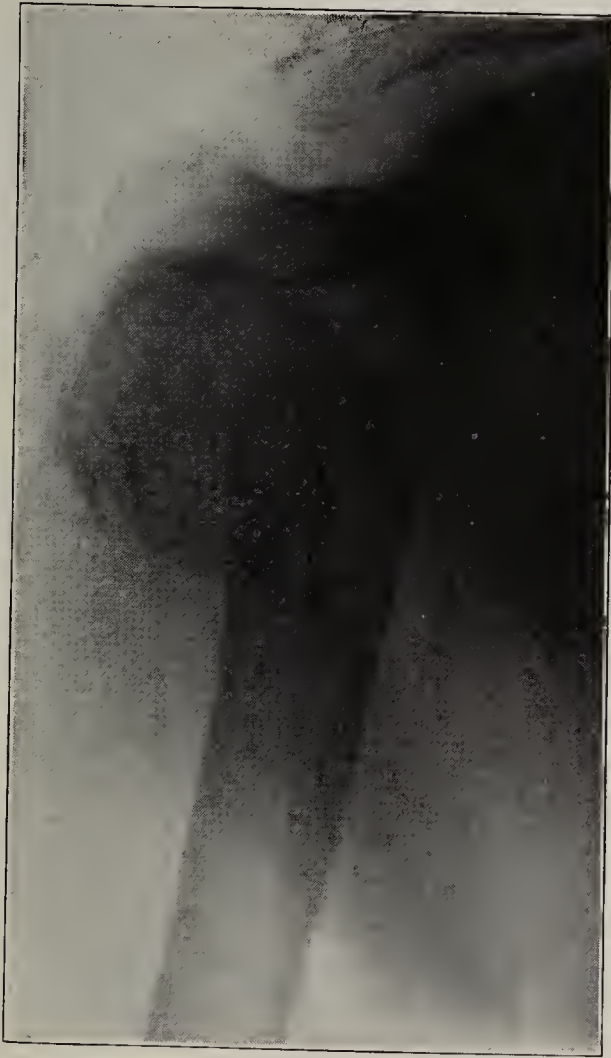


Fig. 12.—Case 5; autoplasmic bone peg fastening the neck and great trochanter securely to the shaft in correct rotation and alignment.

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CASE 5.—*Fracture of the right femur.*—W. B., Polish laborer, aged 22, was admitted to University Hospital immediately after injury produced by falling down an elevator shaft. The limb was short $1\frac{1}{4}$ inches. Roentgenoscopy revealed a transverse fracture of the femur immediately above the lesser trochanter (Fig. 11). Incision over the frac-



Figs. 13 and 14.—Case 6, severely comminuted fracture of the surgical neck of the humerus. To the left, picture taken on admission; to the right, twenty-eight days after operation; note autoplasmic bone peg, one end surrounded by callus supporting the cartilage of the head and the other end in the medulla of the shaft of the humerus; mass of splintered bone with callus at outside of fracture.

CASE 6.—*Fracture of the surgical neck of the left humerus.*—J. T., Irishman, cook, aged 49, was admitted to Cook County Hospital with injury to shoulder from falling down-stairs (Fig. 13).

Incision over injury showed the compact bony part of the upper fragment slivered into many small pieces, but attached to the circumference of the cartilage of the head of the humerus and radiating from it. The cancellous bone was fractured transversely at the circumference of the cartilage, leaving the cancellous bone of the concave surface of the cartilage intact. One end of a 2-inch autoplatic bone peg was embedded in the cancellous bone underneath the cartilage of the head of the humerus, and the other end of the peg placed in the medullary canal of the lower fragment, the splint holding the head like the handle of an open umbrella (Fig. 14). Three weeks after operation the patient was using his arm, with the head and shaft of the humerus moving together during rotation and other movements.

31 North State Street.

THE INCIDENCE OF FIBRINOUS AND BRONCHOCATARRHAL PNEUMONIA IN THE PHILADELPHIA GENERAL HOSPITAL *

ROBERT N. WILLSON, M.D.
PHILADELPHIA

Considerable interest and an occasional good-natured difference of opinion have existed during the past eighteen months, as the result of the determination of one of the medical services in the Philadelphia General Hospital to discriminate sharply between the fibrinous and the bronchocatarrhal types of pneumonia, especially with a view to treating patients suffering from the one condition in cold, and from the

some of us that a possible cause of this, and of a still higher death-rate to which reference will be made later, has been the indiscriminate placing of all cases of pneumonia in the cold, outdoor air. Fibrinous or bronchocatarrhal pneumonias, in patients old or young, with febrile or subnormal temperatures, strong or weak, have all been started toward the open-air bridges, almost on the run, once the diagnosis of some form of pneumonia has been determined. All, including myself, have participated in what, on second thought may appear to have been an ill-advised procedure. Only within the past year has there been apparent the slightest tendency to retrace the steps from the cold bridge to the warm ward with patients that not only fail to do well, but also suffer manifest harm from the low temperature exposure.

THE DIAGNOSIS

It will be important at the start to make clear the features which have guided us in the determination of the type of pneumonia in our own cases. In bronchocatarrhal pneumonia we have regarded as first and most important the previous and present state of the patient, usually one of distinct asthenia, often with cardiac dilatation, always with a definite initial bronchitis. Not infrequently is the pneumonic lesion simply an extension process in the course of a bronchiolitis forming part of such a primary condition as influenza, measles, tuberculosis, typhoid fever, food toxemia or small-pox. The heart-muscle in these cases is practically always in distress. Here and there in favorite areas over the lung may be found small foci, exhibiting crackling (subcrepitant) râles, tubular breath-sounds and an impaired percussion note. The most frequent of these chosen sites is perhaps the anterior axillary line on the right, often the left side. Next and most common are the subscapular areas; and last of all, either the pulmonary bases or the apices. Often the process is central, and the physical signs are obscure. Not infrequently, on the other hand, especially if the case is seen late, an entire lung will show massive consolidation from fusion of many peribronchiolar foci. Tubular breathing may be intense and audible over this entire area.

In addition the temperature almost invariably runs an irregular, usually low-grade, sometimes altogether subnormal course. The pulse-rate is high and also characteristically irregular; the impulse is small and mean. The respiratory curve is irregular, but follows no rule. It tends to be low rather than high in rate. The fall of all three, temperature, pulse and respiratory rates, is usually by lysis. Occasionally the pneumonic process will resolve in a day or two and end by crisis. The necropsy, if one is reached, will not always show macroscopically the typical peribronchiolar foci of consolidation, provided these have entered on a stage of extensive coalescence. The microscope will, however, at once betray the inflammatory involvement and thickening of the bronchiolar walls, the minimal quantity of fibrin and the great proportion of epithelial material in both the bronchiolar and vesicular exudate. True fibrinous (croupous) pneumonia needs hardly any description, as it constitutes the old book type of the disease. Only its increasing rarity gives it a special interest. The patient is, as a rule, of a very different type from that just described. He or she is usually of a more or less robust build and of good previous health. Often he has experienced a better physical

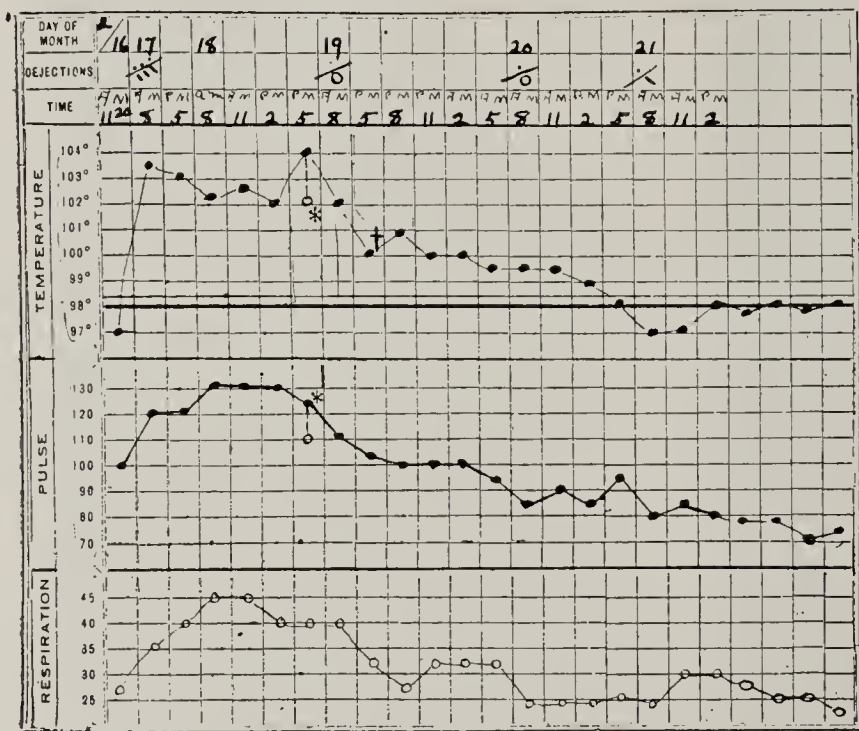


Fig. 1.—Chart in a case of bronchocatarrhal pneumonia in an alcoholic; onset while under observation. Cyanosis, great dyspnea and cough. Patient complained bitterly of the cold outdoor air. Showed immediate improvement and early lysis in the warm air of the ward. Complete recovery. *Sponge. †Axilla.

other in warm, fresh air. During the years 1911, 1912 and 1913, as shown by me in a previous paper,¹ the mortality from all types of pneumonia on the wards was 61.5 per cent. This is a far higher figure than appears justified by the mere fact that alcoholism and privation have both entered into the experience of the patients. Rather more likely would it appear to

* Read before the College of Physicians of Philadelphia, March 4, 1914.

1. Willson, Robert N.: The Treatment of the Pneumonias, THE JOURNAL A. M. A., Jan. 24, 1914, p. 257.

condition, just prior to the attack, than for a long period. The onset is sudden, is often attended by vomiting, the temperature is high, and remains so fairly constantly throughout the disease. The course is well defined, and usually ends by crisis in seven or nine days. As a rule, an entire lobe is involved, running through the stages of congestion, red hepatization, gray hepatization and resolution, with characteristic physical signs. The right lower lobe is most often involved, not seldom the left lower lobe, and less often the apices. If the case comes to necropsy there will be seen the typical lobar involvement in the stage of either red or gray hepatization. Fibrin plugs may stand out from the alveolar spaces in characteristic fashion. The microscopic examination of a section of lung-tissue will show an entire lack of a bronchiolar or peribronchiolar origin of the disease, and only a minimal proportion of epithelial elements will be present in the exudate, while in their place everywhere are noted fibrin and even organized tissue in the large and small air-spaces.

PATIENTS TREATED

During the three years, 1911-1913, there came under treatment in the Philadelphia General Hospital 615 patients² with pneumonia of one or the other type. These patients were distributed throughout the various medical services, and experienced varying forms of routine medicinal treatment. Practically every patient was treated outdoors, in the cold, whether the patient's temperature was febrile or subnormal throughout, whether or not the patient was cyanotic and in evident respiratory and cardiac distress; or whether the case was a distinctly sthenic one and the heart and vasomotor system were in satisfactory condition. Whether *post hoc* or *propter hoc* the mortality of this regimen totaled 61.5 per cent.

I have records of sixty-one patients treated on our own service during this period, practically all in the cold, open air, of which thirty-six died and twenty-five recovered, a mortality percentage again of 61.

During the months of January and February, 1914, there were treated on our own medical service nineteen patients with pneumonia, comprising, by an interesting coincidence, a total of nearly half as many patients as were handled by all the other services combined. Of the nineteen patients, the entire number, with one exception, ran a course typical of broncho-

catarrhal pneumonia. All patients were treated in as fresh air as possible, on the warm general wards, since a special ward was unobtainable owing to general overcrowding of the institution. Sufficient bedclothing was supplied to the patient to enable him to conserve his heat and energy supply. Sixteen of the number recovered and three died. Two of the latter were nearly moribund on admission, and died shortly thereafter. Another was a negro with an extensive cardiac lesion, probably syphilitic in origin. This patient, a confirmed alcoholic, developed a large pleural effusion, which was removed by aspiration. When seemingly on the road to recovery he suddenly died, probably from pulmonary embolism. No necropsy could be obtained. The mortality in this small but characteristic series was 15.2 per cent.

Practically all of these patients had been addicted to the use of alcohol. The single case of fibrinous pneumonia was in a patient who died within a few hours of admission, and the necropsy showed extensive gray hepatization of the right upper lobe.

During December, January and February, 1914, our single service treated in the warm air twenty-five similar patients with pneumonia, of whom four died, giving a mortality of 16 per cent.

CONCLUSIONS

It would seem as though one were compelled for sheer conscience' sake to examine both his own experience and that of others as to our warrant for believing that the preponderating type of pneumonia, both in the Philadelphia Hospital and out of it, is one originating in a bronchiolar and then a peribronchiolar process. This is important from the point of view of treatment and prognosis. I personally doubt whether there ever has been or ever will be seen a truly sthenic, vitally vigorous sufferer from bronchocatarrhal pneumonia. The very origin of the disease presupposes a bronchitis, in a patient with a lowered vitality. It seems therefore obligatory that we face and answer the question, "Have we really been killing many of our bronchocatarrhal pneumonia patients by treating them as though they were of a sthenic, febrile type?" And again, with all the effectual modern appliances at our command for the supply of warm, clean, air, with the opportunity of washing and rewashing and then resupplying an already used and heated air that has actually been proved cleaner and richer in oxygen for the heart and lungs of the patient than an unwashed outside air—is it not our duty, I ask, to lay hold on these appliances and conveniences and employ them,

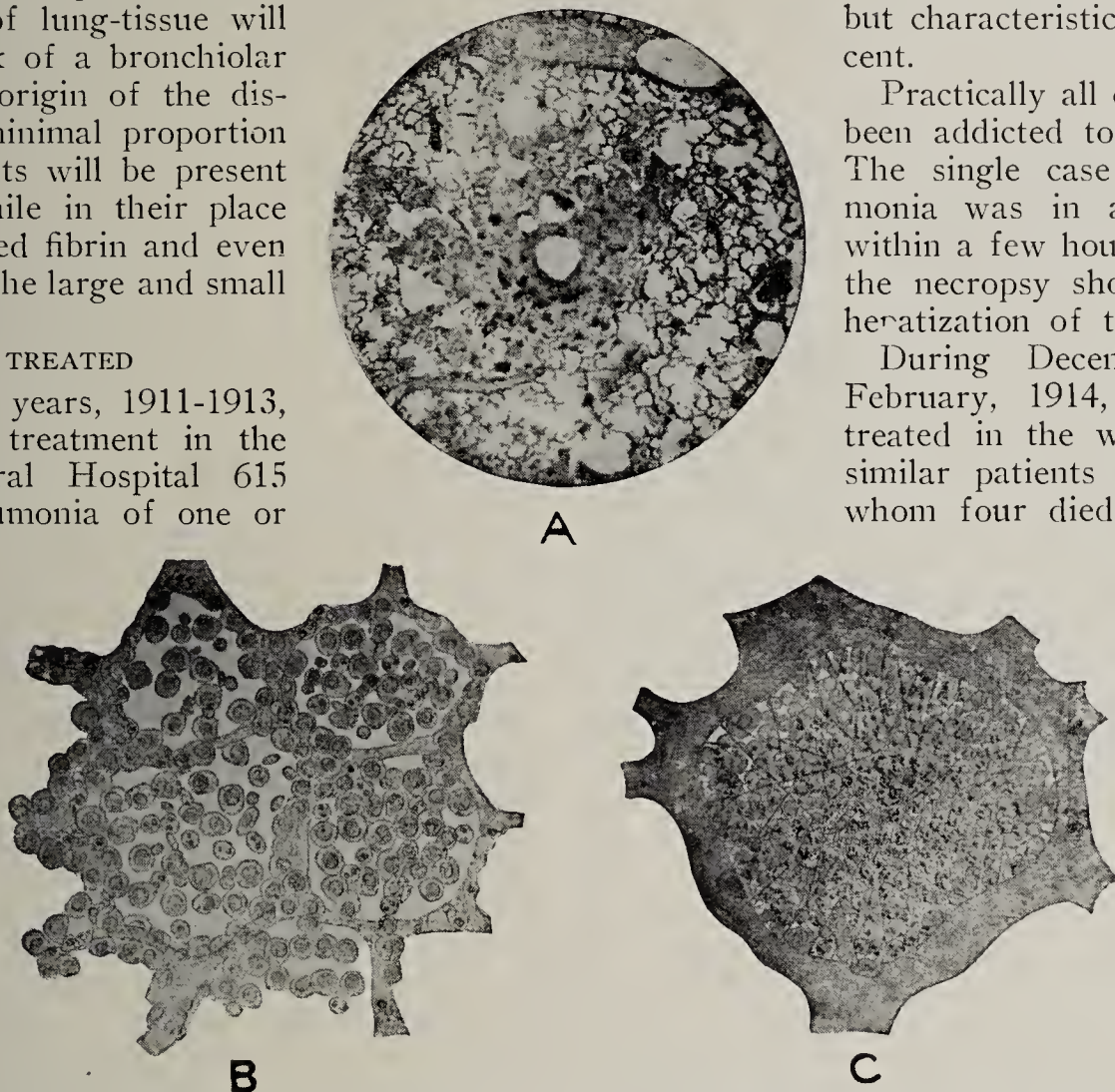


Fig. 2 (reproduced from Delafield).—A, An area of peribronchiolar pneumonia. Note the thickened bronchial wall. B, The intravesicular exudate in the bronchocatarrhal pneumonia of a child; largely epithelial, little if any fibrin present. C, The exudate of acute fibrinous pneumonia showing the fibrin strands, also many pneumococci.

These appliances and conveniences and employ them,

2. In previously published figures the nineteen patients discharged in December, 1913, were not included.

not only for the benefit of schoolchildren and theatergoers, but with a view to saving the lives of the sick, and especially of sufferers from the type of toxemia which we call bronchocatarrhal pneumonia?

We stand aghast at such mortality percentages as 61.5 and 61, even in a pneumonia community largely drawn from alcoholic subjects. What then is possible in the premises and what do we aim to accomplish?

I reply, first, that we should insist on a clear-cut discrimination between the two clinical types of pneumonia. Let us forget a little while even the name pneumococcus and the many other causative germs, active singly or in combination in both types of pneumonia, and let us remember the physical principles on which the human vital forces are stored and expended. Let us at least keep those patients indoors who are not vitally able to establish a temperature reaction or a considerable leukocytosis as indications of their attempt to outride the storm that has beset them. Let us wash and warm, and rewash their breathing air a sufficient number of times to render it cleaner and fresher than outdoor air. If modern appliances are unattainable through either a short-sighted or mis-

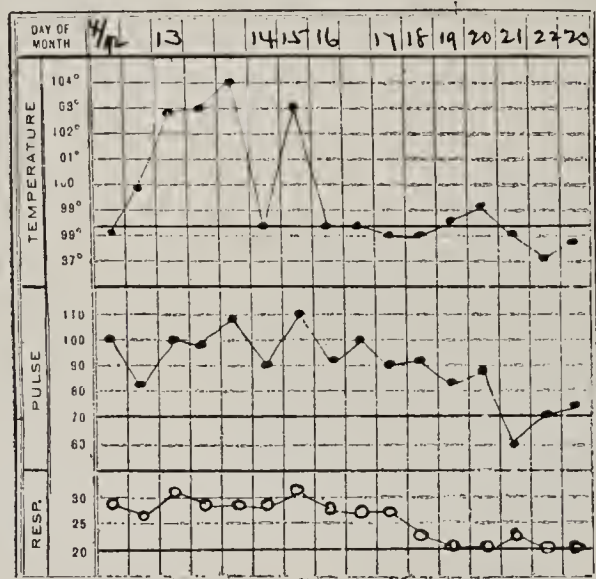


Fig. 3.—Chart in a case of bronchocatarrhal pneumonia in an alcoholic, who suffered and experienced an exaggeration of all symptoms in the cold air, and a prompt betterment when returned to the warm air, an early crisis, and recovery.

guided economy on the part of those who furnish the funds that equip such a great municipal life conservator or Juggernaut as the Philadelphia General Hospital — and it can be made to fill either rôle — if the necessary appliances are still unattainable, I repeat, then let us hold our asthenic pneumonia patients on the general medical wards, and watch the percentage of recoveries rise and the mortality fall, as indicated in the small but suggestive 1914 series to which I have made passing reference. Let us send outdoors only such febrile pneumonics as crave the cold, and obtain a stimulus and a relief in and from it; and let us send even these back into the warmth, when the crisis occurs, or when for any reason they are distressed by the low temperature and appear pinched and blue from undue exposure to cold.

Under the new regimen we have ceased expecting death as the likely outcome of pneumonia of either type, even in the alcoholic. On the contrary, we feel a grave sense of responsibility and disappointment if such a case does not end in recovery.

1827 Spruce Street.

THE ETIOLOGY OF TYPHUS FEVER (AND OF BRILL'S DISEASE). PRELIMINARY COMMUNICATION *

HARRY PLOTZ, M.D.

NEW YORK

Basing my opinion on some theoretical considerations and on previous investigations, I considered it advisable to search for an anaerobic organism as the etiologic factor in the acute infectious disease of unknown origin which Brill differentiated from typhoid fever. By the use of anaerobic methods in six cases of Brill's disease, I obtained the same organism in five; the case in which the organism was not obtained was investigated only after the crisis. Inasmuch as studies made during the past few years have shown that Brill's disease is probably a mild form of typhus fever, I decided to apply the same methods to the study of the latter. Through the kindness of Dr. Joseph O'Connell, health officer of the port of New York, to whom I am deeply indebted, I was enabled to study six cases of typhus fever at the height of the disease, and from all of these I recovered an organism that appears to be identical with that isolated from the cases of Brill's disease. A large number of control cases was studied and the organism was absent from each.

The organism is a small, Gram-positive, pleomorphic bacillus, from 0.9 to 1.93 microns in length, the breadth being from one-fifth to three-fifths of the length. It is not acid-fast, has no capsule, and polar bodies can be demonstrated with appropriate methods. The organism when first isolated grows only anaerobically, but after a time it can be grown aerobically.

Complement-fixation tests were made by Dr. P. K. Olitsky and myself, using the serum of eight cases of typhus fever and antigens made up from organisms obtained both from cases of Brill's disease and typhus fever. Complement-fixation reactions were negative during the course of the disease, but at or after the crisis, fixation was found to be present in varying degrees in six out of eight cases. The antigen made from the bacillus obtained from the cases of Brill's disease binds the complement in the same manner as the antigen made from the bacillus isolated from the cases of typhus fever. Complement-fixation tests were made in thirty-six control cases with absolutely negative results.

Intraperitoneal inoculation of a pure culture of the organism into guinea-pigs produced a rise of temperature in from twenty-four to forty-eight hours, the temperature remaining high for four or five days, and then dropping by crisis. This corresponds to the reaction seen in guinea-pigs after inoculation with defibrinated blood from typhus fever patients, except that the incubation period is shorter. Serum from a convalescing typhus patient was proved to have bactericidal properties against the organism obtained from Brill's disease and typhus fever.

In a later communication it is proposed to consider the cultural characteristics of the organism, its agglutination reactions, the further results of animal experiments and cross immunity tests. At the same time the results of studies forming a basis for a possible vaccine prophylaxis, and comparative studies of other organisms described by various authors as being found in typhus fever, will be reported.

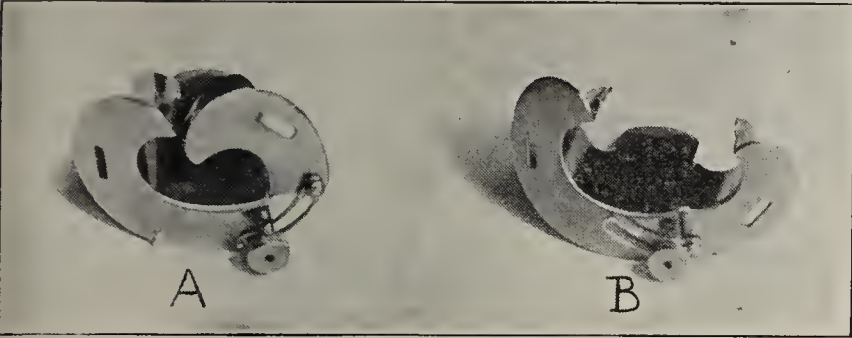
* From the Pathological Laboratory, Mt. Sinai Hospital.

New Instruments and Suggestions

MODIFICATION OF THE BROPHY MOUTH-GAG

R. E. FARR, M.D., MINNEAPOLIS

Having had some difficulty in introducing the Brophy mouth-gag, I have had the hinge attachment made, as illustrated. It will be noted that the modified instrument is adjustable. When it is closed, as at *A* in the illustration, it is much



Modified Brophy mouth-gag; *A*, closed; *B*, opened widely.

more easily introduced into the patient's mouth, and it may be opened to the ordinary width, or even much wider, as illustrated at *B*.

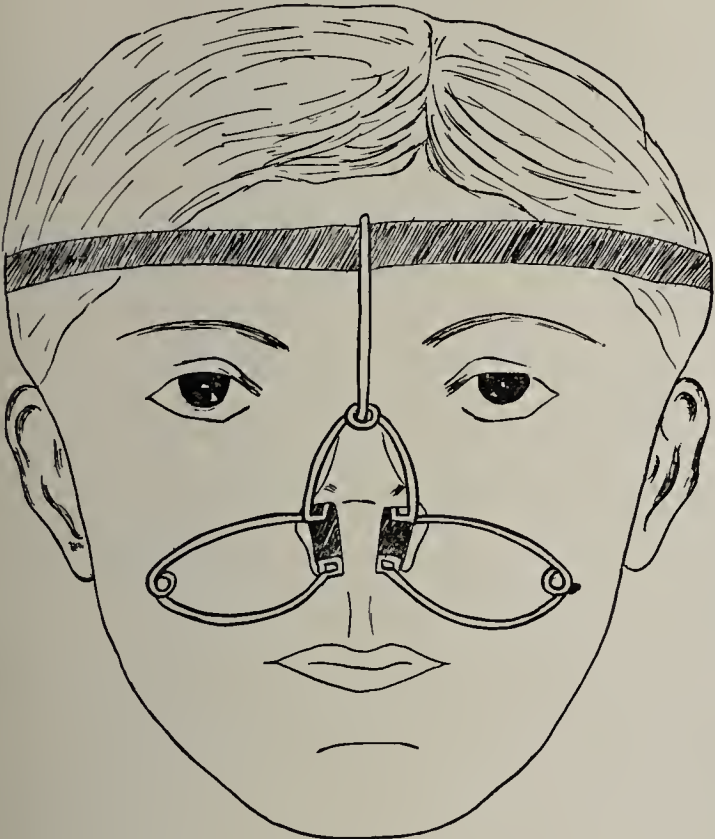
Another advantage is that two of these modified instruments will answer the requirements, whereas with the original instrument, a set of four was necessary.

Suite 301, Rcid Corner.

A NEW, DOUBLE, SELF-RETAINING NASAL SPECULUM

MAX UNGER, M.D., NEW YORK

The speculum which I have devised fulfils all the requirements of the ideal speculum in being small, simple, and complete, in dilating both nostrils at the same time, in staying in place, and in not interfering with the operator. So great an aid is it to the surgeon that the time of a submucous resection operation is shortened at least one-quarter.



Nasal speculum.

My speculum is made entirely of spring wire and consists of two pairs of fenestrated blades, one pair for each nostril. Each blade is about $\frac{1}{4}$ by $\frac{1}{2}$ inch in size. The free border is slightly wider than the attached. The outer ends of the blades are fastened to the ends of a wire coil. The wires between the blades and the coils are bent back almost to a

right angle, to approximate the cheek. The upper blades are also fastened to the lengthened ends of another coiled spring, which rises straight up in front of the nose for about $1\frac{1}{2}$ inches. To this coil is fastened a small hook, the loose end of which passes over a tape across the forehead. The side coils dilate the nostrils anteroposteriorly, while the upper coil dilates them laterally. The hook serves to tilt the end of the nose up and to steady the instrument. The whole speculum is about 3 inches wide and about $2\frac{1}{2}$ inches high.

1045 Fox Street.

ILLUMINATION OF THE DEEPER CAVITIES

C. E. TENNANT, M.D., DENVER

There is need for better illumination of the deeper cavities and recesses of the body during examination and operation. Various devices have been used from time to time, some of which have proved impractical because of the small area exposed at one time, others because of connecting wires and uncertain strength of current delivered to the lamp.

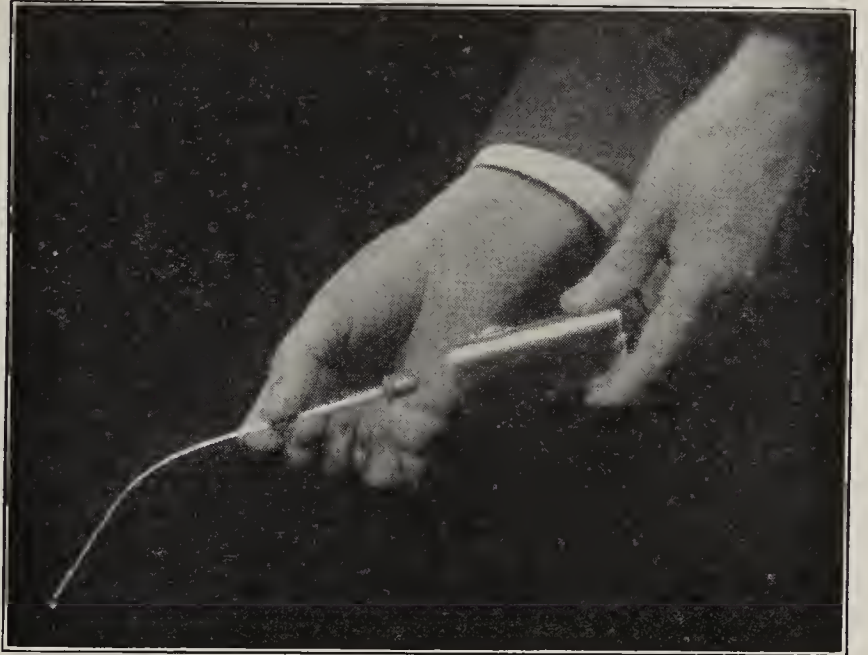


Fig. 1.—Device for illuminating the deeper cavities.

For several years past I have been utilizing the cystoscope for study of the thoracic cavity in connection with my method of operation and treatment of empyema. The results thus far have been quite satisfactory in locating pus pockets and fibrous bands, which, unless destroyed, prevent full expansion of the lung and obliteration of the pyogenic space.



Fig. 2.—The same, with lamp secured into end of tube.

Recently while performing the suprapubic cystotomy with retractors and a well-exposed bladder interior, the need for better light prompted me to devise a method of illumination which has since proved very satisfactory.

As shown by the accompanying illustrations, this device consists of a 7-inch soft annealed tube extension, the base of which is seated against the battery by screwing it into the regular lamp socket of the battery case. A high candle-power miniature tungsten lamp is secured into the end of the soft extension tube. Its cost is trifling, and as the shaft is readily

bent in any desired position, its general utility must be apparent. Both the shaft and the lamp may be sterilized in solutions, or the lamp may be so treated and the shaft boiled. The metal case which covers the storage battery or dry cell is covered with sterile gauze, or a sterile muslin sheath, made to fit, is drawn over the case before it is placed with the other instruments. This affords perfect and safe control of the instrument.

The device so arranged gives excellent illumination in all cases in which deep ocular inspection is desired during the course of the operation. This lamp is also of value in the transillumination of the stomach, gall-bladder, biliary ducts, duodenum and other hollow viscera. The instrument has been made for me by the Paul V. Muckle Instrument Company of Denver.

612 Empire Building.

A PERMANENT PREPARATION OF UREASE, AND ITS USE FOR RAPID AND ACCURATE DETERMINATION OF UREA*

DONALD D. VAN SLYKE AND GLENN E. CULLEN, NEW YORK

The procedure described below permits any one with rudimentary laboratory experience to complete within half an hour an accurate determination of the urea content of the urine, blood or spinal fluid. The apparatus required consists merely of test-tubes, burets and a suction-pump such as can be attached to any tap with fair water-pressure.

The methods for urea determination have until recently been of two classes, dependent respectively on either (1) the hypobromite reaction, or (2) the principle of transforming the urea into ammonia by heating to 150 C. (302 F.) in acid solution. The hypobromite methods are notoriously inaccurate. The heating methods, particularly that of S. R. Benedict, are, for urine at least, accurate, but not suited for use outside of a laboratory.

Marshall has recently introduced a third principle which offers an opportunity for obtaining results equal in accuracy to the best laboratory methods, with a technic almost as simple as that of the hypobromite procedure. Marshall utilized an enzyme, urease, discovered in 1909 by Takeuchi in the water extract of the soja or soy bean, which converts urea into ammonium carbonate. It acts at room temperature, forms ammonia from nothing except urea, and is not interfered with by glucose or anything else likely to be encountered in physiologic fluids. Marshall's extract has, however, two disadvantages compared with the chemical reagents available: it requires a number of hours to react quantitatively, and it loses its activity on standing.

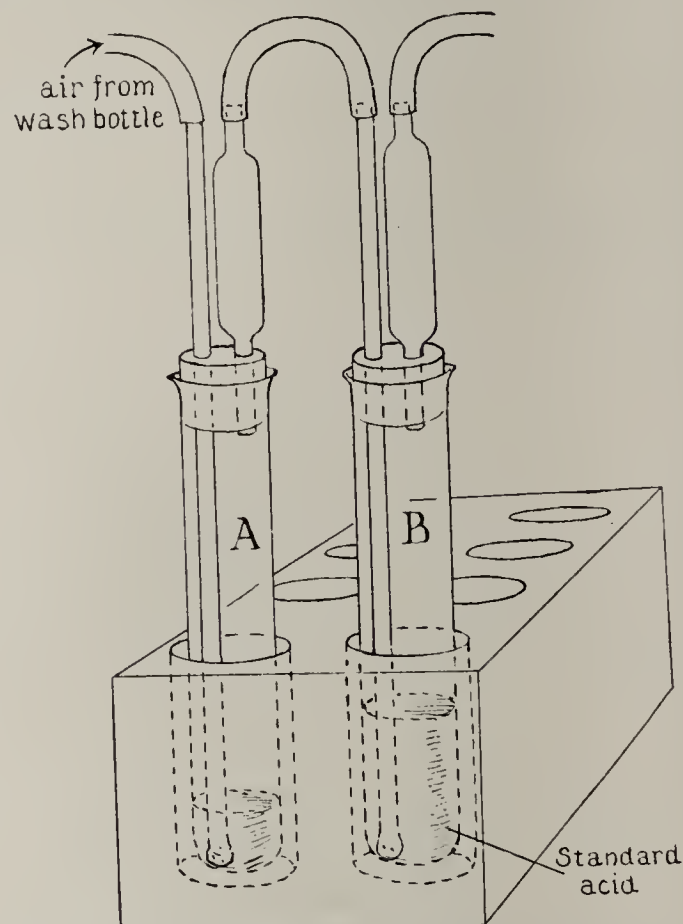
These disadvantages have been overcome by the preparation of the enzyme in the form of a soluble and very active dry powder. Soja bean meal is extracted with 5 parts of water and the extract poured into 10 volumes of acetone. The precipitate containing the enzyme is dried, and obtained as a powder which maintains its activity indefinitely. The enzyme prepared in this form can be obtained from the Arlington Chemical Company, of Yonkers, N. Y.

Properties of the Urease.—The enzyme preparation dissolves readily in water, forming an opalescent solution. Under given conditions, a given amount of it will decompose a definite amount of urea per minute, and no more, regardless of how much excess urea may be present. The preparation is most active at a temperature of approximately 55 C. (131 F.) and in a perfectly neutral solution. Between 10 and 50 C. (50 and 122 F.), increasing the temperature over any 10 degree interval doubles the rate at which the preparation acts. Heavy metals, or acid in a relatively slight concentration, destroy the activity. The urease is not quite so sensitive toward an alkaline reaction, but its activity is decreased by even weak bases. Ammonium carbonate depresses the activity to about one-eighth the optimum, so that the action of the enzyme is self-retarding. The retarding effect of the ammonium carbonate formed can be neutralized and conditions for optimum activity obtained by the addition of potassium dihydrogen phosphate (potassium acid phosphate, KH_2PO_4), and dipotassium hydrogen phosphate (neutral potassium phosphate, K_2HPO_4), in equimolecular proportions. This phosphate mixture also acts as a stabilizer to solutions of enzyme. While the latter ordinarily begin to lose strength rapidly after from one to five days, a solu-

tion containing 10 per cent. of the enzyme preparation in 0.2 molecular $\text{KH}_2\text{PO}_4 = \text{K}_2\text{HPO}_4$ lost only 3 per cent. of its activity in three weeks when kept under toluene at from 25 to 30 C. (77 to 86 F.) in a place exposed daily to direct sunlight.

Preparation of Enzyme Solution.—Two gm. of the enzyme preparation, 0.6 gm. of dipotassium hydrogen phosphate, and 0.4 gm. of potassium dihydrogen phosphate are stirred up with a rod in 10 c.c. of water. The enzyme preparation dissolves in about a minute, forming an opalescent solution. A few floccules of insoluble matter may remain, but the active enzyme all goes into solution at once. The urease can be obtained from the manufacturers in 1-gm. portions already mixed with the proper amounts of phosphate, so that it is merely necessary to dissolve the mixture in 10 c.c. of water. The acid phosphate serves a double purpose: it accelerates the enzyme action, and renders the enzyme solution more stable. If the latter is covered with toluene it will ordinarily hold its activity for a fortnight, but it is safer to use fresh solutions.

Analysis of Human Urine.—The procedure consists in treating the urine sample with urease, aerating the ammonia



Apparatus for determining the urea content by means of urease.

formed into fiftieth-normal acid, and titrating back the excess acid.

The details are carried out as follows:

1. Dilute 5 c.c. urine to 50 c.c.
2. Measure into Tube A 5 c.c. diluted urine, 1 c.c. enzyme solution, 1 drop caprylic alcohol.
3. Close A with stopper shown in figure, and let stand fifteen minutes for enzyme to act.
4. Measure into tube B 25 c.c. fiftieth normal hydrochloric acid or sulphuric acid, 1 drop 1 per cent. sodium alizarinate indicator, 1 drop caprylic alcohol.
5. Connect A and B as shown in figure.
6. At the end of fifteen minutes pass the air-current as indicated for one-half minute.
7. Then open A and pour in 4 to 5 gm. of dry potassium carbonate measured from a spoon.
8. Close A at once and aerate again till all ammonia is driven over into the acid in B.
9. Titrate excess acid in B with fiftieth-normal sodium hydroxide.

The caprylic alcohol (Kahlbaum's "Octylalkohol, Sekundär I") serves to prevent foaming during the aeration. The purpose of the preliminary half-minute aeration (paragraph 5 above) is to drive over into the acid in B any ammonia that may have escaped from the urine into the air space in A. The time required for the final aeration depends on the rate at which the air-current is passed through the solutions.

* From the Laboratories of the Rockefeller Institute for Medical Research.

and must be determined by trial for the particular pump or pressure system that is utilized. With a central vacuum, pressure, or an efficient pump which will give as rapid a current as the apparatus will stand, it is possible to drive off all the ammonia in five minutes, while with a slow pump half an hour may be necessary. The number of cubic centimeters of fiftieth-normal acid neutralized by the ammonia (i.e. 25 minus the c.c. of alkali used in Process 8) is multiplied by the factor 0.056 to give the number of grams of urea plus ammonia nitrogen per hundred cubic centimeters of urine. The ammonia alone may be determined at the same time with the ammonia plus urea, using the same technic, except that 5 c.c. of *undiluted* urine, no urease, and the factor 0.0056 are used for determination of the ammonia nitrogen alone. The ammonia tubes are connected in series with those for the urea determination, using the same air current for all. One can run as many as eight pairs of tubes in series on one current, taking care only to disconnect the series in the middle, to prevent back suction, before the pump is disconnected.

Determination of Urea in Blood, Spinal Fluid, etc.—The urease is particularly valuable in permitting a simple and accurate determination of urea in the blood, because its action is so specific that it attacks none of the other constituents, and the blood has to undergo no preliminary treatment for removal of the latter. Three c.c. of fresh blood or fluid, measured with an accurate pipet, are run into a 100-c.c. test-tube containing 1 c.c. of 3 per cent. potassium citrate, to prevent clotting; 0.5 c.c. of the urease solution and 2 or 3 drops of caprylic alcohol are added. After ten minutes 5 c.c. of saturated potassium carbonate solution are added, the ammonia is driven by aeration into 15 c.c. of hundredth-normal acid, and the excess acid is titrated back with hundredth-normal sodium hydroxid. Each cubic centimeter of hundredth-normal acid neutralized indicates 0.01 per cent. (grams per hundred cubic centimeters) of urea in the blood, or 0.00467 per cent. of urea nitrogen. In case the blood should be one of the rare samples containing over 0.15 per cent. of urea, all the acid will be neutralized, and it will be necessary to repeat the determination, using a sample of only 1 c.c. Fresh blood contains so little ammonia that it can be disregarded.

Technic of Aeration.—The technic is essentially that of Folin, with some minor alterations to adapt it to the somewhat changed conditions. The tubes do not have to stand neat, and consequently can be made of very heavy and durable glass. A convenient holder (shown in the illustration) for them is easily made from a block of wood 9 by 5 by 4 inches, by drilling in it eight holes, each $1\frac{3}{8}$ inches in diameter and 3 inches deep.

To prevent foaming, caprylic alcohol is by far the most efficient agent with which we are acquainted. With it one has no trouble at all, even in very rapid aeration of blood. In its absence one can use amyl alcohol or kerosene, although these do not guarantee the same immunity from annoyance and lost analyses. In view of the small amounts of caprylic alcohol required (from 2 to 5 drops for an analysis) its use is not expensive.

The inlet tube for air should always reach to the bottom of the solution.

The most convenient rubber tubing for the connections is the thick-walled, soft stethoscope tubing.

The apparatus, arranged as shown in the accompanying illustration, is so simple that it can be made in a laboratory, but can be obtained, with the block holder shown, suction pump, and a set of especially heavy test-tubes, from Emil Greiner & Co., 45 Cliff Street, New York.

In connection with the subject the following references will prove of interest:

- Takeuchi: *Jour. Coll. Agric.*, Tokyo, 1909, Part 1.
Armstrong: *Proc. Roy. Soc.*, 1912, lxxxv, Series B, p. 109; lxxxvi, 328, 561, 1913.
Marshall: *Jour. Biol. Chem.*, 1913, xiv, 283; 1913, xv, 487.
Folin: *Jour. Biol. Chem.*, 1912, xi, 493.
Van Slyke and Cullen: Preliminary reports, *Proc. Soc. Exper. Biol. and Med.*, Dec. 17, 1913; *Proc. Soc. Biol. Chem.*, Dec. 29, 1913.

Distribution of Sexes in Manila.—In Manila males greatly exceed females in number. At present there are 49,397 males as against 131,608 four years ago, and 117,546 females as against 102,801 four years ago, that is, about 2,000 more males than females. There are only 3,626 widowers in Manila, while the number of widows is 10,961. Prosperous conditions offering good employment account for the movement to the metropolis of the islands.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

EREPTON.—Erepton is a product prepared by the digestion of meat and consisting largely of the amino-acids thus produced. One hundred Gm. of erepton contains about 12 Gm. of nitrogen (the exact nitrogen content is stated on each package) in a form which does not give the biuret reaction.

Actions and Uses.—Erepton is said to be capable of supplying the nitrogen requirements of the animal organism. It is claimed to be non-toxic and non-irritating and to be satisfactorily absorbed when introduced into the rectum. Erepton is said to be useful in cases in which it is necessary to substitute a perfectly digested food for the product of natural digestion in cases of gastric or intestinal indigestion and for the purposes of rectal alimentation.

Dosage.—Erepton is usually administered as a nutrient enema in a solution having the temperature of the body. It may be used from three to four times daily. The following prescription is best adapted for the purpose:

| | |
|--------------------|---------------------------------|
| Erepton | 20.0 Gm. ($\frac{3}{4}$ ounce) |
| Pure maltose | 20.0 Gm. ($\frac{3}{4}$ ounce) |
| Water | 200.0 Gm. (7 ounces) |

Should it appear desirable, 10 Gm. (150 grains) of fat may be added to the preceding in the form of olive-oil or butter. Erepton may be given in porridges, vegetables or soups.

Manufactured by Farbwerke, vorm. Meister, Lucius and Bruening, Hoechst a. M., Germany (Farbwerke-Hoechst Co., New York). No U. S. patent. U. S. trademark No. 88,403.

Erepton is prepared by the successive action of pepsin-hydrochloric acid, trypsin and erepsin on meat freed from fat and tendon; the end-product is then desiccated.

Erepton is a brownish, hygroscopic powder, easily soluble in water and having an odor and taste suggestive of meat extract.

SEROBACTERINS.—(See THE JOURNAL, Feb. 7, 1914, p. 457.) The Council has at present no means of determining the identity and purity of serobacterins; they must be used on the guarantee of the manufacturer alone and they must be used, therefore, with due caution.

H. K. Mulford Co., Philadelphia.

Acne Serobacterin, Mulford (Sensitized Acne Vaccine, Polyvalent).—Marketed in packages of four syringes, graduated as follows: Syringe A, 100 million killed sensitized acne bacilli; Syringe B, 200 million killed sensitized acne bacilli; Syringe C, 400 million killed sensitized acne bacilli; Syringe D, 800 million killed sensitized acne bacilli.

Coli Serobacterin, Mulford (Sensitized Coli Vaccine).—Each package contains four syringes of Coli Serobacterin graduated as follows: Syringe A, 250 million killed sensitized *Bacillus coli*; Syringe B, 500 million killed sensitized *Bacillus coli*; Syringe C, 1,000 million killed sensitized *Bacillus coli*; Syringe D, 2,000 million killed sensitized *Bacillus coli*.

Neisser Serobacterin, Mulford (Sensitized Gonococcic Vaccine).—Each package contains four syringes of Neisser serobacterin graduated as follows: Syringe A, 250 million killed sensitized gonococci; Syringe B, 500 million killed sensitized gonococci; Syringe C, 1,000 million killed sensitized gonococci; Syringe D, 2,000 million killed sensitized gonococci.

Pneumo Serobacterin, Mulford (Sensitized Pneumococcic Vaccine).—Each package contains four syringes of Pneumo Serobacterin graduated as follows: Syringe A, 250 million killed sensitized pneumococci; Syringe B, 500 million killed sensitized pneumococci; Syringe C, 1,000 million killed sensitized pneumococci; Syringe D, 2,000 million killed sensitized pneumococci.

Staphylo Acne Serobacterin, Mulford (Sensitized Staphylo Acne Vaccine).—Each package contains four syringes of Staphylo Acne Serobacterin graduated as follows: Syringe A, 500 million killed sensitized staphylococci, 100 million killed sensitized acne bacilli; Syringe B, 1,000 million killed sensitized staphylococci, 200 million killed sensitized acne bacilli; Syringe C, 2,000 million killed sensitized staphylococci, 400 million killed sensitized acne bacilli; Syringe D, 4,000 million killed sensitized staphylococci, 800 million killed sensitized acne bacilli.

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SATURDAY, MAY 16, 1914

ALBUMINURIA FOLLOWING INGESTION OF PHENOLPHTHALEIN

Doubtless few drugs in the entire Pharmacopeia enjoy such wide-spread use as substances included in the cathartic group. The common laxatives are as familiar to the layman as they are to the physician, and are everywhere advertised and employed with characteristic "supreme indifference" to the possibility of harm, and for the most part in ignorance of the real action of the individual drug. If the layman elects to take his bodily welfare into his own hands he must be satisfied to bear the consequences that may follow from lack of expert knowledge; but the physician ought to appreciate the limitations of the procedures which he employs, the possible dangers which they may involve, and those idiosyncrasies of the individual which call for discrimination and judgment in therapeutic practice.

Scarcely more than a decade ago, quite by accident, the apparently harmless drug phenolphthalein came into use as a laxative, and in all parts of the world speedily found favor with patient and physician alike, even before the real pharmacology of the substance had been adequately worked out. Its use seemed to be attended with no noticeable irritation of the enteric tract. The early theory was that it acted as a cathartic, not by provoking peristalsis, but by exciting a hypersecretion of fluid in the intestine. Statements implying the non-toxicity of phenolphthalein and the absence of deleterious action therefrom on the kidneys are current. A recent report from the laboratories of bacteriology and physiologic chemistry at the Jefferson Medical College in Philadelphia¹ comes, therefore, as somewhat of a surprise. In twenty experiments, in each of which, before beginning the trials, the subject's urine showed no trace of albumin by delicate tests, a twenty-four-hour specimen, collected after the administration of phenolphthalein in a from 1-grain to 2-grain dose, gave positive tests for the protein in every case. The amount of albumin varied from a

trace up to 0.25 per cent. by Esbach's quantitative method. The precipitate in many of the cases was tested and found to be insoluble in alcohol. Traces of phenolphthalein were demonstrated in the urine. The albuminuria lasted from one to three days.

In experiments on the lower animals — cats, in this instance—no demonstrable phenolphthalein or albumin appeared in the urine after the administration of large doses. The kidneys showed no pathologic changes on microscopic examination. Hydrick concludes from an examination of the feces as well as from the condition of the alimentary canal after ingestion of the drug, that because its alkali salt is an irritant, it produces purgation by (1) irritation of the intestinal mucous membrane by the unabsorbed portion, and (2) stimulation of the intestinal nerve-plexuses which regulate peristalsis by the absorbed portion of the drug. If the facts here recorded for man are substantiated by further investigation they cannot be neglected in any consideration of the choice of suitable laxatives to meet individual needs. A case of poisoning from taking 1 gm. (15 grains) of phenolphthalein has been reported.² It would be unjust, however, seriously to condemn a widely used and apparently satisfactory drug until the statistics leave no alternative.

THE MEDICAL ASPECT OF CHILD LABOR

In his recent article on "The Underlying Factors in the Spread of Tuberculosis," Francine³ emphasizes the social and economic conditions underlying this disease and refers to the recent studies of Baldwin which show that tuberculosis is the most common infection of childhood. The campaign against tuberculosis in children must be waged against any cause of a lowered resistance which may permit the latent disease to become active. That child labor, unless adequately safeguarded, may have this result is asserted by Ludwig Teleky⁴ in an article on the choice of occupation for wage-earning children.

Since its foundation by the University of Vienna Teleky has been docent of the chair of social medicine. As industrial hygiene is the most important branch of this subject, he early became interested in tuberculosis as an industrial disease, and logically was led to study the effects of different occupations on wage-earning children with a predisposition to this disease. He found that in Germany as well as in Austria there is an unduly high tuberculosis-rate among youthful wage-earners. Kayserling has shown that while in Berlin the tuberculosis death-rate for all the late years of life has fallen since 1900, no diminution has been found in the death-rate for children of wage-

1. Hydrick, J. L.: Albuminuria Following Ingestion of Phenolphthalein, *Proc. Am. Soc. Biol., Chem., Jour. Biol. Chem.*, 1914, xvii, p. xxxvi.

2. See *A Handbook of Useful Drugs*, 1913, p. 104.

3. Francine, Albert Philip: The Underlying Factors in the Spread of Tuberculosis, *THE JOURNAL A. M. A.*, March 7, 1914, p. 767.

4. Teleky, Ludwig: Fürsorge bei der Berufswahl mit Rücksicht auf die Tuberkulose, *Wien. klin. Wchnschr.*, 1913, xxvi, 421.

earning age. Von Pirquet attributes the rise in the tuberculosis morbidity-rate during the years between 15 and 20 to overstrain and undernutrition in apprenticeship life.

At the beginning of his investigation Teleky found little literature concerning the effect of different occupations on the health of children, and he remarks with some bitterness that European physicians have paid far more attention to the effect on the health of children of overwork in school than to the effect of industrial work, a statement which sounds strange to American ears. Evidently European schoolchildren work much harder than American children. From the Vienna Sickness Insurance Bureau, however, Teleky was able to gather statistics which show clearly the increase of sickness among children who leave school for work. The increase of sickness during the first year of work is not great, but in the second and third years it is pronounced, and even in the fourth year is higher than the first.

He then took up the question of control of the choice of occupation so that some regard might be given to the welfare of the child, and underdeveloped children, predisposed to tuberculosis, might be kept out of occupations in which too great demands were made on their strength. In Vienna medical control of such matters is easier than with us, because of the well-established system of apprenticeship. Most industries employ physicians, who examine applicants for apprenticeships and may reject the physically unfit. Theoretically, this is a good system, but Teleky has found it ineffective in practice. The physicians are almost obliged to accept or reject applicants according to the state of the labor market. Also, the best-paid industries get the strongest boys, while weaker boys must accept lower wages and poorer conditions or go into the unskilled occupations, which means that the children who most need it are not protected.

Realizing that the choice of occupation should be made during school life and with the advice of teacher and doctor, Teleky, with the cooperation of other physicians, opened a consultation clinic for schoolchildren and their parents, in which advice was given as to the occupation for which the child was fitted. After three and a half years' experience, in spite of every effort, including wide advertising in labor journals, he states that only three hundred boys have been brought to his clinic. This discouraging feature, however, may be explained by the still more discouraging fact of his inability to provide for those who did consult him. Here, as he says, practice and theory part company. What occupation should be advised for an underdeveloped boy plainly predisposed to tuberculosis? The medical books, of course, declare that such boys should be given no indoor occupation and no work which causes physical overstrain, or in which

the posture is not frequently changed. After many years spent in visiting industrial establishments in Vienna, Teleky found only two such occupations available—ornamental (not market) gardening, and forestry. He also discovered that in these two fields of labor not enough positions existed in all Austria to give employment to the underdeveloped children found in a single one of the working-class quarters of Vienna.

Disease is produced in working children not only by improper conditions of labor—heat, dust, insufficient light, stagnant air—but also by the work itself—the physical overstrain placed on an underdeveloped organism which should have its energies conserved for growth. After studying the problem at first hand, and seeing all efforts to prevent the disastrous effect of labor on underdeveloped children fail, Teleky finds no remedy save the raising of the age-limit for employment. The age of 16, he thinks, is early enough for children to enter industrial work; and even at 16 the transition from school life to industrial life should not be too abrupt, lest the shock to the youthful organism be too great. He agrees with Kaup that for the youth under 18 the work-day should be limited to ten hours, including time for three meals, with each week at least three half holidays for study and sport, and each year a two weeks' vacation.

HOOKWORM ANEMIA

Although the presence of one or both of two species of parasitic worms—the New World hookworm, *Necator americanus* or the Old World *Ankylostoma duodenale*—is universally accepted as the primary etiologic factor in the hookworm disease of man, one of the most conspicuous symptoms, namely, the hookworm anemia, is by no means satisfactorily determined. Opinion is still to a large extent empirical on this feature of ankylostomiasis. It was early assumed that the habits of the worms in biting and attaching themselves to the alimentary wall would lead to hemorrhages, and that the resulting loss of blood would account for the characteristic anemia. Examination of the small intestines in suitable cases has often revealed a diffuse catarrh of variable severity; there may be large spots of hemorrhagic infiltration each with a worm hanging to its center; hemorrhages may or may not be present. It does not follow, however, that the worms suck blood. Looss,¹ for example, insists that their natural food is the intestinal epithelium, and that although blood is not infrequently found in the intestine of the worms, the red corpuscles are not digested to any extent.

Undoubtedly, the parasites of ankylostomiasis injure in several ways. The considerations just advanced,

1. Looss, A.: The Anatomy and Life History of *Agchylostoma duodenale*, Records of the Cairo School of Medicine, 1911, iv, 163.

along with others of a more general nature, have led to the promulgation of the toxin theory of the disease. Nicoll² has recently summarized the arguments with regard to the two principal theories. On the one hand, it has been believed that the worm itself secretes a toxic substance, the action of which gives rise to the anemia; on the other, the more recent idea is that the hypothetical toxin is produced by some extraneous organisms such as intestinal bacteria, the products from which find their way through the damaged mucosa. Numerous attempts have been made to isolate a hemolytic or otherwise harmful substance, with varying success.³ The greatest objection to be raised against the theory of secondary microbic invasion is the rapidity with which the anemia disappears on expulsion of the worms. Perhaps we shall not take an extreme position if we tentatively conclude, in the light of the conflicting evidence now available,⁴ that several factors such as toxins, intestinal lesions and hemorrhages, rather than a single condition, contribute to produce the clinical picture of the disease.

If the hookworm anemia were induced by a loss of blood associated solely with the injury to the alimentary wall, the anemia would evidently be of a secondary or hemorrhagic type. Boycott and Haldane⁵ have contended that the blood-content differs from that in secondary anemias. Clinically, the leading feature of hookworm anemia in man is the chronic and progressive nature of the disease, although the progress in some cases may be very rapid. The usual description indicates that the symptoms are those of severe anemia, generally associated with some degree of gastroenteritis. The individual symptoms which may occur, though numerous, are not specifically characteristic of hookworm anemia. In the pallor and edema, we are told, there is a greater resemblance to chlorosis than to pernicious anemia.

At the Lister Institute of Preventive Medicine in London, Dr. William Nicoll² has attempted to investigate, under careful experimental conditions, some of the alleged blood-changes in ankylostomiasis. The dog, which was used as the subject, harbors a hookworm

Ankylostoma caninum, distinct from that of man. The hookworm anemia of dogs differs from the corresponding disease in man in two essential particulars, namely, that young animals are chiefly affected and that in them a fatal termination comes much more rapidly. Older dogs, although not altogether insusceptible, acquire only a moderate infection and, consequently, a minor degree of anemia. From this they gradually recover, even in spite of repeated and continued attempts at reinfection. The anemia observed in young dogs was characterized by great loss of weight, emaciation, prostration and intestinal hemorrhage, but in no case was epistaxis observed. The blood volume of dogs suffering from the minor degree of hookworm anemia is not materially altered, except, perhaps, it is somewhat diminished. The oxygen capacity of the blood per unit of body-weight is also, on the average, somewhat decreased. Infection is generally accompanied by distinct though not profuse hemorrhage, which is most marked in the early stages, but tends to disappear. Eosinophilia was not a constant sign either of infection or of disease. Evidence of blood regeneration was furnished by the appearance of large numbers of erythroblasts (normoblasts) which increased with the progress of the disease.

Cats are much less easily infected than dogs, and monkeys as well as human beings were found to be insusceptible to the hookworm peculiar to the dog. The experiments thus disprove the theory that the dog, either by harboring the human parasite or by the dissemination of its own, may be the carrier of hookworm infection to man.

OYSTERS AND TYPHOID FEVER

There are seasons of the year when the instances of infection with the organism of typhoid fever can usually be traced with considerable ease to their probable source. Epidemiologic study long ago demonstrated that the greater outbreaks are usually due to infected water, milk or other foods, and it came to be seen that the smaller groups and isolated cases could best be explained by contact infection. The carrier has been shown to be the link between hitherto unconnected cases. For many years no form of air infection (except dust) has been said to be a cause of typhoid and the reports of outbreaks of dust-borne typhoid fever in the Spanish and Boer wars and in India are based on the flimsiest evidence.¹

We have not forgotten the ubiquitous house-fly as frequent carrier of disease. In many of our states however, insects of this type are excluded as effective agents of infection because of the climate during the colder months of the year, so that we cannot fall back on the convenient hypothesis of "transmission by flies."

2. Nicoll, W.: The Blood Volume in Ankylostomiasis, with Some Biological Notes Relating to the Disease, Jour. Hyg., 1914, xiii, 369.

3. Loeb, L., and Smith, A. J.: The Presence of a Substance Inhibiting the Coagulation of the Blood in Ankylostoma, Proc. Path. Soc., Philadelphia, 1904, vii, 173; Ueber eine die blutgerinnungshemmende Substanz in Ankylostoma caninum, Centralbl. f. Bakteriologie, Orig., 1906, xl, 738. Loeb, L.: Ein weiterer Versuch über die blutgerinnungshemmende Substanz in Ankylostoma caninum, ibid., 1906, xl, 740. Liefmann, H.: Beitrag zum Studium der Ankylostomiasis; über den Infektionsmodus und die vermutliche Giftwirkung der Würmer, Ztschr. f. Hyg. u. Infektionskrankh., 1905, I, 359. Preti, L.: Haemolytische Wirkung von Ankylostoma Duodenale, München. med. Wehnschr., 1908, lv, 436. Noe, F.: Etude sur l'ankylostomiasis, etc., en Cochinchine, Ann. de l'Inst. Pasteur, 1908, xxii, 896. Whipple, G. H.: Ankylostomiasis, Bull. Johns Hopkins Hosp., 1908, xx, 152; The Presence of a Weak Haemolysin in the Hook-Worm and Its Relation to the Anaemia of Uncinariasis, Jour. Exper. Med., 1909, xi, 331.

4. In addition to the references already given, consult Weinberg, M., and Leger, M.: Recherches cliniques et expérimentelles sur l'ankylostomiasis, Bull. Soc. Path. exot., 1908, i, 229. Siccardi, P. D.: Pathogénie de l'anémie ankylostomienne Arch. de Parasitol., 1910, xiii, 555. Castanelli, A.: Ankylostomiasis Fever, Jour. Trop. Med. and Hyg., 1910, xiii, 255.

5. Boycott, A. E., and Haldane, J. S.: An Outbreak of Ankylostomiasis in England, Jour. Hyg., 1903, iii, 95.

1. Chapin, C. V.: The Air as a Vehicle of Infection, THE JOURNAL A. M. A., Feb. 7, 1914, p. 423.

to explain the incidence of typhoid fever. Ever since Conn's report indicating the occurrence of cases of typhoid fever in epidemic form as the result of the use of oysters contaminated with sewage,² there has been a growing tendency to attribute the origin of much of the winter typhoid fever in certain districts to sewage-polluted bivalves.

It is time to ascertain whether this attitude toward the oyster is justified by the facts. Oysters are a highly prized article of diet wherever they are obtainable. Despite the increasing enforcement of rigid regulations concerning the vending of oysters that are free from pollution according to the standards of such representative bodies as the Bureau of Chemistry of the United States Department of Agriculture and the Rhode Island Shell-Fish Commission, the prejudice against this food-product has, justly or unjustly, increased in many quarters. To consider only the alleged responsibility of the oyster in the causation of winter typhoid, we may ask what its biologic habits are at this season. Gorham³ has shown that during cold weather oysters rest or hibernate; the ciliary movement ceases and feeding does not occur, and the oysters become practically free from sewage organisms, even when lying on sewage-polluted beds.

As such facts seem to throw some doubt on the wisdom of attributing winter typhoid to the oyster, Joseph⁴ has made a bacteriologic study of the oysters sold in Baltimore. The aim of this investigation, conducted in the Laboratory of Hygiene and Bacteriology at the Johns Hopkins University, was to ascertain whether the oysters sold in one of the most prominent markets for these products in the United States contain organisms derived from the intestinal tract, and whether their content in bacteria varies with the seasons of the year.

Obviously, the presence of micro-organisms characteristic of water was to be expected; and these have no significance in this connection. The bacterial findings indicated that the oysters sold in Baltimore are in general free from sewage contamination. Those few lots which would be condemned by the most rigid standards were obtained at times of the year when the weather was quite warm—a fact of no little significance in view of the tendency to prolong the oyster-eating season beyond the limits of the colder months. One of the most striking points brought out was the distinct change in the character of the oysters, according to the time of the year. Thus in the early fall the scores were high, in the cold weather of the midwinter low, and again high in the spring. There was a distinct correlation between the number of bacteria in each oyster and the number of gas-producing species. This seems to indicate that the increase of bacteria which

the various oysters show is in large part due to a multiplication of the intestinal organisms and not to an increase of the ordinary water species. The specific types isolated in the unsatisfactory lots include *Bacillus coli* and *B. cloacae*, which are surely indicative of sewage pollution, *B. alkaligenes* and certain rarer intestinal species: *B. oxygenes*, *B. oxyphilus*, *B. chymogenes* and *B. chylogenes*. On no occasion were organisms of the type of *Bacillus typhosus* or *Bacillus paratyphosus* encountered.

Current Comment

TYPHOID PREVENTION AMONG SEAMEN

In an open letter, Surgeon-General Rupert Blue calls attention¹ to the fact that during the fiscal year ending June 30, 1913, 392 cases of typhoid fever among seamen employed aboard United States merchant vessels were admitted to the United States marine hospitals. As in addition to this number many other patients are known to have been treated at various other hospitals and at their homes, it is evident that the incidence of typhoid fever among the personnel of our merchant marine is high. This might be expected in view of their exposure and rather irregular lives. The occurrence of the disease among these men, however, is a special danger and of great importance not only for the seamen and shipping interests, but also for the public at large. The surgeon-general calculates that, taking two and a half months as a fairly low average of the actual loss of working time during typhoid fever, and a dollar and a half as the average daily wage of the employee, the aggregate loss is some eighty years in actual working time and \$44,000 in wages. "In terms of cold dollars and cents alone this is a rather heavy price to pay for an entirely preventable disease." Furthermore, each patient may become a focus for the spread of the disease or a source of no little subsequent danger even after recovery as a possible "carrier." "Carriers" on board vessels are particularly dangerous as they are an ever-present menace to fellow shipmates and to passengers. In shifting from port to port the seaman "carrier" may become a traveling focus of infection and an active agent in the spread of the disease. The War and Navy departments have very largely reduced—indeed, almost obliterated—the incidence of typhoid fever by the introduction of preventive inoculations. The French in Algiers and Morocco have found typhoid preventive inoculations of such great value that in these countries troops which formerly suffered severely from the ravages of the disease are now comparatively free from it. Indeed, from a positive scourge the affection has become almost a negligible incident of military life. Similar favorable experiences with preventive inoculations are reported from other countries. So far, preventive inoculations for typhoid have been used only in military and naval

2. Conn, H. W.: Med. Rec., 1894, xlvii, 471.

3. Gorham, F. P.: Am. Jour. Pub. Health, 1912, ii, 24.

4. Joseph, M.: Bacteriological Findings in Baltimore Oysters, Johns Hopkins Hosp. Bull., 1914, xxv, 128.

1. Blue, Rupert: Public Health Reps., March 20, 1914, p. 677.

circles and in hospital work among physicians and nurses. The results have been so favorable that it would seem to be time to secure the introduction of the practice of typhoid immunization to the public. Nowhere does a better opportunity exist to test it than among the United States seamen of the merchant service. Navigation on the lakes is now just about to open and this is the best possible time to show how much may be accomplished in preventing disorganization of traffic and financial loss from the occasional epidemics of typhoid fever that have occurred in spite of precautions. This can surely and easily be done by the institution of typhoid inoculation. Surgeon-General Blue concludes his open letter by saying that "the United States Public Health Service is ready and willing to render every assistance and advice, and at all relief stations throughout the country service officers are instructed to administer the typhoid prophylactic to all sailors applying for same."

THE SPREAD OF TRACHOMA

During the past few years reports regarding trachoma among the reservation Indians and the mountain population of Kentucky and other states have stimulated interest in this disease. Investigation has shown that it affects many communities, to a greater or less extent, existing in a number of instances among schoolchildren. Attention has been directed to the great industrial establishments where large numbers of foreign laborers are employed. In each instance, when a focus of the disease has been found, its origin has been carefully investigated so that preventive measures might be instituted. J. W. Schereschewsky of the Public Health Service has examined the 5,962 employees of the Youngstown (Ohio) Sheet & Tube Company with reference to the prevalence of trachoma. He found among them seventy-six cases, a rate of prevalence of 1.3 per cent. Nineteen cases of suspicious conjunctivitis were also observed. Of the employees 28.5 per cent. were Americans. Among the 1,700 Americans the rate of prevalence was 0.23 per cent., and among the seven foreign nations represented the rate ranged from 0.9 to 3.0. After careful inquiry as to the time these men had been in the United States, Schereschewsky expresses the opinion that with but few exceptions the disease was contracted subsequent to landing in this country, and in the great majority of instances while the men were employed in East Youngstown. It was not thought that the disease had been spread to any great extent by conditions in the mills. Close physical contact and the use of the common towel and hand basin are known to be favorable to the spread of trachoma, but these conditions do not prevail in the works of the company. Most of the foreigners do not wash in the mills, and those Americans of the skilled labor class who do, have their own buckets or vessels and towels. One possible source of infection in the mills is the habit of the workmen of removing from each other's eyes foreign bodies that may lodge therein, although they are instructed to apply to the medical service for relief. Attention was directed to the living

conditions of the workers, and here Schereschewsky discovered the chief source of infection. Many of the lodging-houses of the workers were much overcrowded. Thus, in one instance twenty-three lodgers were found in a four-room house, as many as ten or twelve in one room. Insanitary conditions prevailed in East Youngstown as well as in the immediate surroundings of the men. The presence of recent cases showed that the disease was gradually spreading from foci of chronic cases in a state of acute exacerbation, some of which Schereschewsky observed. In most instances, perhaps, as at East Youngstown, the cases are among laborers from foreign countries who have been in the United States a comparatively short time. The inspection at the ports of entry serves to detect practically all cases that have reached a stage at which diagnosis is possible; an immigrant when he lands may have the infection in such an undeveloped state that it cannot be detected and he may then in a short time become a focus for the spread of the disease. The employers of labor in the great industrial establishments should be warned of the seriousness of trachoma, and especially of its liability to spread. The health authorities of the cities and towns where these establishments are located should realize their responsibility in this matter. Bad housing, overcrowding and lax personal and community hygiene will contribute to the spread of this highly infectious and disabling but wholly preventable disease.

OPTIMISM

To look on the bright side of life and its affairs with an enthusiastic belief that everything is all right and for the best is ideal. This is especially true as it applies to those who come into contact with the sick. A physician, above all men, should be an optimist — ready to stimulate hope even though he may not have it himself. Hopefulness in the countenance and optimism in the words and actions of the physician are as sunshine in the sick-room; they stimulate hopefulness of recovery in the sick and a courage that often has potent influence for good. Even when recovery is not possible, good, not harm, is done. They make life worth living while it lasts. The psychic influence is always felt so long as consciousness remains. Paget,¹ speaking of hypochondriacs, says, "Your chances of doing good will depend mainly on the skill with which you can influence the patient's mind; for of the components of his case the mental condition is the worst."

1. Paget's Essays, p. 43.

An Obligation.—Hygiene, in its broadest interpretation, includes man's welfare in its totality. Health promotion because of this is a social obligation—"for no man liveth to himself alone." The physician no longer bears the burden of protection or prevention. Insanitary conditions are due to the sins of the community and the sins of the individual, yet the individual bears a responsibility. His obligation is twofold. The municipality may provide pure food and sanitary environments, but the individual is responsible for personal effort to keep himself hygienically fit.—Dowling, in *Bull Texas State Board of Health*.

Medical News

CALIFORNIA

Personal.—Dr. Edward C. Rosenow of the Memorial Institute of Infectious Diseases, Chicago, delivered an address before the Los Angeles County Medical Association, May 7, on "The Transmutation of Streptococci."—Dr. Elbridge J. Best, San Francisco, was operated on for appendicitis in St. Luke's Hospital, April 26, and is reported to be doing well.

Physician Urged for Governor.—The executive committee of the Young Men's Republican Club of Los Angeles on May 4 adopted a resolution addressed to the Young Republican League of California expressing confidence in the honor, integrity and ability of Dr. Norman Bridge, and requesting him to become a candidate for the office of governor of California on the Republican ticket.

IOWA

Epileptic Colony Site Accepted.—The State Board of Control has notified the owners of the site near Woodward, selected for the epileptic colony site, that the options on the land are accepted. The tract includes 952 acres, and was bought at an average price of \$194 an acre.

Personal.—Dr. Guilford H. Sumner, Des Moines, secretary of the State Board of Health, has received two gavels made from white oak from the Abraham Lincoln flag-pole raised at Swede Point, Iowa. The gavels are intended for the meetings of the State Board of Health and the State Board of Medical Examiners.—Dr. and Mrs. Benjamin E. Niebel, Iowa City, have started for China where Dr. Niebel has been assigned as medical missionary.—Dr. and Mrs. Louis Savre, Osage, sailed for Europe April 28.

ILLINOIS

Personal.—Dr. Lewis C. Taylor has been elected president and a director of the Springfield Anti-Tuberculosis Association, Dr. George F. Stericker a member of the executive committee, and Dr. George Thomas Palmer, medical director.

Illinois State Conference of Charities and Corrections.—The proceedings of the eighteenth annual conference held in Rockford in October have been published in the *Institution Quarterly*, the official organ of the public charity services of Illinois, for the first quarter, dated March 31, 1914. In addition to the record of routine business of the conference the publication contains the complete papers and addresses of the meeting on a large number of subjects of social and charitable endeavor, not the least interesting and important of which are those on eugenics, the teaching of sex hygiene, and those on social insurance. The conference was said to have been one of the most successful in the history of the state charities organization and was participated in by some of the most prominent sociologic and charity workers in the United States. The publication also contains an account of the winter (1914) meeting of the State Hospitals Medical Association and of the annual meeting of the Illinois State Association for the Prevention of Tuberculosis.

Chicago

Chicago Leper Deported.—Charles Walgren, a native of Sweden, who was taken to the Cook County Hospital in February, suffering from leprosy, was returned to Sweden, May 6. That every precaution might be taken, he was sent to New York in a special car, and was given a special compartment on the steamer.

Award of Ricketts Prize.—The Howard Taylor Ricketts prize for undergraduate research work, awarded May 3 each year to a student of Rush Medical College, as a memorial of the death of Howard Taylor Ricketts while engaged in the investigation of typhus fever in Mexico City, has this year been awarded to Julian Herman Lewis.

Rush Medical College Limits Enrolment.—Official word has been received that at a recent meeting the faculty of Rush Medical College determined to limit the enrolment of students hereafter to 100 students each for the first and second year classes and 120 students each for the third and fourth year classes. This action has been deemed necessary since the college feels that it can provide the best medical training for classes of that size.

Memorial Institute Occupies New Building.—The Memorial Institute for Infectious Diseases has moved into its new

building at 629 South Wood Street, adjoining the Annie W. Durand Hospital which is conducted by the institute. The new building is equipped with laboratories for the individual workers, a department for the serum division and preparation and animal rooms which are unique in construction and arrangement. The *Journal of Infectious Diseases* will also use the new building as headquarters and all communications should be sent to the new address.

Health Committee Takes Up Vice Question.—A new factor has entered into the fight against the social evil in Chicago. The health committee of the city council has voted to hold a public hearing on the recommendations of the vice commission. The health committee last year interested itself in several important matters which, while not recognized by council custom as health subjects, bore on health topics sufficiently to offer an excuse for it to stir up beneficial action. Among these were the garbage problem, the Maxwell Street market investigation, and the quack advertising campaign. So far as is remembered, it is the first time official Chicago had taken up the social evil as a health problem. It is expected that important action will result from this new arrangement.

Nursing Service at County Hospital.—The Illinois Training School which has supplied the nursing force for the county hospital for thirty-three years is managed gratis by some of the most influential and reputable women in Chicago. Some of its bills to the county have been questioned recently by the state's attorney and his assistants. In reply, Mrs. Ira Couch Wood, president of the school, has said that if bills are not paid the school will withdraw from the county hospital. The hospital will then be practically forced into closing. Mrs. Wood and other directors of the school were compelled to borrow \$5,000 to meet the expense of the institution—to buy food and pay salaries. The April bill of the school has been held up by the county board. Although officially, no reason has been given it is believed to be due to the fact that the state's attorney in a long opinion asserts the school has been overpaid.

Upholding the Validity of the Milk Ordinance.—The validity of the Chicago milk ordinance which was attacked by certain milk dealers has been upheld by the supreme court of the state. The milk dealers objected to the provision of the ordinance relating to the installation of recording thermometers on all pasteurizing machines, such thermometers to be under the control of the commissioner of health. Their application for a permanent injunction against the health commissioner was denied. An appeal was taken to the supreme court in which the validity of the ordinance was attacked on account of its alleged unreasonable, unjust and oppressive provisions. The *Bulletin* of the Chicago School of Sanitary Instruction, May 2, in commenting on this decision says that the supreme court in denying the injunction upholds the principles on which the ordinance was based and quotes from the decision as follows: "The city having the power to require milk to be pasteurized is not limited to the imposition of a penalty for a violation of this requirement, but may prescribe the conditions under which the pasteurization shall be done in order to prevent an evasion of the ordinance and insure that the product shall be such as the ordinance requires." The court, taking judicial notice of the importance of pure milk as affecting the public health, further says: "The regulation of its sale is an imperative duty which has been universally recognized. This regulation in minute detail is essential, and extends through all the processes of transportation, preservation and delivery to the consumer. Not only may laws and ordinances require that milk offered for sale shall be pure, wholesome and free from bacilli of any disease, they may and do, in order to produce this result, prescribe the manner in which such purity, wholesomeness and freedom from disease shall be secured and made to appear."

The Coroner's Report.—In his biennial report Mr. Peter M. Hoffmann, coroner of Cook County, calls attention to the frequency of deaths from poison due to grasping a wrong bottle. In 1913 there were at least 148 deaths from this cause. The coroner points out the increase in poisoning in the following tabulation:

| | 1910 | 1911 | 1912 | 1913 |
|---------------------|------|------|------|------|
| Accidental | 127 | 103 | 110 | 148 |
| Suicidal | 116 | 115 | 153 | 163 |
| Undetermined | 65 | 66 | 61 | 64 |
| Water heaters | 4 | 7 | 10 | 1 |
| Total | 312 | 291 | 334 | 376 |

He recommends a law prohibiting the use of any but porcupine or serrated bottles and prescribing certain colors and shapes for various tablets. Another feature of the report is a tabulation of the sudden and violent deaths by occupations. This gives an estimate of the number of persons engaged in the various trades and the number of inquests held. Also there is added a percentage column which is referred to as the hazard of the employment. This column gives the number of inquests per 1,000 of persons employed in the 191 listed trades. The figures relate to only one year—1913—and, therefore, are claimed to be indicative only.

The twenty-eight listed by the coroner's report as the most hazardous with the number per 1,000 are as follows:

| | | | |
|---------------------|-------|---------------------|------|
| Steeple jack | 20. | Foreman | 5.94 |
| Switchman | 15.93 | Sailor | 5.71 |
| Aviator | 13.33 | Acrobat | 5.55 |
| Watchman | 12.35 | Policeman | 5.13 |
| Porter | 10. | Hostler | 5. |
| Tender | 8.33 | Miner | 5. |
| Teamster | 8. | Blacksmith | 4.71 |
| Yardmaster | 7.50 | Laborer | 4.63 |
| Infants | 7.27 | Car inspector | 4.28 |
| Pilot | 6.66 | Towerman | 4.16 |
| Roofer | 6.66 | Painter | 4.4 |
| Window washer | 6.66 | Peddler | 4.40 |
| Oiler | 6.25 | Patternmaker | 3.75 |
| Actor | 6. | Waitress | 3.66 |

The coroner makes a plea to employers for more efficient safeguards to protect those in "extra hazardous employments."

LOUISIANA

Tuberculosis Camp.—Dr. Oscar Dowling announces that the State Board of Health is now considering a 1,200-acre tract in Rapides Parish, and also a tract in St. Tammany Parish, on which to establish a state tuberculosis camp.

Reporting Notifiable Diseases.—By an amendment to the sanitary code of Louisiana, dated April 24, 1914, physicians are required to report notifiable diseases both to the state health officer and to the local board of health. Such reports are to be made within twenty-four hours.

Arrival of Mexican Refugees.—Up to April 28, about 300 refugees from Mexico had landed at the quarantine station near New Orleans. The British steamer *Wyvisbrook* landed 100 from Progreso April 26; the *Livingston* brought 13 from Frontera April 27, and the United States Collier *Jason* landed 260 from Vera Cruz April 28. All were held in strict quarantine regulations for six days on account of the prevalence of yellow fever and small-pox in Mexico.

MARYLAND

Cordell Memorial Fund.—A movement is on foot to start a fund, the proceeds of which are to be used to erect a tablet to the memory of Dr. Eugene Fontenoy Cordell, for many years the Maryland correspondent for THE JOURNAL. Subscriptions may be sent to Dr. Nathan Winslow, 608 Professional Building, Baltimore.

Campaign for Mercy Hospital Ends.—The campaign to raise \$320,000 for Mercy Hospital, which began two weeks ago, has come to a close with contributions aggregating \$120,948.96. Pledges for assistance within the year have been given members of the committee and their plans will no doubt be fully carried out within a year or two.

Fined for Medical Violation.—That a serious view of violations of the medical laws of Maryland is being taken was indicated when the court inflicted the maximum penalty on Leon Schatz, the proprietor of the Philips Medical Institute, who was fined \$200 and costs. Schatz, who is not a registered physician, was said by Dr. Herbert Harlan, president of the Board of Medical Examiners, to have been an especially dangerous violator of the medical laws.

Personal.—Dr. Hiram Woods, Baltimore, has been appointed a member of the Board of State Aid and Charities. —Dr. Henry Barton Jacobs, Baltimore, was elected secretary of the National Association for the Study and Prevention of Tuberculosis at the annual meeting of the association held in Washington. —Dr. William H. Scruggs, Jr., of the staff of the state sanatorium, Sabillasville, has declined the position of second assistant physician to the Massachusetts State Hospital for Tuberculosis, Lakeville. —Dr. Hampson H. Biedler, Baltimore, has been seriously ill with ptomain poisoning.

MISSOURI

Annual Sociability Dinner.—The annual sociability dinner of the St. Joseph-Buchanan-Andrews County Medical Society

was held May 6. The guest of honor was Dr. Bransford Lewis, St. Louis, who delivered an illustrated lecture after the dinner.

St. Louis

Personal.—Dr. Henry M. Whelpley of the Missouri Historical Society delivered an illustrated lecture on "Mounds and Mound Builders of Illinois," before the Chicago Historical Society, April 23.

New Buildings for Isolation Hospital.—An ordinance has been passed, authorizing the erection of two new wards for the Isolation Hospital, to be located between the sanatorium and the infirmary.

Psycho-Educational Clinic.—A department was created by the Board of Education, April 13, to be known as the Psycho-Educational Clinic. This clinic will be located at the Harris Teachers' College. The work of the clinic will consist of the examination of subnormal children, and the suggesting of a modified course of study for these unfortunates.

Summer School of Medicine.—St. Louis University announces summer school of medicine and science to be in session from June 1 to July 11. The work of the school is adjusted to the needs of physicians, medical students, students preparing to study medicine and teachers. No course will be given with less than three students, and two courses in college or laboratory work will constitute full work. For the fundamental courses, the laboratories of the university will be utilized. For detailed information regarding these courses address Dr. Daniel M. Schoemaker, 1406 S. Grand Avenue.

NEW YORK

Scarlet Fever in Hempstead.—The Board of Health closed three public schools in Hempstead, L. I., on May 7, because of an outbreak of scarlet fever, nine cases having been reported within a week. It is rumored that there were a number of cases not reported.

Personal.—Dr. Henry T. Williams was unanimously reelected president of the Rochester Health Association. —Dr. Raymond Sanderson, Canandaigua, has been appointed pathologist of Ulster County. —Dr. William J. Prish, Fredonia, is reported to be ill with small-pox.

County Laboratory Opened.—The new laboratory for Onondaga County opened May 1, with Dr. C. Grace Carroll in charge. The laboratory was heretofore in the charge of the Syracuse Bureau of Health. The work will include examinations of microscopic specimens, cultures, etc., for physicians, and also examinations of water and milk.

Syracuse Health Bulletin.—The first monthly bulletin of the Syracuse Bureau of Health appeared May 4. Infant welfare was the chief topic of interest. "Efficiency First, Safety Always and Courtesy to All," is given as the motto of the bureau. Two maps of the city were shown, one of which indicated by shading the location of recorded births during 1913, the other in a similar way showing the location of deaths among infants.

Farm Home for Inebriates.—Under the law of June 20, 1910, providing for a board of inebriety of the state of New York, steps have been taken to establish a farm home for the treatment and care of such persons. A farm has been purchased in Orange County which includes a portion of Wickham Lake, and work has been begun on the institution, which is to be on the cottage plan. About 250 inmates will be provided for at first and the plans at present are intended to accommodate 800. Massachusetts is the only other state which has provided an establishment especially designed for the care of inebriates. The board has just issued its report for 1913.

New York City

Another Case of Typhus Arrives.—A well developed case of typhus fever was discovered among the passengers of the Greek steamship *Ioannina*. Of the 508 steerage passengers all had been allowed to land but 100 before the fever victim was discovered. These 100 were detained on Ellis Island.

Changes in Faculty.—Dr. Frederick Peterson has resigned his position as professor of psychiatry at Columbia University. Dr. J. Ramsey Hunt has resigned as associate professor of neurology to take effect on June 30, and Dr. Frederick Tilney, now associate in anatomy, has been appointed to succeed him.

Bathing Suits Must Be Sterilized.—The Board of Health has issued rules governing bathing beaches. These rules

require that all bathing apparel in public bath houses shall be sterilized every time after they have been used and that water from wells at such resorts shall not be used for drinking purposes until analysis by the Board of Health shows that it is free from danger of contagion.

More Small-Pox.—On May 4 another case of small-pox was reported to the Board of Health, and the following day three additional cases were reported from the same house. This makes in all 18 cases that have been reported thus far this year. Coincident with the order of the Health Department requiring that the 138,853 children in the parochial schools of this city be vaccinated, Charles M. Higgins, treasurer of the Anti-Vaccination League of America, has published an advertisement warning parents not to have their children vaccinated or revaccinated under "any form of compulsion, intimidation or coercion, or through any false panic created by medical individuals or societies, professionally interested in vaccination."

Proposes Medical Supervision for All.—Dr. Sigismund S. Goldwater, commissioner of health, proposes a method of medical supervision which would call for periodical physical examination of every individual in the city and the instruction of laymen in elemental hygiene. The records of the department show that victims of diseases like cancer, heart and kidney disease, etc., consult a physician on an average one year too late for remedial measures to be of value. In insurance companies and large corporations where the plan has been tried good results are being reported. Dr. Goldwater points out that through the division of child hygiene school children are kept under such supervision and there is no good reason why the plan should not be extended to include all. He proposes that the examinations shall be paid for by those able to pay and be free to all others.

NORTH CAROLINA

Personal.—Dr. Samuel W. Stevenson, Mooresville, is reported to be seriously ill as a result of a cerebral hemorrhage.—Dr. Benjamin E. Washburn, Raleigh, who has been engaged in the hookworm work for several years, has become whole-time health officer of Nash County.

Abandon Sanatorium Plan.—On account of the widespread opposition to the location of a sanatorium for tuberculosis in what is known as the tourists' zone around Asheville, Drs. William L. Dunn, Charles L. Minor and G. R. Moale have abandoned their project for the establishment of a sanatorium to cost \$250,000. The Board of Trade and other citizens of Asheville are reported to have purchased the property which it was proposed to use for the sanatorium plant.

Opening of Park View Hospital Announced.—The formal opening on June 1 of Park View Hospital, Rocky Mount, is announced. It is intended to care for all medical and surgical cases, other than acute infections. The official staff is composed of Drs. J. P. Whitehead, Richard H. Speight, Jr., Emile B. Quillian and Joe P. Speight, all of Rocky Mount, Drs. George Ben. Johnson and A. Murat Willis, Richmond, Va., are also announced as consulting surgeons. Dr. Edmund S. Boice, late of Richmond, Va., will be house physician.

OHIO

Meningitis in Cleveland.—Thirteen cases of cerebrospinal meningitis were reported in Cleveland during April. Ten deaths occurred.

State Association Meeting.—At the sixty-ninth annual meeting of the Ohio State Medical Association in Columbus, May 5-7, the following officers were elected: president, Dr. John H. J. Upham, Columbus; president-elect, Dr. William E. Lower, Cleveland; secretary-treasurer, Dr. Clarence D. Selby, Toledo (reelected); councillors, first district, Dr. Robert Carothers, Cincinnati; sixth district, Dr. T. Clark Miller, Massillon; ninth district, Dr. Joseph S. Rarden, Portsmouth; delegates to the American Medical Association, Drs. Clarence D. Selby, Toledo; Jacob A. Kimmel, Findlay, and James C. M. Floyd, Steubenville; alternates, Drs. Jacob E. Tuckerman, Cleveland; Sidney Lange, Cincinnati, and George F. Zininger, Canton. Cincinnati was selected as the meeting place for 1915.

Organization of Advertising Quacks in Ohio.—According to the Ohio State Medical Journal, April, 1914, the advertising doctors of Ohio have an organization known as the Ohio Medical Advertising Association. The purpose of the association, as stated in its constitution, is to protect its members from prosecutions, chiefly by the State Medical Board for

revocation of their licenses. Its membership includes representatives of a number of medical cults. In a letter asking for funds, the statement is made that both the Ohio State Medical Board and the American Medical Association are prosecuting advertising quacks. A test case is now pending in the courts of Ohio which involves the revocation of the licenses of L. W. Hunt of Toledo and Dr. Graham of Columbus. No limit is placed on the amount of fund that may be raised for the fighting of prosecutions as the constitution provides that pro-rata assessments may be ordered to pay all expenses. Smith Bennett, an attorney formerly employed by the State Medical Board, has been retained as their counsel.

Cincinnati

Personal.—Dr. Walter E. List, assistant superintendent of the Longview Hospital, has been appointed to a similar position in the Cincinnati City Hospital.—Dr. Charles L. Bonifield has been elected president and Dr. Frank E. Fee, secretary-treasurer of the Ohio State Clinical Association.—Dr. Louis Stricker has been appointed assistant clerk, to examine applicants for the blind relief fund.—Dr. E. Hertoghe, a member of the Royal Academy of Medicine, Antwerp, was the guest of Dr. B. Merrill Ricketts and Dr. Charles T. Souther at a dinner April 25. In the evening Dr. Hertoghe delivered an illustrated lecture on "Cretinism" in the amphitheater of the City Hospital.

PENNSYLVANIA

Personal.—Dr. Ellis M. Frost has been appointed director of health of the University of Pittsburgh, and not of the Department of Health of Pittsburgh, as announced in the issue of May 9.—Dr. Samuel P. Glover, Altoona, has returned from abroad.

Reorganization of Health Department.—May 4 the new Department of Health of Chester assumed charge of health affairs of the city, equipped with police power, so that it can take immediate action without having to give ten days' notice as formerly. Dr. W. Knowles Evans is to be chief of the department.

Tuberculosis Conference.—The fourth annual conference of the Pennsylvania Tuberculosis Workers was held at the Bellevue-Stratford Hotel, May 6. The morning session was presided over by Dr. Frank A. Craig, Philadelphia, and Dr. William C. White of Pittsburgh presided over the afternoon meeting. Alexander M. Wilson, assistant director of the Department of Health and Charities, advocated the building of tuberculosis hospitals by the city and urged the establishment of day camps. Dr. Meyer Solis-Cohen urged that the city park have self-supporting day and night camps, where tubercular patients might rest and live in the sun and air, in fact, that the parks be made a place for the sick as well as the healthy; Bernard J. Newman, secretary of the Philadelphia Housing Commission, spoke of the great necessity for better housing conditions, for frequently patients discharged from a sanitarium, return to the insanitary conditions of their homes.

Philadelphia

Personal.—Dr. John K. Mitchell has been elected to the vacancy on the board of directors of the Library Company of Philadelphia, created by the death of his father, Dr. S. Weir Mitchell, who had been a director since 1875.—Dr. Alexander F. Hazard is seriously ill at his home.

Meeting of College of Physicians.—At the stated meeting of the College of Physicians of Philadelphia, a portrait of Sir William Osler was presented on behalf of Lady Osler, to the college, Dr. James Tyson making the presentation address. A symposium on municipal hygiene was held, at which Mr. M. N. Baker, editor of *Engineering News*, spoke on "Considerations of Municipal Sanitation," and Dr. S. Josephine Baker of New York City, spoke on "The Organization of the Bureau of Child Hygiene in New York City and Its Results."

State Board to Sue Coroner.—The difference of opinion between Coroner Knight and the State Anatomical Board over the disposition of unidentified bodies found in Philadelphia County, will be carried into court for adjustment. The board claims that the coroner has been withholding bodies which should be sent to various hospitals for dissecting purposes. The coroner contends that he has only a few bodies to give to the board for the advancement of medical education. Arrangements are being made for an amicable test case.

Hospital Reports.—The one hundred and sixty-third annual meeting of the Pennsylvania Hospital Corporation was held May 4, at that institution. In the year ended February 28, 4,154 patients were treated at the hospital; 28,986 patients were treated in the receiving wards and 21,012 cases were treated in the outpatient department. In the financial report it was shown that \$420,431 had been expended in the last year for the three departments, the hospital at Eighth and Pine Streets and the insane departments at Forty-Ninth and Market and Forty-Fourth and Market Streets.—The fortieth annual meeting of the Jewish Maternity Association was held May 3 at the temporary hospital on North Sixth Street. Dr. Isaac Leopold was elected medical director. The new hospital now in the course of erection, at Fifth and Spruce Streets, will be opened June 1. The new building will cost about \$87,000.—The Providence General Hospital has purchased a residence and tract of 6 acres for \$40,000 on Wissahickon Avenue, 162 feet, with a depth of 587 feet on Hermit Street, 431 feet on the northeast line and 614 feet on the line of Fairmount Park.—The new building of the Lebanon Hospital was dedicated May 3. Drs. Isidore D. Stern and J. L. Lillenblum were named resident physicians.

VIRGINIA

Typhoid Vaccine Distributed.—The State Board of Health has completed arrangements whereby it will distribute anti-typhoid serum at a cost of 60 cents, for the three inoculations, instead of 90 cents, as charged last year.

Must Pay Tax this Year.—The act recently passed by the assembly exempting physicians from payment of license tax will not take effect until June 20, and the auditor of public accounts has ruled that physicians shall be assessed for licenses for 1914, as heretofore.

Personal.—Dr. Meade Ferguson, state bacteriologist, has resigned and his assistant, J. O. Fitzgerald, has been appointed temporary head of the state bacteriologic laboratory.—The residence of Dr. Alexander W. Terrell, Rivermont, Lynchburg, was burned, with a loss of \$10,000.

Frees Community from Malaria.—One Virginia community, in the vicinity of Chestnut Level and Keeling, Pittsylvania County, by taking the advice of the State Health Department and draining the low ground of the neighborhood, and by united effort has practically abolished malaria and in addition has restored and rendered valuable many acres of valuable inundated and previously worthless land.

Monument to Dr. Edwards.—As a tribute to the memory and faithful service of the late Dr. Landon B. Edwards, who was for many years secretary of the Virginia Medical Society, editor of the *Virginia Medical Semi-Monthly* and professor of the practice of medicine in the Medical College of Virginia, the members of the medical profession of the state have united to erect a monument for his grave in Hollywood Cemetery, Richmond. The monument bears the following inscription: "Erected by his friends to the memory of Landon Brame Edwards, M.D. Born Sept. 20, 1845; died Nov. 27, 1910. Widely known as a medical practitioner, journalist and teacher, and for many years the efficient secretary of the Medical Society of Virginia."

New Medical Board.—The governor announced, April 1, the appointment of the new State Board of Medical Examiners to conform to the recent revision of the board authorized by the general assembly. Under the new law there is to be one representative from each congressional district, one homeopathic and one osteopathic representative, irrespective of districts. The board was made up as follows: first district, Dr. Joseph N. Barney, Jr., Fredericksburg; second district, Dr. Herbert Old, Norfolk; third district, Dr. Junius E. Warinner, Richmond; fourth district, Dr. Otho C. Wright, Jarratt; fifth district, Dr. Richard S. Martin, Stuart; sixth district, Dr. John W. Preston, Roanoke; seventh district, Dr. Philip W. Boyd, Jr., Winchester; eighth district, Dr. Lewis Holladay, Orange; ninth district, Dr. William W. Chaffin, Pulaski; tenth district, Dr. Robert Glasgow, Lexington; homeopathic representative, Dr. Harry S. Corey, Richmond; osteopathic representative, E. H. Shackelford, Richmond. The board met for reorganization at Norfolk, April 6, and elected the following officers: president, Dr. Richard S. Martin, Stuart; vice-president, Dr. Junius Warinner, Richmond; secretary-treasurer, Dr. Joseph N. Barney, Jr., Fredericksburg.

WISCONSIN

Sanatorium Notes.—The contract for the construction of the Brown County Tuberculosis Sanatorium, to be erected

on the E. Williams farm in the town of Little Rapids, was awarded April 27 for \$14,667.25. The building will be of reinforced concrete and will accommodate about fifty patients.

New Officers.—Milwaukee North Side Physicians' Club, May 1: president, Dr. Albert E. Miedling; secretary-treasurer, Dr. George R. Randall.—Oshkosh Medical Club, April 29: executive committee, Drs. William P. Wheeler, Harry H. Meusel, Jasper W. Lockhart; secretary, Dr. Wilbur N. Linn.—Iowa County Medical Society at Dodgeville, April 23: president, Dr. William J. Pearce, Dodgeville; secretary-treasurer, Dr. Homer D. Ludden, Mineral Point.

WYOMING

Personal.—Dr. and Mrs. Edward F. Fisher and family, Diamondville, have returned from Europe.—Dr. Josiah H. Holland has resigned from the medical corps of the Army and is located in Evanston.

Physician Captures Burglar.—Dr. Thomas J. Swisher, Rawlins, on April 28, surprised a burglar in the pharmacy adjacent to his office. As the invader, a Mexican, ran, the physician fired, and a bullet penetrated the burglar's right side in the region of the liver. Aid was summoned and the Mexican was carried to the hospital where Dr. Swisher dressed the wound. The Mexican was sentenced five days later, after pleading guilty, to serve a term in the penitentiary.

GENERAL

Correction of Error.—In Abstract 134, in THE JOURNAL, Feb. 14, 1914, p. 582, the formula for a mixture is given as 0.1 gm. of mercuric cyanid when it should read 0.1 mgm.

Extra Appropriation Asked for Public Health Service.—Secretary of the Treasury McAdoo, in behalf of the Public Health Service, has asked the House of Representatives for an appropriation, to be made instantly available, of \$100,000 to prevent the introduction and spread of infectious diseases, as the current year fund for this purpose is already exhausted.

Camp for Refugees.—Surgeon Gustave M. Corput, U. S. P. H. S., surgeon in chief of the New Orleans Quarantine Station, is preparing to erect a camp at the station to shelter and feed about two thousand refugees. Plans have been submitted for a camp of approximately 400 tents. The frame structures of the camp have been turned over to the women refugees.

Personal.—The president of the Chinese Republic has conferred on Dr. T. W. Ayers, formerly of Anniston, Ala., but now in charge of the hospital and medical dispensary at Hwang-Hein, North China, the decoration of the Sixth Order of Chia Hoa.—Dr. A. R. Goodman, chief surgeon of the National Railways of Mexico, has been left in charge of the relief operations of the American Red Cross at Vera Cruz.

Foes of Tuberculosis Meet.—At the annual meeting of the National Association for the Cure and Prevention of Tuberculosis in Washington, May 4-8, the following officers were elected: president, Dr. George M. Kober, Washington; vice-presidents, Drs. Lee K. Frankel, New York City, and Walter Jarvis Barlow, Los Angeles; secretary, Dr. Henry Barton Williams, Baltimore, and director, Surgeon-General Rupert Blue, U. S. P. H. S., Washington.

Formation of New Roentgen Organization.—The Roentgen Society of New England was formed at a meeting of about twenty roentgenologists, held at the office of Dr. Ariel W. George of Boston, May 6, 1914. An organization was effected and the regular program will begin in the fall. The officers elected were the executive committee: chairman, Dr. Ariel W. George, Dr. Walter J. Dodd, Dr. Samuel W. Ellsworth, and secretary, Dr. Ralph B. Leonard, all of Boston.

Report of the Rockefeller Sanitary Commission.—The report for 1913 of the Rockefeller Sanitary Commission for the Eradication of Hookworm Disease shows that the number of persons treated in eleven states during the year was 186,277, an average of 616 persons for each working day of the year. The average for 1912 was 720. The area covered during 1913 had lighter infection than during the previous years. The commission expended \$195,900 and examined 480,951 persons, the expense for each examination being 40 cents and for those treated \$1.05. The various states expended amounts ranging from \$200 to \$8,000.

Death-Rate in Canal Zone for March.—The total number of deaths from all causes among employes was 34 (disease 24, violence 10), an annual average per thousand of 6.18 and 2.57, respectively. The annual average death-rate per thou

sand in the cities of Panama and Colon, and in the Canal Zone, including both employces and civil population, for the month of March was 25.48. Among employces, deaths from the principal diseases were: lobar pneumonia, 5; organic disease of the heart, 1; tuberculosis, 3; typhoid fever, 1; malaria fever, 2; leaving 12 deaths from all other diseases, and 10 deaths from external violence. No case of yellow fever, small-pox, or plague originated on, or was brought to the Isthmus during the month.

International Society for Sexual Research.—The first congress of this association will be held in Berlin, October 31 to November 2, 1914. It will cover the entire field of scientific sexual research, and will be divided into a biologic-medical, a sociologic, a legal and a philosophic-psychologic-pedagogic section. The proceedings will be conducted in German, English and French. Among the addresses already listed are essays by some of the more famous foreign authorities on these subjects. Participation in the congress is free to members of the society. Non-members are expected to pay a registration fee of 10 marks. Those desiring to participate should communicate with the second secretary, Dr. Max Marcuse, Berlin W. 35, Lützowstr. 85.

Bequests and Donations.—The following bequests and donations have recently been announced.

Germantown Hospital and St. Luke's Hospital, Philadelphia, each \$5,000; Chestnut Hill Home for Consumptives, \$2,000, by the will of Elizabeth B. Jeffries.

Associated Jewish Charities of Chicago, \$1,000, and Chicago Home for the Friendless, \$500, by the will of Henry Grenebaum.

Elkins Memorial Hospital, Abingdon, Pa., a gift of \$5,000 for the endowment of a room in memory of John Wilton Coldon, Jenkintown.

Medical Department of the University of Cincinnati, \$30,500, in municipal bonds, and \$900 in cash, to be known as the Thomas Gibson Medical Endowment Fund, being the residue of the estate of Frances W. Gibson.

New Orleans Charity Hospital, \$8,000, by an anonymous donor for a modern annex, to be devoted entirely to tuberculosis patients.

International Health Commission.—The International Health Commission of the United States, founded with a fund of approximately \$100,000,000 guaranteed by Mr. John D. Rockefeller and his friends, is studying the problems presented by tropical medicine, and a beginning is being made with ankylostomiasis. Mr. Wycliffe Rose, the director of the commission, has visited several of the West Indian islands to make arrangements with the local authorities, and he has recently conferred in London with a committee of the colonial office, which it is intended shall in future work in conjunction with the American commission. Mr. Rose, who has been joined by Dr. Sandwith of the London School of Tropical Medicine, is visiting Egypt, Ceylon, the Federated Malay states and the Philippine Islands. At the present time Dr. Leiper of the London School of Tropical Medicine is in China studying bilharziosis under the auspices of the Admiralty and Colonial office. It is understood that he will extend his investigation to the occurrence of ankylostomiasis among coolies on tea estates.

Association for the Prevention of Infant Mortality.—The Transactions of the American Association for the Study and Prevention of Infant Mortality for the year 1913, is now being distributed. It is a pamphlet of nearly 450 pages, containing many interesting papers and discussions on this important branch of national welfare, beside committee reports and a record of the routine transactions of the association. Nov. 15, 1913, the association had 716 members who had paid their dues, seventeen of whom were from foreign countries—Canada, China, England, New Zealand and Scotland. Hawaii and the Philippines are each represented by one member. There are, however, eighty-five affiliated societies in fifty-three towns in twenty-seven states, which would indirectly increase by a considerable number the workers along this line of social endeavor. The association works in harmony, also, with the National Children's Bureau. The financial statement shows that about \$7,500 was collected during the year and about \$6,500 expended. The price of the transactions to non-members is \$3.12 postpaid. Austin McLanahan is treasurer and Gertrude B. Knipp is executive secretary, with headquarters at 1211 Cathedral Street, Baltimore.

FOREIGN

New Officers.—At the annual meeting of the American Medical Association of Vienna, March 24, the following officers were elected: president, Dr. Edgar J. Widby; vice-president, Dr. Henry H. McCarthy; secretary, Dr. William F. Patten; treasurer, Dr. H. E. Molzahn, and executive com-

mittee, Drs. J. W. Lee, Charles H. McCollom, H. E. Molzahn, Baxter L. Thompson and W. B. Hopkins.

CANADA

School for Feeble-Minded Contemplated.—British Columbia is considering a scheme to provide a school for the mentally deficient children in that province. A census of these is being taken. This will be the first of its kind in Canada although Manitoba is also considering establishing one.

Personal.—Dr. Alexander B. Osborne, Hamilton, Ont., has returned from a two-months' stay in Jamaica.—Dr. Allan C. Rankin, formerly of Montreal, but who has been bacteriologist for some time to the King of Siam, has joined the faculty of the University of Alberta.—Dr. Herbert E. Clutterbuck, Toronto, is spending six months in Great Britain.

Postgraduate Course on Tuberculosis.—The Bruchesi Institute, Montreal, for the study of all forms of tuberculosis, will conduct its second annual series of postgraduate courses on early diagnosis and treatment of this disease. The first class is limited to six members and will commence study on June 6, when Dr. S. Adolphus Knopf, New York, will deliver the first lecture.

Health Status of Winnipeg.—The total expenditure for the Health Department of Winnipeg in 1913 was \$212,070.54. The population is estimated at 200,000. There were 232 cases of typhoid fever with 18 deaths; small-pox, 44, with 1 death; chicken-pox, 173; measles, 361, with 15 deaths; scarlet fever, 1,288, with 45 deaths; whooping-cough, 57, with 19 deaths; mumps, 44; diphtheria, 281, with 34 deaths; erysipelas, 95, with 19 deaths; tuberculosis, 213, with 132 deaths; a total of 2,788 cases of infectious diseases, with 283 deaths.

Campaign against Infant Mortality.—Montreal's Health Department is preparing for a vigorous campaign against infant mortality during the approaching summer months. Circulars to mothers are now being prepared, printed in English, French, Italian, Russian, Hebrew and German; and these will be distributed when there is a birth recorded. Lectures will also be given to mothers with young families when the circulars will also be distributed. The fly nuisance and the milk-supply is also to be given special attention.

Ontario Health Officers Meet.—Civic, provincial, district and municipal officers of health of Ontario met in annual convention in Toronto, May 7 and 8, under the presidency of Dr. Charles J. C. O. Hastings, M.O.H., Toronto. Dr. John W. S. McCullough, secretary of the Ontario Board of Health, presented the statement that "the reports of the district officers of health in that province indicated that the conditions in the slaughter-houses of Ontario are nothing short of scandalous. The premises are often filthy and the conditions are such that if generally known would make Ontario citizens all vegetarians." The salaries of municipal officers of health came in for considerable discussion and resulted in a special committee being appointed to inquire into the same and report at the next annual meeting. This was precipitated by the report of a medical officer of health of an Ontario town who said that he was paid \$10 per annum for looking after the health of that town. A startling statement was given by one officer of health who said that the public schools of Ontario, that is the village and rural schools, were in a deplorable, unkempt condition, and that they were so managed as to contribute a large percentage of the tuberculosis in that province. He pointed out that 30 per cent. of the deaths among students in Ontario, from the official returns, resulted from tuberculosis; and that 24 per cent. among schoolteachers was also caused by this disease while only 7 per cent. of the deaths of other people were from tubercular disease. More children in Ontario died between the school ages of 5 and 14, from preventable diseases than adults did between the ages of 50 and 60, from all diseases. The speaker described the conditions in thirty schools in the two townships he had control of, but these were only typical of all Ontario schools. He further stated that 25 per cent. of the schools had no wells, and of those which had, 25 per cent. of them had bad water. Twenty-five per cent. had windows which would not open, 50 per cent. had filthy closets and 75 per cent. no cloak rooms. Dr. Edmund E. King, Toronto, spoke briefly on the Ontario Workmen's Compensation Act, stating that the medical profession had been absolutely excluded. The following officers were elected: president, Dr. William R. Hall, Chatham; vice-president, Dr. Angus W. McPherson, Peterborough, and secretary, Dr. John W. S. McCullough, Toronto.

LONDON LETTER

LONDON, May 1, 1914.

The Annual Meeting of the British Medical Association

The annual meeting of the British Medical Association will be held from July 28 to August 1, at Aberdeen; 1,500 members and visitors are expected to attend. The president, Sir Alexander Ogston, will deliver the presidential address. The subject has not been determined, but it probably will deal with the part which Aberdeen has played in the history of Scotland, and the influence which it has had on its commerce and education. The popular lecture will be delivered by J. Arthur Thomson on the subject "*Vis Medicatrix Naturae*." He will discuss the value to man of the beauty of Nature, the dramatic interest of Nature, and the consolations of Nature as seen in the light of evolutionist philosophy. The address in medicine will be delivered by Dr. Archibald E. Garrod, and the address in surgery by Sir John Bland-Sutton. The scientific business will be conducted in sixteen sections. In the Section of Dermatology a discussion will be opened by Dr. Norman Walker on "The Need for Some Method in the Conflict with Lupus and Ringworm." In the Section of Electrotherapeutics and Radiology, Professor Leduc will deliver an introductory address on "Cerebral Galvanization." The first day's meeting will be devoted to this and to a discussion on "The Therapeutic Uses of High-Frequency Currents." Dr. W. Deane Butcher and Dr. John Macintyre will open a discussion on "The Comparative Value of X-Rays and Radium in the Treatment of Malignant Growths," and Dr. Agnes Savill and Dr. W. F. Somerville will open a discussion on "Electrotherapy in Neurasthenia"; there will also be a demonstration on "Muscle Testing by Means of Condensers." For the last day, discussions have been arranged on "X-Ray Diagnosis in Gastro-Intestinal Conditions," and with the Section of Medicine on "The Diagnosis of Chronic Pulmonary Tuberculosis." In the Section of Medicine a joint discussion with the Section of Pediatrics on "The Diagnosis of Chronic Pulmonary Tuberculosis in Infancy and Childhood" will take place. The discussion will be opened by Dr. Barty King, Dr. Clive Riviere and Dr. Ironside Bruce. Sir William Osler, Professor von Pirquet, Dr. Frank Eve, and it is hoped Professor Baginsky of Berlin will take part. A discussion on "Artificial Pneumothorax in Pulmonary Tuberculosis" is to be opened by Dr. Rist of the Laennec Hospital, Paris. It is expected that Brauer of Hamburg, will also contribute. A discussion on "Headache: Its Causes and Treatment" will be treated from various points of view by Dr. Harry Campbell, who is to open, Mr. Leslie Paton, Sir William Osler and Dr. L. H. Pegler. In the Section of Naval and Military Medicine and Surgery the following subjects have been arranged: (1) "The Treatment of the Wounded in Naval Warfare," to be opened by Fleet-Surgeon D. W. Hewitt; (2) "Gangrene in War," to be opened by Captain C. Max Page; (3) "Salvarsan in the Treatment of Syphilis," and (4) "Common Ailments in Camp: Their Prevention and Treatment," to be opened by Captain Cecil Johnson. Three discussions have been arranged provisionally in the Section of Ophthalmology: "The Choice of Cataract Operation," will be opened by Mr. E. E. Maddox, "The Hygiene of Reading and Near Vision" will be opened by Mr. J. Herbert Parsons, and "The Teaching of Ophthalmology to Medical Students" will be opened by Dr. Maitland Ramsay. In the Section of Pathology and Bacteriology the president, Dr. W. S. Lazarus-Barlow, will open a discussion on "The Action of Radiations on Cells and Fluids." A discussion on "The Importance of Biochemistry in Immunity Reactions" will be opened by Dr. Carl Browning. There will be a joint discussion with the Section of Pharmacology, opened by Dr. Thomas Lewis on "The Pathology of Heart Function, Including the Experimental Pharmacology and Therapeutics of Pathologic Conditions of the Heart." Dr. W. J. Penfold will introduce the subject of "The Importance of Variability Among Bacteria and its Bearings on Diagnosis." In the Section of Pharmacology discussions will take place on "Recent Advances in the Relationship between Chemical Constitution and Pharmacologic Activity," and on "The Pharmacology and Therapeutics of the Animal Extracts, Exclusive of Thyroid Extract." In the Section of Surgery a subject discussed at the recent International Medical Congress, "Anoci-Association, or the Evolution of the Shockless Operation," will be opened by Mr. H. M. W. Gray. Discussions will be opened by Mr. Robert Jones on "The Surgical Treatment of Arthritic Deformities" and by Mr. W. G. Spencer on "The Etiology and Treatment of Carcinoma of the Tongue." In the Sec-

tion of Tropical Medicine: (1) "The Training and Position in Administration of the Sanitarian in the Tropics" will be opened by Colonel King; (2) "The Surgical Treatment of Colitis and Postdysenteric Conditions" will be opened by Mr. James Cantlie, and (3) "Kala Azar and Allied Conditions" will be discussed. Papers on "Sprue," "Sand-Fly Fever" and "Beriberi" have been promised, and others are being arranged. A special subsection of the museum is being reserved for exhibits in tropical medicine and for an exhibition of ancient and historical surgical instruments.

PARIS LETTER

PARIS, April 28, 1914.

The Physician's Right to Have a Reserve Stock of Medicines

The sale of poisonous substances is regulated in France by an old royal ordinance of Oct. 26, 1846, which provides that such substances may not be sold for medical use except by pharmacists, and then only to fill prescriptions written by physicians or veterinarians. A tacit understanding has existed between physicians and pharmacists, to avoid this obsolete ruling, but a recent decision of the Court of Appeals of Paris (*THE JOURNAL*, Feb. 28, 1914, p. 711) has just destroyed the régime of tolerance and placed the medical profession under the legislation of 1846, without subsequent evolution in medical practice.

This return to the letter of superannuated legislation inconveniences medical practitioners in the extreme, and at its last meeting the Syndicat médical de Paris demanded unanimously, on the motion of Drs. Chassevant, *agrégé* professor of the Faculté de médecine de Paris, and Désquelle and Granjux, that an additional paragraph be inserted in the decree concerning the sale of poisons, by which pharmacists shall be authorized to furnish physicians medicinal preparations of any nature for professional purposes on the presentation of an order, written, dated and signed by the physician, stating that the demand is made in view of his professional needs; this order to be filed by the pharmacist as his guaranty.

Leave of Absence for Convalescent Soldiers

It has been a long-established custom in military hospitals for physicians to demand a certain number of days' leave for any convalescent soldier in need of rest which would permit the patient to remain with his family until his recovery. Until now, the heads of the divisions have always accorded this permission. Recently, however, the commander of a corps, considering this tradition an encroachment on the authority of the officer in command, declared in a circular letter, that henceforth, since some men are in no condition to return to the service immediately on leaving the hospital or infirmary, it shall be the privilege of the commanding officer, after consideration of all the circumstances, to decide on the disposition of the convalescent.

Concerning this circular letter, the most influential military journal, the *France militaire*, says that this is an abusive interference with the rights of the physician: that the soldier who is in need of a certain time for rest, following sickness, would not be able to find it in a barrack, and that it is obvious that the question whether or not he may be sent to his family should be determined solely from the medical point of view, uninfluenced by the needs of the service, or the commander's more or less favorable opinion of the conduct of the man.

The Rational Timing of Meals

At one of the last sessions of the Académie des sciences Dr. Bergonié, professor of biologic physics and of the clinic of medical electricity at the Faculté de médecine de Bordeaux, gave an interesting address on the practicability of so changing our meal-times as to adapt them better to the physiologic needs of the body. According to Bergonié, the hours least suited to heavy meals are from noon to 1 p. m. and from 7 to 8 p. m. The curve of the coefficient of energy has passed, indeed, some time before, to its lowest level, and any large meal, taken at these hours can only surcharge the liver, which has long remained quiescent. The best hour for the principal meal is at 7:30 a. m., when the curve of vital expenditure is rising rapidly to its maximum, and remains high for a long time. This meal should furnish not only the energy for the following four or five hours, but also the complement which the liver, emptied by the nocturnal abstinence, should have for storage—from

1,400 to 1,500 calories, a total frequently mentioned. Another well-timed meal would be at 4:30 p. m. (tea, a light meal of 300 to 400 calories). Finally, a third meal, of a heavier sort, 700 to 800 calories, taken at about 8 p. m., should complete alimentation, and would be distributed by the action of the liver in the hours of nocturnal fasting.

In a family where for more than six years meals were timed according to this theory, the results, from the point of view of general health, were most satisfactory.

It should be remembered also that the history of the French words *déjeuner* and *dîner* tends to show that the hours for meals have been progressively displaced. The word *dîner* is a contraction of the late and medieval Latin *disjunare*, which means to end a fast. It is the same as the English word breakfast. This was, then, originally, the first meal taken on rising. In the twelfth and thirteenth centuries, the general custom was to dine a little after 9 a. m. Those who arose earlier and worked in the open air could not wait until 9 to 10 a. m. without a light meal, and to designate it the word *desjeuner* was coined, carrying always the idea of breaking the fast.

BERLIN LETTER

BERLIN, April 24, 1914.

Personal

Dr. Dold, privat-docent of hygiene and bacteriology at the Strassburg University, has been given charge of the arrangement of the Institute of Hygiene and Bacteriology at the German Medicine and Engineering School for Chinese at Shanghai. He has received, at the same time, a professorship for hygiene and bacteriology in the same school.

The editorship of the *Journal of Orthopedic Surgery*, published by Enke in Stuttgart, has been accepted by Professor Biesalski, who thus succeeds the late Professor Joachimstal.

The Reduction of the Birth-Rate Lessened

The first review of the births and infant mortality in the grand duchy of Hesse for the year 1913 shows that the reduction of the birth-rate is lessened and shows also a considerable reduction in infant mortality. In 1913, only 9.2 per cent. of the infants died as contrasted with 15.4 per cent. in 1905 and 15.7 per cent. in 1904.

Philanthropic Social Service in the Berlin Hospitals

The deputation for the municipal hospitals and the public health has accepted the proposal of a committee for social aid to place women experienced in philanthropic work in all the hospitals to conduct a systematic social service. These women will visit the hospitals on certain days to learn whether the living conditions of any family are affected by the sickness of any of the patients to the extent that social aid is necessary. They will determine also whether special aid of any kind should be given to the patient on leaving the hospital. The securing of a new place to work or the provision of means for care during convalescence will be functions of this service.

Photoplay Forbidden Reflecting on Physicians

The chief of police of Berlin has lately forbidden the production of a motion-picture which, under the title of "A Woman's Slave," had as its chief feature a violation of duty by a physician. The physician, who is ensnared by a woman, has sacrificed his whole property for her. In order to earn more money he undertakes an unnecessary operation on a baroness who was injured by the collapse of a platform. The operation is unsuccessful and he commits suicide. The film manufacturer sought a removal of the injunction. The superior court, however, decided against the manufacturer, because confidence in the medical profession would be impaired by the presentation of the film. The highest court to which the manufacturer appealed confirmed the decision on the ground that it was for the interest of public policy that the public should have confidence in the medical profession, and that the presentation of this play would have a tendency to undermine this confidence.

Memorial Services for a German Scientist in Japan

A memorial celebration for Professor Baelz, professor at the Imperial University at Tokyo, from 1875 to 1905, and later professor emeritus, who died in Stuttgart last year, was instituted before the monument erected in the university garden in 1907 by his professional colleagues and former pupils. Hundreds of Japanese physicians and the German ambassador with members of the embassy attended. Aoyama, the dean of the medical faculty, Yamakawa, the

director of the university, the German professor Florenz, and the representative of Kobe, Dr. Papallier, made addresses. At the conclusion of the exercises, garlands were placed on the monument from the German colonics at Yokohama and Kobe and from the German East Asiatic Society of Tokyo.

VIENNA LETTER

VIENNA, April 17, 1914.

Patent Medicines in Austria

A short time ago, the leading men of the medical profession and the representatives of the Union of Apothecaries and Pharmacists of Austria had a joint meeting to consider action against the sale of patent medicines. While the chief objection against the patent medicines and the so-called "specialties" (ready-made medicinal mixtures and substances from different manufacturers) is primarily financial on the part of the apothecaries, the medical profession objects to them because the constituents prescribed are unknown even if such substances are thought fit to be given to the patient. The source of the evil is in the "write-ups" or medical articles written less from a scientific point of view than from that of advertising a given remedy. It has become quite a custom here, and in Germany too, that a medical periodical, desirous of advertisements from pharmaceutical firms, offers to procure the necessary medical papers and articles extolling the different possibilities and uses of the remedy under consideration. The cooperation of the press has been recognized as one of the important points in this campaign, and the names of those medical men who are known to produce the write-ups have been put on a black list and the periodicals have been invited to reject such articles written by them. A special committee was elected at the meeting mentioned above, to devise the best means of dealing with the problem. Some of the suggestions made are that doctors should abstain from prescribing remedies which are advertised in daily non-medical papers; substances with fancy names which state more than a chemical composition, or indicate the disease for which the remedy is to be prescribed should also be avoided, and the apothecaries, who alone in this country are permitted to sell poisonous or heroic remedies, should not have these "specialties" in their stock. The profession, which is suffering under the present unreliability of the chemical industry and its products, eagerly looks forward to the outcome of this agitation.

Campaign against Tuberculosis

The government and private institutions have recently been paying much attention to the fight against that scourge, tuberculosis, which, in some parts of the empire, is responsible for 15 per cent. of all deaths. As a matter of fact, we have only one institute capable of dealing with tuberculous persons from the poorer classes, while for the wealthiest portion, there are several so-called sanatoriums. The state of Lower Austria has devoted the sum of \$200,000 (1,000,000 kronen) to enlarging the existing institute, which now has 265 beds for adults and sixty-four for children. An equal sum will be used every year for ten years for the same purpose in different districts so that within ten years we shall have eleven such institutes in this country. An interesting institution has evolved in connection with the large grant mentioned in my previous letter. As an aid to the endeavors to rear weak children in fresh air, all convalescents and also children already affected by tuberculosis will be taught to be useful in agricultural and horticultural occupations. As the grant also comprises three large rural estates, the institute will possess a large number of cows and other cattle, orchards, meadows and fields. There the children will learn to love the country work and take up this occupation. The present scarcity of rural workers—factory work attracts so many young persons from the country—might be ended, while the constant stay in fresh air will strengthen the body. The plan for erecting open-air and sunlight sanatoriums for children has recently been devised. The government has purchased a large area in the Tyrolean Alps. There, at an altitude of about 5,000 feet, an area constantly free from fog and having a large amount of rain and snow will be converted into a sanatorium for surgical tuberculosis, after the method of Dr. Rollier in Switzerland. The patients are constantly kept in open air, and the direct sunlight as well as the snow-reflected light, exerts its influence on the diseased part by increasing "doses," or intensity and duration. In the hands of Dr. Rollier and his followers, the effects of such treatment, with the exclusion of surgery, have been marvelous.

Marriages

BARTHOLOMEW O'NEILL MURPHY, M.D., to Miss Frances Veronica Dolan, both of Syracuse, N. Y., April 29.

WILLARD ROBERT VAUGHAN, M.D., Plainwell, Mich., to Miss Agnes M. Steinmayer of La Salle, Ill., May 2.

ALPHONSE FRANK KEMP, M.D., Mankato, Minn., to Miss Irene Schreiner of New Prague, Minn., May 14.

JOHN STEELE SWEENEY, M.D., Chicago, to Miss Ruth Miller of Findlay, Ohio, in New York City, May 4.

STANLEY AARON KREBS, M.D., Palmerton, Pa., to Miss Mildred Ruppert of Easton, Pa., April 28.

MAJ. POWELL C. FAUNTLEROY, M.C., U. S. Army, to Miss Mary Dalrymple at York, Pa., April 18.

ROBERT BELLINGER CASLER, M.D., to Miss Carolyn Brooks Johnston, both of Baltimore, April 29.

PENUEL HARROD, M.D., to Miss Linnie Robinson, both of Avon, Ill., at Peoria, Ill., April 26.

JOHN ROBERT PENCE, M.D., to Miss Florence Stenerson, both of Minot, N. Dak., April 22.

Deaths

Sherman Leach, M.D. Starling Medical College, Columbus, Ohio, 1887; a Fellow of the American Medical Association; formerly professor of clinical surgery in the Ohio Medical University; surgeon to the Protestant, Mercy and St. Clair hospitals, Columbus; and local surgeon of the Baltimore and Ohio System; died at his home in Columbus, April 26, from pneumonia, aged 49.

Charles Edwin Sanford, M.D. Yale University, New Haven, Conn., 1853; a member of the Board of Medical Advisors of the Connecticut State Insane Hospital, Norwich; for more than fifty years a practitioner of Bridgeport, Conn., and once president of the city board of health; died at his home, April 26, from cerebral hemorrhage, aged 83.

John C. Rosser, M.D. Jefferson Medical College, 1867; hospital steward in the Confederate service during the Civil War; for twenty years chief surgeon of the Northern Pacific Railroad, with headquarters at Brainerd, Minn.; and later a practitioner of Anoka, Minn.; died at the home of his daughter in Duluth, Minn., April 25, aged 73.

Abraham Van Meter, M.D. Philadelphia College of Medicine and Surgery, 1865; a veteran of the Civil War; for two years of Wakenda, Mo., later local surgeon of the Frisco System at Lamar, Mo.; died at the home of his daughter in Joplin, Mo., April 18, from cerebral hemorrhage, after an illness of five years, aged 74.

William Nisbet, M.D. Jefferson Medical College, 1867; assistant surgeon of the Tenth Alabama Infantry, C.S.A., and later in charge of hospitals at Liberty and Richmond, Va., during the Civil War; for fifty years a druggist of Jacksonville, Ala.; died at his home, March 9, from senile debility, aged 79.

Edward Minturn Assenheimer, M.D. College of Physicians and Surgeons, New York City, 1904; a member of the Medical Society of the State of New York; aged 34; died at the home of his father in New York City, April 30, it is said from the effects of an over-dose of veronal.

John Young, M.D. Missouri Medical College, St. Louis, 1876; a member of the Arkansas Medical Society; of Springdale, Ark.; died at his home March 24, aged 56. At a special meeting of the Washington County Medical Society resolutions of affection and regret were adopted.

William Caldwell, M.D. Victoria College, Cobourg, Ont., 1874; a specialist on diseases of the eye, ear and nose; for many years physician to the Peterborough County Jail; died at his home in Peterborough, Ont., February 8, aged 72.

William H. Kerr, M.D. University of Pennsylvania, Philadelphia, 1867; of Minneapolis; for thirty years a practitioner of Falls City, Neb.; died suddenly in Minneapolis, Minn., May 1, from heart disease, aged 74.

Thomas J. McFarland, M.D. New Orleans School of Medicine, 1862; major and brigade surgeon in the Confederate service during the Civil War; died at his home in Port Lavaca, Texas, February 24, aged 77.

Oliver N. Wolcott, M.D. Starling Medical College, Columbus, Ohio, 1875; for nine years head of the Sheppard (Ohio) Sanitarium, and later a practitioner of Columbus; died at the home of his father-in-law in Jacksontown, Ohio, April 26, from cerebral hemorrhage, aged 63.

Sluman C. Crittenden, M.D. Philadelphia College of Medicine and Surgery, 1856; a surgeon of volunteers during the Civil War; for many years a practitioner of Rochester, Buffalo and Batavia, N. Y.; died at the home of his son in Detroit, Mich., April 28, aged 79.

Newton Freeman Curtis, M.D. College of Physicians and Surgeons, New York City, 1874; a member of the Massachusetts Medical Society; for many years a practitioner of White Plains, N. Y.; died at the home of his daughter in Milton, Mass., April 30, aged 64.

John MacConnell, M.D. Dublin University School of Medicine, 187—; also a graduate of the Boston University Law School; for many years vital statistician for the Boston Department of Health; died May 1 at the Rest Haven Hospital, Dorchester, Boston, aged 75.

Charles Henry Brockway, M.D. College of Physicians and Surgeons, New York City, 1873; a member of the Massachusetts Medical Society; of Worcester, Mass.; died in the Worcester City Hospital, April 17, from cerebral hemorrhage, aged 61.

Joseph Lancot, M.D. Victoria College, Cobourg, Ont., 1869; Ecole de médecine et de chirurgie, Montreal, 1873; who represented the province of Quebec at the French Medical Congress in 1912; died at his home in Montreal, February 20, aged 58.

Charles Auringer, M.D. Syracuse (N. Y.) Medical College, Eclectic, 1855; for more than thirty years connected with the Michigan Mutual Life Insurance Company; died at his home in Detroit, Mich., April 15, from senile debility, aged 87.

Alfred Monroe Armstrong, M.D. Texas Medical College and Hospital, Galveston, 1870; a member of the State Medical Association of Texas; died at his home in Crawford, Texas, March 8, aged 76.

Samuel A. Henley, (license, N. C., 1885); formerly superintendent of health of Randolph County, N. C.; a practitioner for fifty-two years; died at his home in Ashboro, N. C., March 11, aged 82.

Henry G. Gabel, M.D. Eclectic Medical Institute, Cincinnati, 1875; for two terms a member of the city council of Aurora, Ill.; died at his home in that city, April 25, from heart disease, aged 72.

John A. Jones, (license, Ky., thirty years' practice, 1894); a member of the Kentucky State Medical Association; died at his home in Altona, near Calvert City, Ky., April 11, from pneumonia, aged 74.

Charles Francis Kiersted, M.D. Geneva (N. Y.) Medical College, 1872; a Fellow of the American Medical Association; died at his home in Gillett, Pa., April 24, from heart disease, aged 69.

Alexander Lumsden McLaren, M.D. Long Island College Hospital, Brooklyn, 1870; Trinity Medical College, Toronto, Ont., 1871; died at his home in Point Edward, Ont., March 18, aged 66.

Irby Wynne Hamil, M.D. Louisville (Ky.) Medical College, 1876; a member of the Medical Association of the State of Alabama; died at his home in Goshen, Ala., April 25, aged 60.

Charles Whittington Keel, M.D. Medical College of Virginia, Richmond, 1897; a member of the Medical Society of Virginia; died at his home in Ore Bank, Va., April 25, aged 41.

Samuel Randolph Andis, M.D. College of Physicians and Surgeons, St. Joseph, Mo., 1880; once coroner of Atchison County, Mo.; died at his home in Tarkio, Mo., April 14, aged 66.

Walter Scott Hicks, M.D. University of Buffalo, N. Y., 1851; a member of the Medical Society of the State of New York; died at his home in Bristol, N. Y., March 16, aged 86.

William A. Sawyer, M.D. University of Wooster, Ohio, 1872; died at his home in Darlington, Pa., April 22, from organic heart disease, aged 70.

William Joseph O'Reiley, M.D. Bellevue Hospital Medical College, 1883; died at his home in Roslindale, Boston, April 22, aged 55.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

BROMIDIA

Report of the Council on Pharmacy and Chemistry

The following report was submitted to the Council by a member of its Committee on Therapeutics, with the recommendation that publication be authorized. This recommendation was adopted.

W. A. PUCKNER, Secretary.

Bromidia at once suggests bromids; yet Bromidia is essentially a chloral rather than a bromide preparation. This nostrum illustrates the need of the provision in the Council's Rule 8 under which recognition is refused pharmaceutical mixtures whose names do not indicate their most potent ingredients. While the chloral content of Bromidia has been given considerable publicity, yet the preparation is used both by physicians and by the public without due consideration of its potent ingredient. This fact is attested not only by the fatal results which have followed its use but also by the many reports of habit formation. As long ago as in 1887 a fatal case of poisoning was reported¹ to the medical society of the District of Columbia due to an overdose taken by a Bromidia addict. The physician who reported this case also gave his experience with another patient who had the Bromidia habit. In the discussion of the paper a number of cases were reported by others present in which Bromidia had been taken without a physician's advice and with more or less grave symptoms of poisoning.

In the report of a death of one who had been a slave to Bromidia it was said:² "When the body was found, there were eleven one-ounce Bromidia bottles about the room or on his person. Nine were entirely empty and the other two were about half full. None of these bottles indicated that they had been purchased on a physician's prescription, only the druggist's label marked 'Bromidia' being on them."

Dr. Horatio C. Wood, Jr., gave³ a striking illustration of how preparations like Bromidia come to be used even by physicians without consideration of their constituents:

"Within an hour after his father, a Brooklyn physician, had given him a dose of bromid, H.G.P., a prodigal son, died yesterday at his father's home in Brooklyn. Two years ago, when he appeared to have sown his wild oats, the father made him superintendent of his country place, near Grants Mills, Delaware County. A week ago the son left his place, and at 1 o'clock yesterday morning appeared at his father's Brooklyn home. He was nervous, and at 9 a. m. begged for a sedative.

"I prescribed the usual quantity of bromidia," the young man's father told a reporter. "He was weak and had suffered from weak heart and kidney trouble for some time."

"An hour later the father found the son dying and administered restoratives, but to no avail."

A circular, "The Advantages of Bromidia," makes it plain how physicians come to use a preparation like Bromidia without consideration of its potent constituent. In this circular the presence of chloral is at first frankly admitted, then it is suggested that in the combination the evil effects of chloral are completely eliminated and in the end the impression is left that Bromidia is practically innocuous. Thus at the beginning while arguing that Bromidia is better than extemporaneous preparations the chloral content is plainly acknowledged:

"In the untoward effects so frequently attending the use of extemporaneously prepared mixtures of chloral and the bromides, may be found the reason for BROMIDIA's preference when the need for a hypnotic agent arises. Were it not for the well known disadvantages of these drugs which become still more marked with their continued use, there could be no special need for such a preparation as BROMIDIA (Battle), for the therapeutic powers of chloral and the bromides are among the most positive facts in medicine."

Again:

"It was to meet the growing professional demand for a combination of chloral and the bromides with their evil effects eliminated, that led to the manufacture of BROMIDIA (Battle)."

1. THE JOURNAL A. M. A., July 9, 1887, p. 55.

2. THE JOURNAL A. M. A., April 21, 1906, p. 1220.

3. THE JOURNAL A. M. A., April 21, 1906, p. 1220.

Osmore Osmon Roberts, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1853; for fifty-six years a practitioner of Northampton, Mass.; died at his home in that city, April 26, aged 85.

Edward Henderson, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1874; of Pomona, Cal.; died in Los Angeles, Cal., April 14, a few weeks after a surgical operation, aged 63.

W. S. Posey, M.D. University of Nashville, Tenn., 1852; of Sulphur Bluff, Texas; died at the home of his daughter in Mount Pleasant, Texas, March 27, from senile debility, aged 84.

Daniel McFadyen, M.D. Detroit College of Medicine, 1904; a Fellow of the American Medical Association; died at his home in Detroit, April 22, from postdiphtheritic paralysis, aged 47.

James Y. D. Madeira, M.D. Jefferson Medical College, 1883; a Fellow of the American Medical Association; died at his home in Reading, Pa., April 19, from pneumonia, aged 57.

Francis Leverett Gerald, M.D. Eclectic Medical Institute, Cincinnati, 1873; a member of the New Hampshire Medical Society; died at his home in Warren, N. H., April 5, aged 75.

Paul Ehrhart, M.D. New York University, New York City, 1878; a member of the Medical Society of the State of New York; died at his home in New York City, April 30, aged 58.

Samuel C. Richardson, M.D. Physio-Medical College, Cincinnati, 1877; formerly of Terre Haute, Ind.; died at his home in Indianapolis, February 9, from nephritis, aged 91.

Daniel Egan, M.D. Rush Medical College, 1881; a Fellow of the American Medical Association; died at his home in Chicago, May 5, from disease of the stomach, aged 55.

Emmett Warren Doolittle, M.D. University of Iowa, Iowa City, 1875; formerly of Garden Grove, Ia., died at his home in Cainesville, Mo., April 21, from pneumonia, aged 62.

R. Houghton Sigmond, M.D. University of Virginia, Charlottesville, 1901; in charge of a hospital at Durango, Mex.; died in that city, about April 15, from urcemia, aged 35.

Alexander Edwin Colerick, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1865; died at his home in Pacific Grove, Cal., March 12, from paresis, aged 75.

Bruce S. Louthan, M.D. State University of Iowa, Iowa City, 1873; a member of the Iowa State Medical Society; died at his home in Sutherland, Iowa, April 20, aged 66.

George S. Wyckoff, M.D. University of Buffalo, N. Y., 1877; formerly of Leechburg, Pa.; died in Pittsburgh, Pa., February 10, from organic heart disease, aged 63.

Louis Peale Lampen, M.D. Jefferson Medical College, 1883; a Fellow of the American Medical Association; died at his home in Philadelphia, May 1, aged 54.

Walter Foulgham McMullen (license, Texas, years of practice, 1907), of Rockport, Tex.; died in Beville, Tex., April 14, from cerebral hemorrhage, aged 58.

Jacob D. Mater, M.D. University of Virginia, Charlottesville, 1873; a veteran of the Civil War; died at his home in Bridgeton, Ind., April 16, aged 67.

Percy Holland, M.D. University of Tennessee, Nashville, 1910; died at the home of his parents in Springfield, Tenn., April 19, from tuberculosis, aged 28.

Frederick B. Richter, M.D. Hahnemann Medical College, Chicago, 1870; a veteran of the Civil War; died at his home in Lincoln, Neb., April 18, aged 78.

Joseph M. Sanderson, M.D. University of Louisville, Ky., 1886; died at his home in Speegleville, Tex., April 15, from heart disease, aged 55.

Thomas J. Harvey, M.D. Missouri Medical College, St. Louis, 1876; died at his home in St. Louis, April 22, from cerebral hemorrhage.

Isaac Windle, M.D. Jefferson Medical College, 1861; for thirty-two years a practitioner of Mitchell, S.D.; died about April 22, aged 88.

Fletcher Stillman Smith, M.D. University of Michigan, Ann Arbor, 1881; died at his home in Saginaw, Mich., April 20, aged 59.

James M. Bond, M.D. California Medical College, San Francisco, 1895; died at his home in Haldsburg, Cal., March 23.

E. A. Smith (license, Oklahoma, act of 1908), died at his home in Mountain View, March 22.

Then, suggesting the indiscriminate use of Bromidia—as an entity as Dr. Wood suggests—the claim is made that:

“... its constituents have been chosen with a view of enabling Bromidia to meet every requirement for an agent of its class.”

“Owing to the exceptional purity of its component parts and its freedom from untoward effects when continued over long periods, this product will be found of the highest utility in epilepsy.”

“... its action is that of chloral and the bromides minus their evil effects.”

Finally Bromidia becomes a simple bromid preparation. Thus an advertisement reads:

“Bromidia's (Battle) Marked Sedative and Antispasmodic Qualities eminently fit it for the treatment of Maniacal Excitement, Epilepsy, Spasmodic Asthma, Convulsive Seizures of Reflex Origin, Sexual Neuroses, and other disorders attendant upon nervous irritability.

“Through its exhibition, the fullest therapeutic power of the bromides may be secured with a minimum of their evil effects; a feature of the greatest service when the necessity for continued treatment becomes necessary.”

In addition to the general invitation to use Bromidia in epilepsy and various nervous disorders, a circular also recommends its use in typhoid, a recommendation, which, if followed, may turn the scale in favor of a fatal result. The circular states:

“As a soothing agent in the extreme restlessness and irritability of typhoid fever and other infectious diseases, BROMIDIA (Battle) is a therapeutic weapon of definite service. Relief of the headache of typhoid may also be secured through the use of BROMIDIA (Battle). By means of its administration for the above purposes, the patient's strength is conserved and as a result he is much better prepared to stand the force of the infection.”

Particularly vicious is the recommendation that it be given to children. Thus, in a pamphlet entitled “Effective Drugs Effectively Combined”:

“Another point of advantage to be found in bromidia is the ease with which it is borne by children. Owing to this tolerance, it is of distinct service in a considerable list of disorders of childhood. Thus, of course, employed with care and an understanding of its potency, bromidia has a field of usefulness in chorea, laryngismus stridulus, and whooping-cough. In other nervous disorders of childhood—those attending acute infections, for instance—bromidia is a definitely indicated therapeutic aid, owing to the soothing influence exerted by even a moderate dose and the absence of untoward effects. More specifically, the correcting influence of bromidia in the night-terrors of children may be mentioned.”

Formerly advertisements asserted that each fluidram of Bromidia contained:

| | |
|----------------------------------|------------|
| “Chloral hydrate | 15 grains |
| “Potassium bromid | 15 grains |
| “Extract of Cannabis indica..... | 1/8 grain |
| “Extract of henbane | 1/8 grain” |

This formula also appears on the label of a sample package sent through the mails during 1914. A recent circular contains a somewhat different formula. Instead of “1/8 gr. each of gen. Imp. Ext. Cannabis Ind. and Hyoscyam.” as was formerly claimed, each fluidram of Bromidia is now said, not to “contain” but to “represent,” not the extracts but the far less potent drugs “Cannabis indica 1/8 grain, Hyoscyamus 1/8 grain,” thus:

| | |
|------------------------|------------|
| “Chloral hydrate | 15 grains |
| “Pot. brom. | 15 grains |
| “Cannabis indica | 1/8 grain |
| “Hyoscyamus | 1/8 grain” |

Furnishing still greater variety, the labels on a recently purchased bottle of Bromidia, where under the Food and Drugs Act the presence of narcotic drugs must be declared, read:

“Alcohol 10 per cent., Chloral Hydrate, 91 grs. per ounce. Cannabis indica indeterminate in finished product.”

“In the manufacture of BROMIDIA to each drachm of fluid used are added 15 grains of pure chloral hydrate and purified brom. pot., and 1/8 grain each of gen. imp. ext. cannabis ind. and hyosciam.”

These various statements as to the composition of Bromidia leave one very much “in the air.” As chloral and potassium bromid are easily determined and since lying on the labels of widely exploited proprietaries has become somewhat risky recently, it is probable that the statements on the trade package are to be depended on and that each fluidram of Bromidia contains something like 12 grains each of chloral and potassium bromid and not 15 grains as the medical profession has been and is being told.

Pharmacists who have attempted to put up a nonproprietary preparation similar to or, more correctly, having

the alleged composition of Bromidia have found it practically impossible to do so. The reason is that extract of cannabis indica is almost insoluble in a menstruum such as that found in Bromidia. The National Formulary, first edition, listed Mistura Chloral et Potassii Bromidi Composita of which it was said: “Each fluidram contains 15 grains each of Chloral and of Bromid of Potassium, and 1/8 grain each of Extract of Indian Cannabis and Extract of Hyoscyamus.” In this the pharmacists attempted to incorporate the cannabis indica by using the tincture of the drug and suspending it by the addition of tincture of soap bark. In the present edition of the National Formulary, the preparation is made by triturating the extract of cannabis indica with pumice stone and then filtering the finished product. This gives an “elegant” preparation—but one from which the cannabis indica is filtered out! A sad commentary on the National Formulary. It should not be supposed, however, that the manufacturers of Bromidia have solved the problem that has baffled the pharmacists; not at all. Bromidia probably contains no more cannabis indica than does its National Formulary prototype. The statement on the present trade packages, that the amount of cannabis indica in Bromidia is “indeterminate,” is but a tardy acknowledgment of the fact that the stuff has not, and never had, the amount of cannabis indica claimed for it for so many years.

The “indications” named on the Bromidia labels are, in common with nostrums of this type, but suggestions for self-drugging. They will appeal to the layman who has purchased, either by prescription or otherwise, an “original package” of Bromidia and who may imagine he suffers from “nervousness,” “sleeplessness,” “headache” or “neuralgia.”

But while the manufacturers in their advertising matter have on the whole not disguised the presence of chloral so much as they have attempted to make it appear that the chloral has been robbed of its dangers—for all hypnotics if used thoughtlessly are dangerous—after all the name has created the false impression that Bromidia is a bromid preparation. It is because of this false impression carried by its name, that Bromidia came to be used indiscriminately by the profession and in the course of time still more indiscriminately and recklessly by the public. Bromidia is a vicious chloral preparation masquerading under a misleading name. That physicians have been impressed by the claims of its harmlessness and by the mystery connected with the formula is not a credit to the intelligence of our profession. There is no doubt but that physicians are responsible for the use and abuse of this chloral preparation by the public.

There is no scientific or rational excuse for a ready-made preparation of this sort. When chloral or a bromid is indicated the proper dose of each of these, if they are to be combined, should be determined for each patient. Potassium bromid and chloral hydrate both are readily soluble in water, syrup or elixirs and it is a simple matter to prescribe the required dose of chloral and of bromid dissolved in some aromatic water like cinnamon-water (Aqua Cinnamomi), in some syrup like syrup of orange (Syrupus Aurantii) or in an elixir like the aromatic elixir (Elixir Aromaticum) or adjuvant elixir (Exixir Adjuvans). Prescribed thus the physician is alive, alike to the dangers and the limitations of the drugs; prescribed under a misleading proprietary name, the physician endangers his patient, stultifies his profession and tends to perpetuate the great American fraud.

EDITOR'S NOTE.—A list of some of the medical journals that advertise Bromidia:

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| <i>Texas Medical News</i> | <i>Southern Practitioner</i> |
| <i>Nashville Journal of Medicine & Surgery</i> | <i>New Orleans Medical & Surgical Journal</i> |
| <i>Medical Brief</i> | <i>Therapeutic Gazette</i> |
| <i>Annals of Surgery</i> | <i>Medical Herald</i> |
| <i>Charlotte Medical Journal</i> | <i>Medical Times</i> |
| <i>Medical Sentinel</i> | <i>Texas Medical Journal</i> |
| <i>Memphis Medical Monthly</i> | <i>Wisconsin Medical Recorder</i> |
| <i>Laryngoscope</i> | <i>International Journal of Surgery</i> |
| <i>Medical World</i> | <i>Vermont Medical Monthly</i> |
| <i>Medical Review of Reviews</i> | <i>Atlanta Journal-Record of Medicine</i> |
| <i>Louisville Monthly Journal</i> | <i>St. Paul Medical Journal</i> |
| <i>Indianapolis Medical Journal</i> | <i>Hospital Bulletin of the University of Maryland</i> |
| <i>Monthly Cyclopaedia & Medical Bulletin</i> | <i>Denver Medical Times</i> |
| <i>Journal of Nervous & Mental Diseases</i> | <i>Buffalo Medical Journal</i> |
| <i>Maryland Medical Journal</i> | <i>Medical Review</i> |
| <i>Merck's Archives</i> | <i>Ellingwood's Therapist</i> |
| <i>Iowa Medical Journal</i> | <i>Eclectic Medical Journal</i> |
| <i>Medical Standard</i> | <i>Massachusetts Medical Journal</i> |

CONVICTIONS UNDER THE FOOD AND DRUGS ACT

MONTE CHRISTO RUM AND QUININ FOR THE HAIR

The Monte Christo Cosmetic Company of New York City, which was a trade style used by one Albert Edelstein, shipped in interstate commerce a product labeled "Monte Christo Rum and Quinin for the Hair." The claims for the preparation were:

"Cools and invigorates the Scalp. Prevents the hair from falling out. Removes and prevents dandruff, imparting to the hair a delightful perfume."

A sample of the product was analyzed by the Bureau of Chemistry, and the chemists reported the following results:

| | | |
|-----------------------------------|------|-----------|
| Ethyl alcohol | 18.5 | per cent. |
| Wood alcohol | 42.0 | per cent. |
| Quinin (grams per 100 c.c.) | 0.28 | |

This preparation was declared adulterated in that its purity and strength were inferior to the professed standard under which it was sold, in that wood alcohol had been substituted for part of the rum. It was declared misbranded because the label was false and misleading and likely to deceive the purchaser into the belief that the product was composed of rum and quinin, when as a matter of fact it was composed of rum, quinin and wood alcohol. It was further declared misbranded in that it bore a serial number that did not belong to the Monte Christo Cosmetic Company; and in that the label failed to bear a declaration of the quantity of alcohol the preparation contained. Albert Edelstein pleaded guilty and was fined \$50.—[*Notice of Judgment No. 2321.*]

PEPSIN MAGEN BITTERS

Bettman-Johnson Company, a Cincinnati corporation, shipped from Ohio to Oregon a quantity of a product labeled "Pepsin Magen Bitters." The claims made for the stuff were to the effect that it "ranks among the best means for the preservation of activity of the digestive organs." It was further stated that "weakness of the stomach is mainly due to the scanty secretion of pepsin," and that in such cases the physician always prescribed pepsin. "Pepsin Magen Bitters" should be used because:

"A supply of Pepsin, as contained in these celebrated Bitters, in connection with some wholesome and strengthening bitter roots and herbs, will supply that deficiency and bring the stomach back to a normal condition."

When analyzed by the federal chemists, "Pepsin Magen Bitters" was found to contain 28.44 per cent. alcohol, 5.2 per cent. sugar, and less than 0.0001 grams of pepsin in each cubic centimeter of the preparation. "Pepsin Magen Bitters" were declared misbranded because the label conveyed the impression that the stuff contained a substantial amount of pepsin, when as a matter of fact, it contained only an infinitesimal quantity of pepsin, and it was further declared misbranded as the percentage of alcohol was not stated on the label. The Bettman-Johnson Company entered a plea of *nolo contendere* and was fined \$25 and costs of \$15.85.—[*Notice of Judgment No. 2222.*]

BAVARIAN MALT EXTRACT

A quantity of so-called Bavarian Malt Extract was shipped by the Kansas City Breweries Company from Kansas City, Missouri, to Nebraska. In addition to the name, "Bavarian Malt Extract," the label contained these claims:

"An unequalled health giving medical tonic."

"An excellent recuperant for weak physical energy, with the nourishing qualities of a pure extract of Malt and Hops."

Analysis by the government chemists showed that the preparation was misbranded, since instead of being a malt extract as claimed, it was essentially beer, containing 5.8 per cent. alcohol. The government further declared the stuff misbranded in that it led the purchaser to believe he was buying a foreign-made product, when as a matter of fact "Bavarian Malt Extract" was made at Kansas City, Missouri. The company pleaded guilty to both allegations and was fined \$100 and costs.—[*Notice of Judgment No. 2258.*]

Correspondence

Testimonial to Lucas-Championnière

To the Editor:—I beg to call the attention of my fellow surgeons to a movement which has just been inaugurated for the erection of a monument to the late Prof. Just Lucas-Championnière. There is a large committee consisting of representative surgeons, such as Professors Delagenière, Delorme, Depage, Dollinger, von Eiselsberg, Ceecherelli, Chantemesse, Garré, Gibson, Godlee, Hartmann, Robert Jones, Körte, Maeewen, Michon, Labbé, Perier, Reverdin and many others from America and practically every country in Europe.

Championnière's important contributions to surgery are too well known for it to be necessary to recount them. He was more than friendly to all Americans who were brought into contact with him. I am sure that it will be a great pleasure to many American surgeons to contribute toward this international testimonial.

Contributions may be sent to M. Georges Steinheil, 2, rue Casimir-Delavigne, Paris, or if any of the contributors prefer, I shall be very glad to receive and transmit any such contributions.

W. W. KEEN, M.D., 1729 Chestnut Street, Philadelphia.

Presence in Urine of Dialyzable Products Reacting to Ninhydrin

To the Editor.—In THE JOURNAL, April 4, 1914, p. 1084, Jamison reports on experiments with urine to check up the article by Warfield (THE JOURNAL, Feb. 7, 1914, p. 436). Jamison's reports are at variance with a large number of tests which I made with urine, as the following facts will show:

Urines of various acidities were tested directly with ninhydrin. Acidities were determined by titration with tenth-normal sodium hydroxid solution: Four specimens of urine of acidity 33, 56, 91 and 123 degrees were positive with ninhydrin. These acidities represent a fair range. It is not frequently that a urine with so high an acidity as 123 degrees is found.

Jamison says that a urine which gives even a strongly positive ninhydrin reaction loses its power to react if made strongly acid by the addition of acetic acid, and that the reaction will not reappear when the urine is exactly neutralized by the addition of sodium hydroxid. To determine what might be the disturbing element, provided his statement is true, the following tests were made:

Urine plus one-third its volume of glacial acetic acid, plus ninhydrin, no reaction.

Urine plus sodium acetate, plus ninhydrin, typical reaction.

Urine plus sodium hydroxid plus ninhydrin, yellowish color.

Urine plus acetic acid, then neutralized exactly with sodium hydroxid, plus ninhydrin, original reaction.

Urine plus acetic acid, plus sodium hydroxid to very faint alkaline reaction, plus ninhydrin, no reaction.

Urine plus acetic acid, plus sodium hydroxid until just short of neutral, plus ninhydrin, typical reaction.

Urine plus 0.5 per cent. acetic acid, plus ninhydrin, typical reaction.

These experiments were repeated on a number of urines and were also duplicated with solutions of pure glycocoll. The results were always the same as above.

From the foregoing it is evident that a large excess of acetic acid (like hydrochloric, nitric, etc.), will interfere with the production of a color reaction. It is also evident that the reason Jamison failed to restore the ninhydrin reaction after acidifying was that he did not neutralize exactly, but used too much alkali.

It is well known that acids and alkalis dialyze readily. It is hard to conceive that an acid solution on dialysis would give a neutral dialysate. Experiments with urine, with diammonium hydrogen phosphate, with disodium hydrogen phosphate and with monopotassium hydrogen phosphate show the reaction of the dialysate to be always the same

as the reaction of the fluid in the dialyzer. From various causes the reaction of the urine in the dialyzer may change during the time allowed to dialyze, but we always find the reaction on both sides of the dialyzer the same.

I do not see wherein Jamison is justified in drawing the conclusion that after dialyzing the urine of *pregnant women*, the dialysate gives a positive reaction to ninhydrin. A negative reaction may also be found, for the same factors which interfere with the reaction in certain non-pregnant urines would also be found occasionally here.

One point which I wish to emphasize is that all urines contain some amino-acids and will give a ninhydrin reaction unless some interfering substances are found. It must not, however, be thought that when we get a blue color with ninhydrin, the presence of amino groups in alpha position to carboxyl is demonstrated. A large number of substances will give color reactions with ninhydrin; for instance, ammonia, ammonium carbonate, diammonium hydrogen phosphate, ammonium formate, ammonium acetate, ammonium butyrate, ammonium oxalate, ammonium succinate, etc. Such substances, however, as ammonium chlorid, and ammonium nitrate do not give a reaction.

CHARLES E. M. FISCHER, M.D., Columbus, Ohio.

[This letter was referred to Dr. Jamison who replied:]

To the Editor:—Dr. Fischer entirely avoids the main issue of my recent article, which endeavored to show that the presence of dialyzable products in the urine reacting to ninhydrin is not diagnostic of pregnancy. He has attacked some minor points, however, so I will endeavor to answer him.

I stated that when a urine was strongly acid (to litmus) the ninhydrin reaction was often negative, and this is certainly true in my experience; I have seen an occasional exception when there was a large amount of amino-acids present. This is also the case when working with blood; in using the Pierce-Williams technic, great care must be taken not to add too much acetic acid, for the reaction will often be inhibited though the blood is known to give a positive reaction. Dr. Fischer appears to be mistaken on another point, as illustrated by the following: Suppose that one gets a positive reaction to ninhydrin in a specimen of urine prior to dialyzation; now to the same tube showing the characteristic blue color of the ninhydrin reaction, add acetic acid in moderately large amounts and it will be found that the blue color will soon fade; the fluid in the test-tube may now be exactly neutralized, but the blue color will not reappear. I am confident that Dr. Fischer did not follow this procedure. Further, suppose we test a specimen of urine from a known pregnant woman; this urine is found to be strongly acid to litmus and negative to ninhydrin, and though we now exactly neutralize this urine it will still remain negative, but if we dialyze out the amino-acids, the dialysate will give a positive reaction to ninhydrin. In such a case we are dealing with two factors which may inhibit the reaction, namely, the acidity and some unknown inhibiting substance. The reason that the reaction will appear in the dialysate is, probably, that the amino-acids will dialyze through, but not the inhibiting substance. The reason that the dialysate is nearly always neutral to litmus is that the acid substances are so largely diluted by the water on the outside of the membrane (it is to be remembered that only 2 c.c. of urine are used, and 10 c.c. of water), that their reaction is not perceptible by so coarse a means as litmus, though I have no doubt that acidity can be demonstrated by more delicate means. If a urine gives a strong reaction to ninhydrin and then is made so acid that the reaction disappears, and then again the acidity is exactly neutralized, of course the reaction can be obtained in another specimen of this acidified-alkalinized urine.

This seems to be Dr. Fischer's main ground for criticism, and I admit that there may have been some ambiguity in the wording of my original paper on this particular point; at any rate, Dr. Fischer mistook the sense of my article, as set forth above.

After dialyzing the urine of pregnant women, I have never found one to give a negative reaction to ninhydrin; and if Dr. Fischer has found this not to be the case he should have stated it specifically. From the examinations that I have made I see no reason for altering this conclusion. I have found the reaction negative in the dialysates from the urine of non-pregnant women and also of men.

Theoretically it is true that all urines contain traces of amino-acids, but, in my opinion, drawn from experiments as set forth in my original paper, *not all urines will give a positive reaction to ninhydrin*, probably because the amount normally present is infinitesimal.

CHAILLÉ JAMISON, M.D., New Orleans.

Painless Parturition

To the Editor:—The suggestion of Dr. C. D. Daniels (THE JOURNAL, May 2, 1914, p. 1420), concerning the use of nitrous oxid in parturition, is based on faulty technic. When nitrous oxid is administered with sufficient oxygen to maintain normal oxygenation of the blood, there is no increase in respiratory difficulty with the infant. In nitrous oxid administration, proper oxygenation is relatively as essential an element of safety as is asepsis in surgical technic, and in this day it ought not to be considered necessary to reiterate continually such essential requisites.

RAYMOND C. COBURN, M. D., New York.

Queries and Minor Notes

ABDERHALDEN'S SERODIAGNOSIS IN PSYCHIATRY

To the Editor:—Please describe the technic for preparing nervous tissue for use in Abderhalden's serodiagnosis in nervous affections.

W. S. LORENZ, M.D., Milledgeville, Ga.

ANSWER.—The theoretic basis of this test is the assumption that a protective ferment is formed in the organism against cells or protein which have entered the blood from a degenerated organ. In the test for pregnancy a ferment formed by the maternal system against placental tissue is tested for on the supposition that cells from the placenta find their way into the blood of the mother and excite the formation of a specific ferment capable of decomposing them. Similarly it is supposed that in dementia praecox the brain cortex becomes degenerated and furnishes cells or substances to the blood which act as foreign bodies. The presence of these substances excites the formation of a ferment capable of decomposing the proteins of the human brain. In a similar manner the tissues of the genital glands, which are more or less affected in dementia praecox, are subject to digestion by a similar ferment. These ferments are so specific that the ferment of one sex will not affect the glands of another sex, that is, the serum of a woman will not digest testicular tissue nor will that of a man digest ovarian tissue. Experiment has shown that the organs of animals cannot be used in this test. The organs to be used should be taken from cadavers of persons who were not cachectic and the necropsy should have been made within a few hours (from six to twenty-four) after death. The organs should be taken from the cadaver of a patient who has not died after a long agony and has not suffered from an infection or high fever shortly before death. The organs should be removed with aseptic precautions. Organs containing much fat are not well suited to the test. If the tissue contains considerable fat, it should be removed in a Soxhlet apparatus. The material should be cut into pieces of moderate size (size of a bean) and washed repeatedly until the wash-water gives no reaction with ninhydrin. The washed material should be cut into fine pieces and tested again after thorough washing.

The pieces should then be boiled and tested, and if free from substances reacting with ninhydrin, they should be preserved in the water in which they have been boiled between a layer of chloroform and a layer of toluene.

The incubation and testing are performed in the same manner as when testing for the serodiagnosis of pregnancy. The greatest care must be taken to see that the dialyzing

thimbles are permeable and entirely free from any substance which can give the ninhydrin reaction. Especially they should be entirely free from any adhering tissue used in previous tests. A control test should be made with a piece of the tissue and normal serum, and also a test should be made of the serum alone.

The following articles dealing with this subject may be referred to:

- Fausser, A.: Einige Untersuchungsergebnisse und klinische Ausblicke auf Grund der Abderhaldenschen Anschauungen und Methodik, *Deutsch. med. Wchnschr.*, Dec. 26, 1912, p. 2446.
- Fausser, A.: Weitere Untersuchungen (3. Liste) auf Grund des Abderhaldenschen Dialysierverfahrens, *Deutsch. med. Wchnschr.*, Feb. 13, 1913, p. 304.
- Fausser, A.: Zur Frage des Vorhandenseins spezifischer Schutzfermente in Serum von Geisteskranken, *München. med. Wchnschr.*, March 18, 1913, p. 584.
- Wegener: Serodiagnostik nach Abderhalden in der Psychiatrie, *München. med. Wchnschr.*, June 3, 1913, p. 1197.
- Schiff, Erwin: Ist das Dialysierverfahren Abderhaldens differentialdiagnostisch verwertbar? *München. med. Wchnschr.*, June 3, 1913, p. 1197.
- Fausser, A.: Die Serologie in der Psychiatrie, *München. med. Wchnschr.*, Sept. 9, 1913, p. 1984.
- Bundschuh, Rudolph, and Roemer, Hans: Ueber das Abderhaldensche Dialysierverfahren in der Psychiatrie, *Deutsch. med. Wchnschr.*, Oct. 16, 1913, p. 2029.
- Fischer, Joannes: Weitere Untersuchungen mit dem Abderhaldenschen Dialysierverfahren an Geisteskranken, *Deutsch. med. Wchnschr.*, Oct. 30, 1913, p. 2138.
- Beyer, B.: Ueber die Bedeutung des Abderhaldenschen Dialysierverfahrens für die psychiatrische Diagnostik, *München. med. Wchnschr.*, Nov. 4, 1913, p. 2450.

DURATION OF PREGNANCY

To the Editor:—A woman aged 23, unmarried, said that she had had sexual connection July 26, 1913. She was confined March 6, 1914. Child full term and healthy. Time 224 days. Could a full-term child be born in that time? We are taught that from 270 to 290 days is the normal time, but this falls 46 days short of 270 days.

J. E. C., M.D., Missouri.

ANSWER.—The query involves two questions. 1. What is the shortest recorded period from coitus until the birth of an apparently fully developed child? 2. To what extent is it possible to determine the length of intra-uterine life from the appearance of the child at birth?

J. W. Williams (*Obstetrics*, p. 202) states that Ahlfeld analyzed 425 cases in which the date of coitus was supposed to be known and found the average duration of pregnancy to be 269.91 days, but individual cases in the series varied between 231 and 329 days. According to Peterson and Haines (*Legal Medicine and Toxicology*, i, 66) Reid has collected the histories of forty cases of pregnancy in women in whom impregnation was the result of a single intercourse, the date of which was accurately known. Of these cases five fell within the thirty-eighth week, from the 260th to the 266th day. They also cite the investigation of Montgomery, who collected the histories of fifty-six cases of pregnancy in which the date of fruitful intercourse was known, of which one case fell in the thirty-fifth week, between the 239th and 245th days. Peterson and Haines further say: "There is therefore no absolute figure that may be stated as the positive duration of pregnancy in the human female. In some women eight calendar months is the full period to which they can carry their young, while others invariably go well beyond the average of 280 days. Thus, while the average may be as stated, normal gestation may last but 240 days, or be extended to 300 days or longer."

In Austria the law recognizes the legitimacy of the child born within from 240 to 307 days of the death of the father. Schroeder and also Winckel admit 240 days as the lower limit for the duration of pregnancy (Witthaus and Becker, ii, 514, 515).

From casual observation it is hardly possible to determine whether an infant at birth has had seven or nine months of intra-uterine life. Even an expert observer would not be safe in stating that an infant apparently fully developed had had more than eight months of intra-uterine existence. J. Clifton Edgar, in Witthaus and Becker's "Medical Jurisprudence, Forensic Medicine and Toxicology," ii, 526, quotes Tidy as follows: "It is manifest that the medical jurist would scarcely be justified in pronouncing a positive opinion that a seven months' child might not be as well developed as an eight or nine months' child under ordinary circumstances."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

- CALIFORNIA: Los Angeles, June 16. Sec., Dr. C. B. Pinkham, 135 Stockton St., San Francisco.
- DELAWARE: Dover and Wilmington, June 16-18. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
- FLORIDA: Palatka, June 17-18. Sec., Dr. E. W. Warren, Palatka.
- GEORGIA: Atlanta and Augusta, June 3. Sec., Dr. C. T. Nolan, Marietta.
- IOWA: Iowa City, June 11-13. Sec., Dr. Guilford H. Sumner, State House, Des Moines.
- KANSAS: Kansas City, June 9-12. Sec., Dr. H. A. Dykes, Lebanon.
- KENTUCKY: Louisville, June 3-5. Sec., Dr. A. T. McCormack, Bowling Green.
- LOUISIANA: New Orleans, June 4-6. Sec., Dr. E. L. Leckert, Macheca Bldg., New Orleans.
- MARYLAND: Baltimore, June 15. Regular Board: Sec., Dr. J. McP. Scott, Hagerstown. Homeopathic: Baltimore, June 15. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.
- MICHIGAN: Ann Arbor, June 9. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
- MISSISSIPPI: Jackson, June 16-17. Sec., Dr. E. H. Galloway, Jackson.
- MISSOURI: St. Louis, June 15-17. Sec., Dr. J. A. B. Adcock, Jefferson City.
- NEBRASKA: Lincoln, May 27. Sec., Dr. H. B. Cummins, Seward.
- NEW JERSEY: Trenton, June 15-16. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.
- NEW YORK: May 19-22. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.
- NEW YORK: June 23-26. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.
- NORTH CAROLINA: Raleigh, June 9. Sec., Dr. Benj. K. Hays, Oxford.
- OHIO: Columbus, June 2-5. Sec., Dr. George H. Matson, State House, Columbus.
- PENNSYLVANIA: Philadelphia, June 1-3. Sec., Mr. Nathan C. Schaeffer, Harrisburg.
- SOUTH CAROLINA: Columbia, June 9. Sec., Dr. A. Earle Boozer, 1892 Hampton Ave., Columbia.
- TEXAS: Austin, June 23-25. Sec., Dr. W. L. Crosthwaite, Waco.
- VIRGINIA: Richmond, June 23-26. Sec., Dr. Herbert Old, Norfolk.

Texas November Report

Dr. W. L. Crosthwaite, secretary of the Texas State Board of Medical Examiners, reports the written and practical examination held at Houston, Nov. 11-13, 1913. The number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 45, including 3 osteopaths, of whom 42 passed, including 3 osteopaths; 2 failed and one candidate did not complete the examination. The following colleges were represented:

| College | PASSED | Year | Per Cent. |
|---|--------|---|-----------|
| University of Alabama..... | | Grad. | |
| George Washington University..... | | (1904) | 76.6 |
| Howard University..... | | (1912) | 87.5 |
| University of Illinois..... | | (1913) | 84.6 |
| Hospital College of Medicine, Louisville..... | | (1913)* | |
| University of Kentucky..... | | (1904) | 78.4 |
| Tulane University..... | | (1910) | 86.7 |
| Maryland Medical College..... | | (1912) 84.7, 87.1; (1913) 85, 85.5, 87.7, | 89.5 |
| Harvard Medical School..... | | (1910) | 78.8 |
| Kansas City Hahnemann Medical College..... | | (1899) | 82 |
| University of Pennsylvania.. | | (1913) | 77 |
| Meharry Medical College..... | | (1895) 84.1; (1907) 87.3; (1911) 87.7, 89.7 | |
| Memphis Hospital Medical College | | (1912) 75, 75.5 | |
| | | (1901) 84.7; (1911) 82; (1913) | |
| | | 77.6, 80.6, 82. | |
| University of Tennessee..... | | (1911) | 79 |
| Vanderbilt University..... | | (1912) | 82.3 |
| Texas Christian University..... | | (1913) 82, 83.1, 86.1, * | 89.7 |
| University of Texas..... | | (1913) 83.9, 85 | |
| Medical College of Virginia..... | | (1909) | 82.1 |
| University College of Medicine, Richmond..... | | (1912) | 86.4 |
| University of Toronto..... | | (1891) | 85.4 |
| University of Berne, Switzerland..... | | (1905) | 87.8 |

FAILED

- Hospital Medical College, Eclectic, Atlanta.....(1910)*
- Meharry Medical College.....(1910)*
- Undergraduate.....†

* No grade given.

† Did not complete examination.

Colleges Given Higher Rating

In recognition of a definite reorganization and of marked improvements made in the Southern Methodist University Medical Department of Dallas, Tex., and the Texas Christian University Medical Department of Fort Worth, Tex., the ratings of these colleges have been raised to Class B by the Council on Medical Education.

Book Notices

NEW AND NONOFFICIAL REMEDIES. Containing Descriptions of the Articles Which Have Been Accepted by the Council on Pharmacy and Chemistry of the American Medical Association Prior to Jan. 1, 1914. Cloth. Price, 50 cents. Pp. 362. Chicago: American Medical Association, 1914.

The success of the physician of to-day depends to a large extent on the wisdom with which he discards remedies which have been proved of little worth in the past. We refer especially to those which have been given a place in the Pharmacopcia, and therefore bear the sanction of authority. Even greater discrimination, however, must be shown in selecting from the new therapeutic agents, proprietary or non-proprietary, those in which confidence can be placed. As an aid in deciding this question, *New and Nonofficial Remedies* is worthy of adoption by every practicing physician. As a result of the investigations of a large corps of scientists and practical physicians, it carries the assurance that the remedies which it describes are honestly made and marketed and that the therapeutic claims are reasonable and worthy of attention.

When the book was first published, preparations were arranged alphabetically; but in the present edition a more complete classification has been made and those remedies of like character have been grouped together so that the work is like a text-book of materia medica rather than an extra pharmacopcia. Dosage-forms as well as the basic preparations are enumerated. A change of arrangement of the individual articles puts the matter in which the physician is chiefly interested at the beginning in large type, and relegates details of preparation, chemical properties, tests, etc., to the end of the article. This change, we believe, will be generally approved. A study of the contents shows that the Council has neglected no therapeutic advance. Perhaps the most striking feature is the expansion of vaccine therapy as shown by the number of such preparations that are given a place. Salvarsan and other arsenic preparations are also satisfactorily considered. While a considerable number of special radium preparations have not yet been admitted, a general article on the metal itself gives an amount of reliable scientific information not easily found elsewhere.

If we might offer a suggestion, it is that more definite statements regarding therapeutic properties be made. Therapeutic effects that are well established no longer need to be prefaced by the cautionary phrase, "It is claimed," or "It is stated." A careful estimate of those proprietaries which have stood the test of experience, giving their relative therapeutic worth, would be of inestimable value to the medical men who realize that they obtain in this book reliable and authoritative statements concerning nonofficial remedies.

AMERICAN RED CROSS ABRIDGED TEXT-BOOK ON FIRST AID. WOMAN'S EDITION, POLICE AND FIREMEN'S EDITION, RAILROAD EDITION AND MINERS' EDITION. By Major Charles Lynch, Medical Corps, U. S. Army. Paper, Price, 30 cents net. Pp. 148, with illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

These paper-covered pamphlets, edited by Major Charles Lynch, were prepared and endorsed by the American Red Cross for distribution to the public. Each of the four recently issued contains directions, illustrations and other material specially suitable for the class for which it is prepared. Each edition contains general first-aid directions, and chapters on bandages, injuries in which the skin is not broken, injuries in which the skin is broken, bleeding, injuries due to heat and cold, suffocation and artificial respiration and poisoning, as well as a chapter on common emergencies and one on transportation of the sick and injured. In addition, each pamphlet contains special material suited to its particular purpose.

Miscellany

COOPERATION AMONG DOCTORS

H. B. Knapp, M.D.

IONIA, MICH.

In order that physicians using modern methods of diagnosis and treatment may properly equip themselves for their labors, they must first spend a considerable sum of money on equip-



Fig. 1.—Ionia City Hospital (on the second floor).

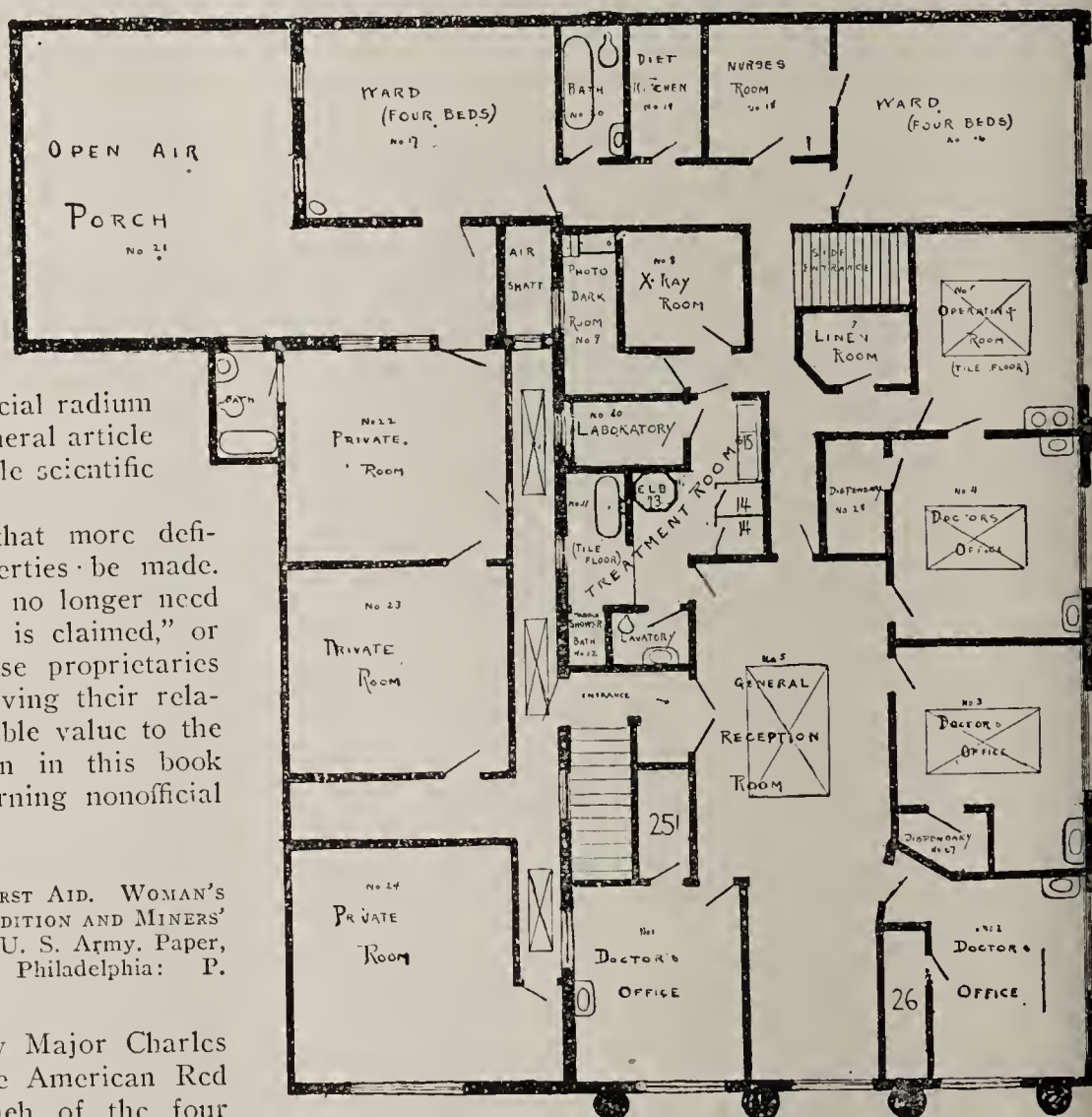


Fig. 2.—Floor plan; 13, electric light bath; 14, dressing-rooms; 15, massage table; 25 and 26, dispensaries.

ment. Some appliances, such as a cystoscope or a microscope, are not in constant use and may not be used for days at a time. To tie up money in expensive apparatus to be made use of only occasionally often keeps men from purchasing even quite necessary appliances.

The income of the average physician will not permit the purchase of anything like the needed equipment, and yet it

is the average doctor (who attends the great bulk of sick persons) who needs equipment to make his work accurate and positive.

Individual physicians might economize effectively by utilizing the benefits to be derived from cooperative methods. To carry out this idea, not only in office equipment, but also in supplying hospital facilities where there are none, four physicians in Ionia, Mich., a city of 7,000 inhabitants, have associated themselves together on a cooperative basis. When a little more than a year ago a new business block was to be built (Fig. 1), the second floor was leased and the floor plan specially arranged and developed as shown (Fig. 2). A general reception room accommodates the patients of all four physicians. Consulting and dispensing rooms are provided for each doctor. In connection with the offices is a ten-bed hospital, consisting of two wards of four beds each, two private rooms, an operating room, a Roentgen-ray room with a dark room, a chemical laboratory, and a hydrotherapeutic treatment room. A trained nurse looks after the hospital, keeps supplies made up, and assists in the offices.

The convenience of hospital facilities in conjunction with the physicians' offices adds comfort to both patient and physician.

Each member of the staff pays especial attention, though not exclusively, to certain branches of medicine, and whenever convenient, refers cases to the physician whose special study best fits him to handle the case. Each man is expected to spend some time away each year in study, while the interests of the absent member are looked after by the remainder of the staff. Staff meetings are held for the discussion of difficult or perplexing cases and for the exchange of ideas.

The purchasing of diagnostic and therapeutic appliances, books, journals, etc., without duplication, affords a much greater equipment for the same money than if the buying were done individually. Drugs and hospital supplies, of course, are bought at better rates than the average doctor buys, ordering in smaller quantities.

The association permits each man to practice as an individual and not on a partnership basis, except so far as the hospital equipment and maintenance is concerned. The staff as a whole concentrates its study at times on some particularly difficult case, each member giving his effort toward a solution of its problems with a minimum of cost to the patient.

An effort has been made to gather together under one roof all the needed diagnostic and therapeutic appliances often beyond the reach of the average doctor practicing alone, and by special study and effort make them available for the largest number of sick and for the accomplishment of the greatest good.

In many small towns and cities without hospital facilities, and even in the larger cities, I believe that this plan would be helpful to both patient and physician, just in proportion to the amount of unselfish effort put into it.

Little Mothers' Clubs

The *Bulletin* of the Chicago School of Sanitary Instruction, April 4, contains a schedule of the subjects covered in the instruction of the children in public schools who have joined the Little Mothers' clubs. Among the subjects considered are: home sanitation, how to handle a baby, the baby's bed, clothing, bathing, feeding, modification of milk, summer care of babies and a number of other topics. These clubs have been established in twenty-one of the public schools of the city and one settlement house. There are forty separate classes attended by about four thousand girls of the sixth, seventh and eighth grades. Additional clubs will be established from time to time and it is the intention to have one in every city school. The children manifest a most intelligent interest in these classes and in the instruction offered, and it is believed that the Little Mothers' Club idea will accomplish much good, not only in the way of educating the children in taking care of the babies in their homes but also in the general educational effect it will have on the whole family in matters of hygiene.

Medicolegal

Employment of Physician by Claim-Agent

(*Pritchard vs. Old Colony Street Railway Co. (Mass.), 103 N. E. R. 692*)

The Supreme Judicial Court of Massachusetts holds that a judgment should be entered for the plaintiff for medical attendance on one Rice, it having been stipulated that such judgment might be entered if, on all the evidence properly admissible and admitted, the court should find that the case should have been given to the jury. The court says that Rice was injured while in the employ of the defendant, and was brought to the plaintiff's office for treatment. No assertion was made that the defendant was liable for the injury, and Rice was taken to the plaintiff's office because he said that the plaintiff was his family physician and he wanted to go to him. There was evidence, to the admission of which the defendant excepted, tending to show that a few days afterward one Silvia, a claim-agent or adjuster for the defendant, called at Rice's house and asked him what physician he had and told him that he could have the company's physician, but that, so long as he wanted Dr. Pritchard, to keep him right along. The plaintiff continued to treat Rice at his home and after he was taken to a hospital, but before he was taken to the hospital the plaintiff had Mrs. Rice ask Silvia's permission, which was given, and whether the defendant would foot the bills, and the reply was in the affirmative, and the company did pay the hospital bill, through Silvia. Subject to the defendant's exception, evidence was introduced by the plaintiff tending to show that he had treated injured employees brought to him by a former claim-adjuster and by Silvia, and that the defendant had paid him for all such cases. Later in the course of the trial this evidence was limited to cases brought by Silvia. The court thinks that the evidence that was excluded should have been admitted. It was admissible, it seems to the court, in connection with other evidence that was introduced, for the purpose of showing the extent to which the defendant had held out and recognized the claim-adjusters as having authority to take employees who had been injured to the plaintiff, and as showing how far the plaintiff was justified by the course of dealing in assuming that the claim-adjusters had such authority, and in dealing with them on that footing. It was for the jury to say whether, taking the whole course of dealing between the plaintiff and the defendant into account, including the payment by the defendant of the bill at the hospital, Silvia had apparent authority to deal with the plaintiff as he did. Silvia testified that neither he nor the previous adjuster had authority as claim-adjuster to engage physicians to attend cases for the defendant, but the jury were not bound to accept his statement as to his authority. They could also take into account the fact that no explanation was offered by the defendant, so far as appeared, of the payment by it of the bill at the hospital. If Silvia had apparent authority to deal with the plaintiff, then the conversation with him that was objected to was properly admitted.

Powers Conferred on Boards of Health by Quarantine Law

(*People vs. Tait (Ill.), 103 N. E. R. 750*)

The Supreme Court of Illinois reverses, for a defective information, a conviction of the defendant for violating a quarantine regulation of a county board of health.

Taking the statute into consideration, the court thinks the "rules and regulations" which boards of health are authorized to make must be written rules, adopted in an official manner, and duly entered of record. To hold otherwise would be to give the legislation a construction which would render it invalid.

All of the counts of the information were open to the objection that there was no positive averment that a valid rule had been adopted, declaring a quarantine which would include the residence of the defendant. The existence of a single case of scarlet fever, however, is sufficient to call the powers of the board into action.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

American Academy of Medicine, Atlantic City, June 19-21.
 American Climatological Association, Atlantic City, June 19-20.
 American Gastro-Enterological Association, Atlantic City, June 22-23.
 American Gynecological Society, Boston, May 19-21.
 American Laryngological Association, Atlantic City, May 25-27.
 American Laryn., Rhin., and Otol. Society, Atlantic City, June 19-20.
 American Medico-Psychological Association, Baltimore, May 26-29.
 American Orthopedic Association, Philadelphia, June 18-20.
 American Otological Association, Atlantic City, May 27-28.
 American Pediatric Society, New London, Conn., May 26.
 American Proctologic Society, Atlantic City, June 22-23.
 American Society of Tropical Medicine, Boston, May 29-30.
 American Therapeutic Society, Albany, May 29-30.
 American Urological Association, Philadelphia, June 18-20.
 Arkansas Medical Society, Eldorado, May 19-22.
 Conf. of State and Prov. Boards of N. America, Washington, June 19-20.
 Connecticut State Medical Society, New Haven, May 20.
 Illinois State Medical Society, Decatur, May 19-21.
 Maine Medical Association, Portland, June 10-11.
 Massachusetts Medical Society, Boston, June 9-10.
 National Association for the Study of Epilepsy, Baltimore, May 25.
 New Jersey Medical Society, Spring Lake, June 29.
 North Carolina Medical Society, Raleigh, June 16.
 Rhode Island Medical Society, Providence, June 4.
 South Dakota State Medical Association, Watertown, May 26-28.

NEW YORK ACADEMY OF MEDICINE

Meeting held April 6, 1914

The President, DR. WILLIAM M. POLK, in the Chair

A Study of the Movements of the Intestines under Artificial Circulation

DR. GUSTAVE T. MONOD, Vichy, France: The work of Carnot and Glénard, in transfusing the intestines of a cat, has shown that the serum of a cat purged with senna has the power of starting in another organism marked peristalsis, the movements of the cecum, and especially the rhythmic movement of every pouch. Not only do the pouches bulge, but there is a decided movement of the appendix. In regard to enteroptosis it seems probable that incompetence of the intestinal wall leads to a lowering of the intra-intestinal tension, and to visceral prolapse. The prolapse begins with the intestines, and then the descent of other organs follows, the right kidney, stomach, liver and spleen, for these organs are interdependent both as regards their suspension in the abdomen, and as regards their function, circulation and innervation. Intestinal prolapse, which is pathognomonic, is rarely primary, but is secondary to causes which are either infective or toxic. Movable kidney is not a separate malady but only a frequent symptom of enteroptosis. British treatises label as enteroptosis, or Glénard's disease, only cases of dislocation of all the abdominal organs, while in truth this is only the last and most severe phase of the disease and is a very rare occurrence. The common form is marked by one or two symptoms only, for instance, coloptosis and nephroptosis. Glénard classifies movable kidney in the large family of "hepatism." This view is supported by the fact that the etiology, symptomatology and treatment of enteroptosis on the one hand, and the inadequacy of the bile function on the other, authorize by their similarity this doctrinal theory. Enteroptosis is a malady of nutrition. The subjective symptoms support this statement. The most conspicuous objective symptoms are a delimitable and palpable cecum, the great relief that occurs when the abdomen is mechanically supported, and very often, a movable kidney. We are still waiting for a single case in which the movable kidney syndrome can be demonstrated to be due to movable kidney alone. On the other hand, we are prepared to show scores of cases in which movable kidney was not the cause of the symptoms observed, and these were the cases in which all the troubles disappeared and the kidney remained unfixed. A new syndrome which Crile discovered through experimental work and I through clinical observation is that of insufficiency of liver, adrenal and brain together.

DISCUSSION

DR. JACOB KAUFMANN: A great deal of confusion prevails as to the meaning of enteroptosis. In France it is explained as caused by "hepatism," a term with which Americans are not familiar. The prevalent idea in America is that there is more of a mechanical derangement which is paramount in the production of enteroptosis. I do not believe that any abdominal displacement constitutes disease; abdominal displacements do not necessarily produce symptoms. The stomach and colon may be situated deeply and yet perform their functions in a perfectly normal manner. Enteroptosis in the majority of cases is found in persons who show other traits as well, who are subject to certain functional disturbances. I believe that the best definition of this condition is "a general congenital asthenia." These patients develop neurasthenia as well. There is a marked tendency to an atonic condition of the gastro-intestinal canal associated with secretory disturbances, but also some functional derangement of the liver caused by some disturbance of the internal secretions. The blood-pressure is usually low in the development of this atonic condition. As to treatment, the application of the belt is helpful, but these patients should be treated as general neurasthenics not only by dietetic means but medically too. The tendency to develop asthenia of various organs, not the displacement of the abdominal viscera, is the paramount factor of the condition.

DR. MAX EINHORN: As early as 1889 or 1890 I demonstrated this condition by gastroduaphany. Stillier's conception of enteroptosis is that it is a congenital disease, but it may be an acquired disease as well. Causes which produce enteroptosis may be removed by the application of methods which are apt to produce reversed conditions. Loss of fat and other tissue with the attendant change in configuration after typhoid, or in women getting up too soon after childbirth and with improper bandaging, may produce the condition, and these instances prove that enteroptosis may be acquired. By building up the body and putting on flesh the condition may be cured. When enteroptosis is associated with cardioposis, if one builds up the body, the heart will return to its normal position more quickly than any other organ. If enteroptosis is purely a congenital condition it would be impossible to alter the position of the heart. Is enteroptosis a disease or not? I have found prolapsed kidneys, liver, stomach and other organs at times without any symptoms whatever; that is not saying that the condition was normal; it is abnormal and gives rise to the development of abnormal changes and functional disturbances.

In regard to treatment I am in accord with Glénard, who lays emphasis on an ample amount of food, building up the patient, and increasing his size, not only by increasing the amount of fat but by building up the muscular system as well. Bandaging is of secondary importance. The bowels should be regulated, but the aperient waters at spas, etc., do not play a great part.

DR. GEORGE R. LOCKWOOD: Enteroptosis is interesting from a geographic point of view and appears to differ in various countries. The whole proposition of enteroptosis might be simplified. Mankind can be divided into two classes: (1) those with broad costal angles and a transverse stomach—robust individuals, and (2) those with narrow costal angles and vertical stomachs—the thin, nervous individuals. Such a condition of ptosis suggests a reversion to the embryonic type. Gastropsis produces no local symptoms until the stomach becomes atonic, to which condition it has been predisposed by reason of the nervous instability of that type of case, and when atony advances, symptoms of alimentary toxemia usually intervene.

DR. J. W. DRAPER: From the point of view of surgical therapeutics the alimentary canal is divisible into three regions: (1) the duodenum and oral portion of the jejunum—bacterially dead, biochemically alive; (2) the aboral and terminal ileum, and (3) the cecum and colon—biochemically dead, bacterially alive. The duodenum concerns us for two reasons: first, because of its ulcers, the etiology of which is still unknown; and, second, because of its enzymes,

hormones and other biochemical bodies which bear so striking a relation to the cause of death in intestinal obstruction, and which stand in significant relation to the causation of duodenal ulcer. Undoubtedly we are right in teaching that in dealing with the oral part of the intestine, as the creation of a gastro-enterostomy for the relief of duodenal ulcer, the subtlest biochemical relations are altered, and this alteration affects the cure rather than the much overrated gastric drainage, thought by some to result from operation. Liking the small intestine to a test-tube, the fiery biochemical reactions of the duodenum may be said to cool in the jejunum and to chill in the ileum. Terminally they are nil, and the chief, if not the only, intestinal function, is conduction. Jerome Lynch has shown that in human beings the streak of chyle passing to the cecum is not continuous, but intermittent, strongly suggesting the squirting of stomach contents into the duodenum, and that the ileal contents are solid or fluid, depending wholly on the diet. On a nitrogenous diet they are fluid; on a mixed diet, well-formed and often solid. Lynch has further shown that the reaction of the ileal contents is always acid, that of the mucous membrane always alkaline or neutral. Significant corroboration of these studies is found in the field of surgery. Ileostomy is always followed by a gain in weight.

The cecum and colon being biochemically dead and bacterially alive hold an interest equal to and in inverse proportion with that of the duodenum. The therapy of this part is concerned with its evacuation. Cannon said that surgeons operate on the human alimentary canal as though it were a simple system of rubber tubes in which holes could be bored at will, rather than an indescribably complex physiologic mechanism. In no part of the canal is the truth of this saying better shown than at its termination. In extreme ignorance of its functions, the colon has been excised, twisted and contorted into bizarre shapes, in the well-intentioned but ill-directed efforts to hasten its emptying. The whole question of the surgical therapy of the colon hinges on the little-understood problem of anastalsis. Dr. George Stewart has recorded the most direct and amazing proof of human colonic anastalsis occurring in a man who, as was his custom, was removing impacted feces from his rectum with a pencil; suddenly he felt the pencil gripped by the bowel and the next instant it was lost in the rectum. Three days later Dr. Stewart could not find the pencil with the proctoscope and opened the abdomen. It was lying not in the sigmoid or colon, but in the cecum. Excess in anastalsis may be the predominant factor in certain types of constipation.

DR. LEWIS GREGORY COLE: A stomach though greatly collapsed may functionate well. I wish to emphasize the relation between the level of the chyme in the stomach and the position of the cap (first portion of the duodenum). This is very important because if the pylorus as well as the stomach were prolapsed, gastric evacuation would take place on scheduled time. If, on the other hand, the pylorus were high and the stomach prolapsed, gastric retention might result.

INTERNATIONAL SURGICAL ASSOCIATION

Fourth Congress held in New York, April 13-16, 1914

(Concluded from page 1503)

SYMPOSIUM ON GRAFTS AND TRANSPLANTATIONS

Grafts in Plastic Surgery

DR. H. MORESTIN, Paris: Grafts and transplantations have enabled us to remedy many grave deformities, and hold out hope for a future of marvelous progress. Free cutaneous grafting succeeds fairly well when a small fragment taken from a soft thin skin and deprived of its panniculus is applied on a strictly aseptic living surface. The indications are very limited, especially in the reparatory surgery of the face, on account of the trophic disturbance of the graft and the yellowish or whitish coloration which the graft preserves indefinitely. The Italian method must remain an exceptional

method even for rhinoplasty and blepharoplasty; its triumph is in the reconstruction of the lobule and the partition of the nose by the help of skin from the palmar surface of the hand. Dermo-epidermic grafting has innumerable indications in the treatment of superficial wounds, especially those which by their extent prevent true methods of autoplasty, as in great loss of substance following burns, traumatism, removal of tumors, etc. They alone enable the healing of wounds caused by the tearing and complete destruction of the scalp. They are particularly recommended after the excrescences of cancers of the skin in old persons. In the surgery of lupus they constitute a last resort, and they promise but mediocre results in the treatment of scar deformities. Dermo-epidermic grafting combined with other methods of autoplasty may be advantageous. The grafting of hairy parts is attainable either by free transplantation or by the means of a fragment, the last method being preferable. By this means the eyebrow and even the mustache may be restored.

Transplantations of cartilage have solved the problem of total rhinoplasty. Cartilage shows great power of absorption, preserves its life during an indefinite period and is the only one of its kind among transplanted tissues. Doubtless other restorations in addition to that of the nose will be benefited by cartilaginous grafting in serious destruction of the facial structure. Adipose graftings are excellent for filling up empty spaces, bony hollows and depressions of the soft parts, and therefore render great service in the repair of cranial gaps and facial deformities. Fatty tissue with few and almost inert blood-vessels is one of those tissues most easily transplanted from one place to another. The transplant is almost always made use of, though after a more or less short struggle it succumbs, and is replaced progressively by tissues of new formation to which it serves as a protection. This form of grafting is a valuable acquisition to esthetic and reparatory surgery.

Vascular Grafts

DR. E. VILLARD, Lyons: There are two kinds of graftings, extemporaneous grafting and the grafting of preserved vessels. The result of a graft is to be appreciated from both the macroscopic and the microscopic points of view. It is possible to have an excellent functional result, and yet the microscope may reveal profound lesions on a segment macroscopically healthy. From the point of view of technic, Carrel's process gives the maximum guarantee. Arterial homoplastic grafts give good results macroscopically, but the histologic lesions seen after the lapse of some time places reservations on the vitality of the vascular graft transplanted from one animal to another of the same sort. Arterial heteroplastic grafts are possible, but it appears that the graft serves only as a protection to a process of reparation on the part of the animal undergoing the grafting. Venous grafts are possible but are more difficult to realize than arterial grafts. The grafted venous segment becomes hypertrophied, and undergoes histologic changes which seem a step toward the arterial structure. Some preserved vascular fragments may be grafted with success, but only their elastic frame is grafted, which is susceptible of being absorbed by the cellular elements arising from the grafted subject. Vascular grafting may be applied to human surgery in the course of vascular traumatism, in the extirpation of a tumor adherent to the large vessels, and in the cure of aneurysm. If the indications exist to perform a vascular grafting in man, one should have recourse by preference to an autoplasmic, particularly to a venous, grafting.

Grafts and Transplantations

DR. ULMANN, Vienna: The hopes raised fifteen years ago on the future of the transplantation of tissues and organs have been only partially realized. Heteroplasty seems to meet anaphylaxis as its principal obstacle, while homoplasty encounters the biochemical properties of the individual.

Heteroplastic transplantations, with the exception of bony tissues, always gives bad results. Besides, the bone itself does not remain but is replaced by the bony tissue of the

grafted material. The results of homoplastic transplantations are variable; given identical quantity of sanguineous serum from the cellular protoplasm of two subjects in the same condition, homoplasty may probably give as satisfactory results as autoplasty.

Grafts and Transplantations

DR. E. LEXER, Jena: The various tissues used in grafting are differently appreciated by practitioners and pathologists. An excellent clinical result may be preserved not only if the graft takes but if it disappears, giving place to tissues of substitution, and sometimes if completely surrounded by adhesions. The graft may be expelled in cases of failure, or it may disappear before the process of substitution has taken place, or the substitution may confine itself to the formation of scar tissue. The cause of failure apart from suppuration rests principally in the existence of small blood-clots which prevent the transplanted part from becoming normally established. Some of the conditions necessary for a good implantation are vitality, nutrition, power of acclimatization and the strength of the transplant for sufficient regeneration, as well as the condition of the wound on which the transplant is made. The value of epidermic and cutaneous homoplasty is very slight and its results doubtful.

Transplantation of Organs

DR. ALEXIS CARREL, New York: Autoplastic transplantations of the kidney have been performed with complete success in dogs. It was found that in most instances the animal remained in the best of health. A female dog that underwent a double nephrectomy and replantation of one kidney remained in perfect health, had a number of pups, and died of intercurrent disease almost two and one-half years after the operation. Microscopic examination of the kidney showed that it was entirely normal. By this and similar experiments it has been definitely proved that the extirpation of the kidney, its perfusion in Locke's solution, complete interruption of the circulation for from fifty to sixty minutes and the suture of its vessels and ureter does not interfere with its function. In homoplastic transplantations of the kidneys the results are different; after six or seven days, albumin appears in the urine and the kidney becomes congested. After twenty-five or thirty days there is a great deal of albumin, and in one instance there was hematuria. After seven or eight months the albumin disappears, but the kidney is found to be in a sclerotic condition. When the animals undergo a bilateral nephrectomy they always die within a few weeks. It is possible that by using animals that are closely related, as mother and son, better results can be obtained. The present aspect of the problem is to find the causes of the reaction of an organism against a new organ and to discover by what means this reaction may be prevented and the organ become adapted to its new owner. Some of our experiments indicate that general infection in animals seems to prevent the reaction of the organism against the new organ, and it is thought that the factors which are instrumental in the reaction of the organism against foreign tissue are the same as those used to fight a general infection, and that when this mechanism is engaged in fighting a general infection the transplanted organs are able to become adapted to the new organism. The studies of James B. Murphy of Rockefeller Institute along this line make it seem probable that it is the action of the spleen and the bone-marrow which allow the organism to fight efficiently the foreign tissue which has been transplanted on it, and that when the action of these organs is less active a foreign tissue can develop rapidly after it has been grafted.

PROF. A. DEPAGE, Brussels: My assistant, Dr. Danis, sought to restore the wall of the gall-bladder by the application and suture of a graft taken from the wall of the jugular vein, and in a second series of experiments he substituted a segment of the jugular vein for a portion resected from the choledochus. The restoration of the vesicle wall by the application of a venous graft succeeded in most instances. The operation was relatively easy, and the cicatrization assured the vitality of the graft. From the histologic

point of view the external surface of the transplanted vein recovered a new endothelium. On the internal surface the mucosa developed little by little on the graft and finally was entirely recovered as in a simple cicatrix. The substitution of a segment of vein for a portion of the choledochus was more difficult to effect. Dr. Danis after making the attempt a number of times succeeded in keeping alive dogs in which he had removed the gall-bladder with the common bile-duct and established a communication between the hepatic canal and the ampulla of Vater by interposing a segment of the jugular vein. By the examination of specimens several months after operation Dr. Danis was able to prove the viability of the venous graft and its perfect transformation into a biliary canal.

DR. K. A. J. MACKENZIE, Portland, Ore.: I had a patient with Recklinghausen's disease five or six years ago who developed a tumor on the sciatic nerve. The operation consisted in a resection of the nerve below the gluteus maximus, which was followed by trophic disturbance in the limb. An anastomosis between the internal and external popliteals had a striking effect on the trophic disturbance. Several weeks later the external portion of the popliteal nerve was split and buried in muscle. The patient has recovered sensation and can walk with unaided locomotion.

TENNESSEE STATE MEDICAL ASSOCIATION

Eighty-First Annual Meeting, held at Memphis, April 7-9, 1914

(Concluded from page 1499)

When Should Gastric Ulcer Be Treated Surgically and When Medically?

DR. BERTRAM W. SIPPY, Chicago: According to Virchow, 37 per cent. of all carcinomas affecting the human body are located in the stomach. In text-books as long ago as ten or twenty years the statement was made that at least 10 per cent. of all carcinomas of the stomach began at the seat of an old ulcer. As many years ago as that an enthusiastic pupil of Zenker asserted that all carcinomas of the stomach developed at the seat of an ulcer. Somewhere between the two extremes the truth lies. The more we know about it, the more frequent we have the notion of carcinoma developing on an ulcer. The Mayo statistics are as high as 70 per cent. The most conservative estimate places it as high as 40 per cent. or more. Nowadays patients afflicted with stomach disorders come to us complaining that there is something wrong with them. A number of them have ulcers, but they are not recognized. The common time for the diagnosis of ulcer is after it has existed for two or two and a half years, when some surgical complication is present or carcinoma.

Our duty lies in acquiring accurate knowledge of the early symptomatology of ulcer. Ulcer of a few months' standing is one of the most comfortable things the physician is called on to treat. The patients get well rapidly. There is no place where we can do so much toward the cancer problem as by buckling to it and learning to detect the early signs of ulcer of the stomach and treat it energetically.

Brain Abscess

DR. HENRY O. REIK, Baltimore: The treatment of brain abscess is purely surgical; the abscess cavity must be disclosed, evacuated and drained. The prognosis of this disease is favorable only in those cases which are recognized early and treated promptly. Spontaneous recovery by rupture and discharge through the original channel of infection has not infrequently taken place, but cannot be anticipated.

Suprapubic Prostatectomy

DR. GEORGE R. LIVERMORE, Memphis: I prefer this route because I can perform the operation more easily and quickly than the perineal operation. It gives me a clear field. I am not afraid of injuring any important structures. I have never had any alarming hemorrhage. Drainage is satisfactory and irrigation of the bladder easily accomplished. Stones can be removed readily, and encysted ones not overlooked. The exact condition of the bladder can be noted. The two-stage operation and silver nitrate intravenously have practically elimi-

nated the danger of sepsis. There is less danger of shock, because the operation is quicker, can be done in two stages, and may be performed under local anesthesia.

The Present Status of Blood-Pressure

DR. FRANK A. JONES, Memphis: The taking of blood-pressure should be considered only as an adjuvant in the process of physical examination. The physical findings together with the symptoms and history of the case should always play the leading rôle.

The Serum Diagnosis of Gonorrheal Infection

DR. R. L. JONES and DR. IRVING SIMONS, Nashville: The blood-test for gonorrheal infection is even more accurate than the Wassermann test in lues. It is of greatest value in chronic cases. The complications of gonorrhea have given 100 per cent. of positive tests. Chronic uncomplicated gonorrhea will give a positive reaction. No non-gonorrheic has given a positive test. A negative blood-test is advisable in a candidate for matrimony who gives a history of previous gonorrheal infection, even though apparently cured.

Gall-Bladder Disease

DR. J. HUGH CARTER, Memphis: I wish to plead for a more thorough study of gall-bladder disease, and for early surgical interference, just as in appendicitis. We should not wait until the patient has been poisoned from cholemia, or has developed the condition of cardiorenal disease.

Treatment of Amebic Dysentery

DR. O. N. BRYAN, Nashville: The effect of the emetin treatment is marked from the very first. The patient notices that the stools diminish in frequency at once. The blood and mucus decrease and disappear rapidly and the stool gradually assumes its normal appearance. The patient gradually eats more and is not disturbed. He soon eats anything he wishes. His pain is relieved and he is able to sleep all night without having to rise to go to stool.

Goiter

DR. C. N. COWDEN, Nashville: Surgery of the thyroid is a most satisfactory procedure, giving at it does almost immediate relief, with very brief disability. The danger is in delay until complications develop that cannot be cured, or in faulty judgment as to when, how and the extent of the operation that is indicated. The safety of the patient is in the hands of the internist, who sees him first and advises what should be done.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

April, I, No. 10, pp. 669-750

- 1 Ankylostomiasis. C. M. Fauntleroy, Washington, D. C.
- 2 Beriberi. P. G. Woolley, Cincinnati.
- 3 Preventive Vaccination against Typhoid. A. Chantemesse, Paris.

Arkansas Medical Society Journal, Little Rock

April, X, No. 11, pp. 271-294

- 4 Bone Surgery. Case-Report. W. F. Smith, Little Rock.
- 5 Defective Children. E. P. Bledsoe, Little Rock.

Boston Medical and Surgical Journal

April 30, CLXX, No. 18, pp. 673-708

- 6 Art of Companionship in Mental Nursing. H. R. Stedman, Brookline.
- 7 Certain Aspects of Medical History of Exophthalmic Goiter. R. Fitz, Boston.
- 8 *Demonstration of Gall-Stones by Roentgen Ray. A. W. George and I. Gerber, Boston.
- 9 *Intracranial Hemorrhage in New-Born. Report of Cases. R. M. Green, Boston.
- 10 Some Present Problems in Tuberculosis. P. C. Bartlett, Rutland.
- 11 Tuberculous Child. C. Floyd, Boston.
- 12 Social Worker's Educational Influence in Community. G. B. Underwood, Gardner.
- 13 Field of Work of Antituberculosis Association. S. H. Stone, Boston.

8. Gall-Stones Shown by Roentgen Ray.—George and Gerber believe that gall-stones can be demonstrated by the Roentgen ray in nearly every case of gall-bladder disease of long standing where stones are really present. The chief sources of error are renal calculi, calcified mesenteric glands, and costochondral ossification. These can be differentiated by proper technic.

9. Intracranial Hemorrhage in Newborn.—Experience with seven cases leads Green to conclude that intracranial hemorrhage may occur in the newborn either from the trauma of operative or normal labor or in association with *hemorrhagica neonatorum*. It often does not present the typical clinical picture of increased intracranial pressure. Its presumptive diagnosis depends on early recognition of refusal to nurse, pallor, and slight facial edema, which may be confirmed by the appearance of more classic signs. Diagnosis may be positively established, and some therapeutic relief afforded, by lumbar puncture (when the hemorrhage is infratentorial), or by cranial puncture (when the hemorrhage is over the cerebral convexity). If these measures fail to give relief, operative decompression by craniotomy is indicated. The majority of intracranial hemorrhages in the newborn, Green claims, are subdural, but intraventricular hemorrhages may also occur. The source of bleeding may be from laceration of the tentorium, of the choroid plexus, of the longitudinal sinus or of the pial vessels. In cases associated with hemorrhagic disease preliminary transfusion may be indicated before craniotomy. The gravity of the prognosis demands an enlightened prophylaxis by avoiding all unnecessary occasion for fetal trauma.

Cleveland Medical Journal

April, XIII, No. 4, pp. 221-306

- 14 Report of Housing Conditions in Cleveland in 1913. M. Chadsey, Cleveland.
- 15 Our Primate Ancestors. T. W. Todd, Cleveland.
- 16 History of Physiology of Respiration. R. G. Pearce, Cleveland.
- 17 Postoperative Interstitial Hernia; Hypernephroma with Metastasis in Chest Wall. C. E. Briggs, Cleveland.

Journal-Lancet, Minneapolis

April 15, XXXIV, No. 8, pp. 201-229

- 18 Associated Lesions of Brain Tumors. A. S. Hamilton, Minneapolis.
- 19 Clothes-Basket and Coal-Stove Used as Baby-Incubator. F. E. Weed, Lankin, N. Dak.
- 20 *Surgical Shock as Factor in Obstetric Operations. A. L. McDonald, Duluth.
- 21 *New Device for Anastomosing Blood-Vessels. E. S. Muir, Winona.
- 22 Diagnosis and Conservative Treatment of Nasal Sinus Disease. E. J. Brown, Minneapolis.

20. Surgical Shock as Factor in Obstetric Operations.—Speaking of drugs in this condition McDonald says that ergot in some form is indicated to control uterine contraction and also helps to raise the blood-pressure by peripheral vasoconstriction. To be of any value it must be given hypodermically. Epinephrin is advised by many, and is given in doses of fifteen minims of a standard solution in 1,000 c.c. of salt solution, to be repeated, for the effect is transitory. Caffein and coffee are questioned, but the immediate effect of coffee is usually good; it is easily obtainable, and as it later causes diuresis is of value. Digitalis is doubtful, but probably too slow, even when given hypodermically. What is needed is some drug which will act promptly and specifically on the peripheral arterioles, raise the blood-pressure, and slow the heart. McDonald suggests the use of strophanthin in doses of 1 mg. intravenously. These cases must be handled intelligently from the outset, and can be satisfactorily controlled by rest, morphin, external heat, ergot, salines and hot coffee. Further stimulation and drugs that increase the irritability of the centers are a push down hill. Help nature to control the centers and support the circulation while this is being accomplished.

21. Device for Anastomosing Blood-Vessels.—The device used by Muir is a bone cylinder with a ring that slopes down to a very thin edge for the retention of a ligature for use in cuffing the artery back over it. These cylinders are turned out of green bone taken from the shin-bone of an ox. The surfaces, outside and inside these cylinders, must be perfectly smooth; and the size $\frac{1}{32}$ to $\frac{1}{16}$ inch smaller than

the artery in its normal condition filled with blood. The instruments to be used, besides the bone cylinder, are a device for holding the tube permanently while it is being applied without crushing; a slender spiral foreign body remover to thread the proximal end of the artery, though this may also be done by a needle and suture; four mosquito forceps; two rubber-protected hemostats or mosquito forceps; Crile forceps; sharp scissors for cutting away the cuff of adventitia.

The artery is brought to the surface by ample incision, and is clamped in each angle of the wound by the rubber-protected forceps tight enough to prevent slipping. The artery is cut across and, if desired, a portion removed. The adventitia on each cut end is pulled out with a Crile forceps, and is cut off with sharp scissors. The tube is now held in the special forceps, and the slender spiral foreign body remover is threaded through the tube, and by rotation is caused to engage the proximal end of the artery, which is drawn through the tube and caught by four mosquito forceps equidistant from each other, catching all of the coats of the artery firmly but not too deeply into the lumen. With these applied, the artery is curved back over the slanting surface of the tube beyond the ring, and is ligated with silk or fine chrome catgut. Still holding the bone tube in the forceps the distal end of the artery is caught by four mosquito forceps with the tube held parallel to it, pulled over the slanting ring of the bone cylinder and tied with silk. The success of the operation will now be demonstrated by removing the forceps when the arteries will be seen to pulsate regularly, and should not leak a single drop, as the leakage causes clotting and is the cause of many failures in anastomosis by other means. During the entire procedure the field of operation, and especially the arteries, must be kept moist with normal salt solution; otherwise the caliber will shrink to a point where it is impossible to continue the operation. The points essential to success lie in the picking of a tube considerably smaller than the artery, making anastomosis much more easy of accomplishment. The bone is absorbed in from three to four weeks. Tubes can be boiled with the other instruments or sterilized in a 5 per cent. carbolic acid solution.

Medical Record, New York

May 2, LXXXV, No. 18, pp. 783-828

- 23 Development of Complement-Fixation Tests. C. C. Sutter, Rochester.
- 24 *Intensive Treatment of Syphilis of Nervous System by Neosalvarsan Intravenously, and Mercury by Inunction. J. W. Stephenson, New York.
- 25 Value of Small Insurance Classes for Statistics. E. W. Dwight, New York.
- 26 Case of Endophlebitis Obliterans of Central Retinal Vein with Resulting Acute Glaucoma. D. Webster, New York.
- 27 Treatment of Pulmonary Tuberculosis by Induction of Artificial Pneumothorax. J. S. Ford, Gabriels.
- 28 Arteriosclerosis as Orthopedist Views It. S. Epstein, New York.
- 29 Simple Efficient External Metal Nasal Splint. S. E. Pendexter, East Orange, N. J.
- 30 Lacerated Cervix Uteri and Reflex Irritation. I. W. Ballard, Opelika, Ala.
- 31 Salvarsan in Non-Syphilitic Diseases: Preliminary Report. W. H. Best, Brooklyn.

24. **Treatment of Syphilis of Nervous System.**—The method adopted by Stephenson is as follows: 0.45 grains neosalvarsan is administered intravenously every third day (*i. e.*, given a Monday, repeated the following Thursday, two days intervening) for five injections. In paresis, taboparesis, and other actively severe infections, this is supplemented by inunctions of mercury (40 to 60 grains) the days the patient does not receive the injection.

Many, and in fact the majority of unfortunate sequelae of neosalvarsan administration are attributable, in Stephenson's opinion, to faulty preparation or administration of the drug. He considers 75 c.c. too concentrated a solution of 0.45 grains and invariably uses from 90 to 100 c.c. Freshly distilled water is boiled at least five minutes and then cooled to room temperature by running water. The apparatus used is the ordinary gravity one. The method of administration is as follows: 30 c.c. of lukewarm, previously sterilized, decinormal saline is introduced and as this escapes from the

container the neosalvarsan solution is poured in, and as the last portion leaves the container 30 c.c. of lukewarm decinormal saline is again introduced. Especial care is taken that as small amount as possible of the neosalvarsan solution comes in contact with the warm saline, lest the warmth of the saline increase the toxicity of the drug.

Between thirty-five and forty cases have been treated after this method. Stephenson has had no alarming sequelae of the first series. Of the five patients given further injections, one, to whom the second series of injections was given at irregular intervals, died twenty-nine days after the last injection.

The immediate effect, or so-called reaction, following the series of five have been as follows: It is the usual course with tabetics that the pains are much worse from twenty-four to thirty-six hours after the first injection. After the second there may be a slight exaggeration, after the third none. In a very small number chill and slight rise of temperature have followed the first injection only. As yet there has been no case of diarrhea.

In the large majority of cases a slight conjunctival icterus has appeared after the third injection, but has been only of a few days' duration. In those cases supplemented by mercury the patient usually expresses himself as feeling "very weak" after the fourth injection, but this Stephenson attributes to the mercury, as the patients who receive no mercury never so express themselves.

One case developed a skin Herxheimer after each injection. One case developed a mild arsenic dermatitis. One case developed a herpes zoster two weeks after last injection. In paresis the mental condition is usually more pronounced following the first injection, but not so affected by subsequent ones.

New Mexico Medical Journal, Las Cruces

April, XII, No. 1, pp. 1-33

- 32 Study of Thyroid. S. D. Swope, Deming.
- 33 Duodenal Ulcers. A. W. Morton, San Francisco.
- 34 Sexual Hygiene. M. G. Cartwright, Albuquerque.
- 35 New Therapy in Variola. M. F. Des Marais, Las Vegas.
- 36 Treatment of Chronic Constipation. M. K. Wylder, Albuquerque.
- 37 Moving-Picture Shows. E. C. Prentiss, El Paso, Tex.

New York Medical Journal

April 25, XCIX, No. 17, pp. 813-860

- 38 Prophylaxis of Measles. J. Ruhräh, Baltimore.
- 39 *Value of Cocain in Disturbances of Metabolism. W. H. Porter, New York.
- 40 Fifteen Cases of Diabetes and Glycosuria. L. Napoleon, Philadelphia.
- 41 Surgeon as Autocrat of Operating-Room. J. W. Kennedy, Philadelphia.
- 42 Medical Testimony and Legal Supervision. P. Bartholow, New York.
- 43 Effects of Alcohol and Tobacco on Life Expectancy. T. D. Crothers, Hartford, Conn.
- 44 Army Medical Corps, H. S. Baketel, New York.
- 45 Psychopathology of New Dances. A. A. Brill, New York.
- 46 Magnetized Needle Holder. C. M. Stimson, Philadelphia.
- 47 Dangerous Medical Legislation. C. F. Pabst, New York.

May 2, No. 18, pp. 861-908

- 48 Different Theories of Aphasia. C. K. Mills, Philadelphia.
- 49 Clinical Interpretation of Aphasia. F. X. Dercum, Philadelphia.
- 50 Tuberculosis of Right Testicle Secondary to Removal of Left Testicle for Tuberculosis. V. C. Pedersen, New York.
- 51 Cerebrocerebellar Diplegia. L. P. Clark, New York.
- 52 Dermatitis Exfoliativa in an Insane Patient. R. M. Alexander, Wernersville, Pa.
- 53 Laryngeal Cancer. H. Smith, New York.
- 54 Pituitrin. Its Abuse and Dangers. A. J. Rongy and S. S. Arluck, New York.
- 55 New Urethroscope. G. MacGowan, Los Angeles.
- 56 Complete Inversion of Uterus Following Delivery. J. H. Telfair, New York.
- 57 Variation in Drugs. W. M. Gregory, Berea, Ohio.

39. **Cocain in Disturbances of Metabolism.**—In disease processes and in all profound disturbances of metabolism, in which the normal food products are no longer able to stimulate or excite into full physiologic activity the protoplasmic masses of the animal economy, when everything is at a standstill, as it were, or even when it is apparent to all that the patient is steadily losing ground, the addition of a half grain or more of cocain three times daily, has, in a

large number of instances under Porter's observation, during the past twenty-five years, produced almost miraculous changes for the better, and in cases that seemed almost helpless. The secretory products which before its administration gave evidence of profound metabolic disturbance within the system, under its influence changed steadily to those indicative of a more nearly normal state of the system, until the abnormal finally gave way to the perfectly normal. In all chronic affections its power for great good cannot be overestimated.

During the past ten years, Porter has employed it more and more in the acute diseases. Given early in pneumonia, and throughout the disease, the results obtained have convinced him that the chances for recovery are greater than without its administration. The same may be said of all acute diseases, for if it has this great sustaining power that all the evidence seems to prove it has, the power to resist and eliminate the toxins of disease must be greatly augmented. Having prescribed cocain extensively for nearly thirty years, Porter has yet to see a single person acquire the so-called cocain habit. He usually employs it in combination with caffein and strychnin.

Texas State Medical Journal, Fort Worth

April, IX, No. 12, pp. 363-396

- 58 Imperforate Anus. J. E. Hodges, Houston.
- 59 Cancer of the Breast. F. G. Beall, Fort Worth.
- 60 Caloric Requirement in Infant-Feeding. J. I. Collier, Taylor.
- 61 Papillomata of Larynx. H. B. Decherd, Dallas.
- 62 Ligation of Canaliculi in Cataract Operation with Dacryocystitis Present. G. P. Hall, Houston.

Vermont Medical Monthly, Burlington

April 15, XX, No. 4, pp. 79-104

- 63 Gastro-Enterostomy: Cause of Failure, Fascial Ligature of Pylorus; Account of New Method of Treating Adherent Perforating Ulcers of Posterior Wall. E. Archibald, Montreal.
- 64 Round of New York Children's Clinics. C. K. Johnson, Burlington.
- 65 Early Medicine. W. G. Ricker, St. Johnsbury.
- 66 Common Duct Obstruction. J. B. Deaver, Philadelphia.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

April 18, I, No. 2781, pp. 845-896

- 1 Some Diagnostic Failures. H. B. Shaw.
- 2 *Comparison of Inflammation and Tumor Formation. C. F. M. Saint.
- 3 *Three Cases of Traumatic Rupture of Small Intestine. F. Radcliffe.
- 4 *Rupture of Duodenum Caused by Blow. C. Maddock.
- 5 Condensation Obstruction in Relation to Pericolicitis and Intestinal Kinking. S. Mort.
- 6 Fatal Case of Veronal Poisoning. E. Russell and G. Parker.
- 7 Veronal Poisoning: Case of Recovery from 125 Grains. J. M. H. Munro.
- 8 Case of Veronal Poisoning. (35 Grains.) M. I. Dick.
- 9 Results of Nephropexy. W. Billington.
- 10 Heart-Block Complicating Case of Pneumonia. R. R. M. Porter.
- 11 Two Cases of Diphtheria with Unusual Complications. (Pulmonary Abscess; Paralysis of Circumflex Nerve.) J. J. Jervis and V. C. Martyn.

2. **Inflammation and Tumor Formation.**—Saint dwells on the similarity of the clinical histories of inflammation and tumors, i. e., new growths, as to cause, progression and ultimate ending.

3. **Traumatic Rupture of Small Intestine.**—The three cases cited by Radcliffe have many points in common. They were all well-developed, strong men, in the prime of life; they all suffered accidents which involved being suddenly and unexpectedly dragged by their arms fully extended above their heads; none of them complained of violence applied to the abdomen or showed any external evidence of severe injury to that part. Two of them were absolutely free from the slightest abrasion or bruising on the trunk; the other had some superficial skin scratches; none showed immediate marked collapse or such symptoms as would lead one to feel certain that any severe internal injury had occurred; each had a rupture of the small intestine; in all the rupture was

transverse to the long axis of the bowel; and in all the rupture was within a foot of the commencement of the jejunum; and unfortunately all of them died.

Radcliffe suggests that the mechanism of the rupture was as follows: When each was suddenly dragged by the arms, the chest would be forced into the position of full inspiration, and the diaphragm raised, as shown by indrawing of the epigastrium; therefore the upper abdominal organs (liver, stomach and spleen) would be drawn upward. The pancreas and duodenum are usually considered to be fixed, but any small movement which might take place in these organs would be in an upward direction. At the same time, as one easily finds by standing with the arms extended above the head, the lumbar spine would be markedly arched forward, and there would be very strong contraction of the anterior abdominal muscles made by the patient in the effort to recover himself. Radcliffe found by examining thin people in this position that the anterior and posterior abdominal walls actually meet. The small intestine would then be suddenly and violently forced down toward the pelvis, and it is possible that the only part of the small intestine which cannot go downward, the first part of the jejunum, is so dragged on as to rupture transversely, just as one finds that a string fixed at one end and jerked by the other, breaks near the fixed end.

4. **Rupture of Duodenum.**—In Maddock's case a wooden plank fell from the ceiling on the patient's right side while he was asleep. This occurred six weeks before Maddock saw the man. The corner of the plank hit him over the eighth rib in the midaxillary line. For three weeks he felt a dull aching pain, and then noticed a small swelling, and the pain became severe, especially on respiration; at the same time he said he had fever every day. There was no history of dysentery. The patient was desperately ill, extremely emaciated and in great pain; the evening temperature was 101.8 F. and the pulse 100; a dry cough was very troublesome. Over the center of the eighth rib was a fluctuating swelling about 2 inches in diameter; it was extremely painful on palpation. The liver dulness was diminished, reaching to 1 inch above the costal margin. The abdomen was moderately swollen and hard; it was evident that chronic peritonitis was present. The bowels moved freely, the tongue was coated.

Maddock incised the swelling in the seventh intercostal space in the midaxillary line, and at once gas and 6 ounces of pus escaped. The odor was fecal. He then introduced a finger and discovered that the eighth rib was denuded of periosteum and very rough. He could feel an abscess cavity in the right lobe of the liver, and that the liver had fallen away from the chest wall, so that he could only just reach it. Above he could feel the diaphragm, but below nothing. He put a large-sized drainage tube just through the chest wall, and applied an antiseptic dressing and bandage. Seven days later the man suddenly got out of bed and fell back onto the bed in a state of collapse, from which he never recovered. Post mortem it was found that the posterior surface of the descending portion of the duodenum had ruptured in the long axis of the bowel. The infection then spread round the chest wall, along the eighth rib, pointed, and then infected the liver, forming an abscess cavity. The lower portion of the right lobe of the liver was gangrenous. The peritoneal cavity contained serous fluid and large masses of clear gelatinous matter.

Lancet, London

April 18, I, No. 4729, pp. 1095-1162

- 12 Gangrene of Lung. H. B. Shaw.
- 13 Morphology of External Genitalia of Mammals. F. W. Jones.
- 14 *Intraspinal Treatment (Swift-Ellis) of General Paralysis. E. Mapother and T. Beaton.
- 15 Tonsils and Adenoids in Children. T. B. Layton.
- 16 Partial Gastrectomy for Gastric Ulcer Recurring after Gastro-Jejunostomy. J. Cunning.
- 17 Treatment of Duodenal Fistula. C. A. Pannett.
- 18 Traumatic Dislocation of Hip-Joint. H. Rischbieth.

14. **Treatment of General Paralysis.**—The four patients selected for the treatment by Mapother and Beaton were cases showing but a very slight grade of deterioration, as it

was felt that if arrest of the disease could be effected the results would be of much greater value if the process of actual destruction of the nervous elements had not proceeded very far. The following is a short summary of the history of each case and of the conditions existing at the time of commencement of treatment.

The changes observed in the conditions of the patients since the commencement of the treatment are classified under the following heads: 1. Changes in the mental state. 2. Change in the physical signs of the disease. 3. Changes in the Wassermann reaction. The changes in the mental state have not been strikingly favorable. Case 1 passed through an attack of hallucinosis, both auditory and visual, without marked clouding of consciousness, immediately following the second repetition of the treatment and lasting about fourteen days. Since then he has shown some tendency to euphoria, and though remembering his former hallucinatory periods and recognizing their subjective character he is lacking in a correct insight into their gravity. His memory, however, remains good and he is more active and interested in his surroundings. Case 2 remains practically normal. Case 3 shows the same amnesia for current events and of all those since the manifest onset of the disease with the same tendency to fabrication. In Case 4 the patient's general dulness persists unchanged, without evidence of progressive dementia. Confusional periods, such as were observed previous to the treatment, have not occurred lately.

The changes in the physical signs are as follows. In Case 1 the tremors have entirely disappeared, and the station, gait, and coordination are normal. The pupils are medium in size, equal, regular, and react almost normally in speed and extent. Some analgesia is present. In Case 2 the pupils now both react slowly to convergence and the left only to light; no other change is to be noted. In Case 3, about the beginning of February the pupils were practically normal in form and reactions, but since then have shown a tendency to return to their initial condition. There has been some diminution of tremors and some improvement in coordination. In Case 4 there was a temporary improvement in the condition of the pupils, but this has again disappeared. The tremors are gone and the tendon reflexes are a little less exaggerated. With regard to the Wassermann tests, the quantitative estimation of the Wassermann reaction in both blood and the cerebrospinal fluid showed no change whatever; in all cases the reaction in both remains as strongly positive as it was before treatment. The cerebrospinal fluid in addition was examined for the presence of globulin and excess of cells, and both those conditions were present throughout.

Practitioner, London

April, XCII, No. 4, pp. 457-600

- 19 On Functions of Thyroid, Suprarenal, and Pituitary Glands. J. Barr.
- 20 Chronic Splenic Anemia and Banti's Disease. H. D. Rolleston.
- 21 *Indications for Surgical Treatment in Intracranial Tumor. H. H. Tooth.
- 22 Ectopia of Bladder. A. Edmunds.
- 23 Difficulties of Diagnosis in Disease in Children. J. Porter-Parkinson.
- 24 Diagnosis and Treatment of Epilepsy in Childhood. E. B. Smith.
- 25 *Nephroptosis. K. M. Pardhy.
- 26 Significance of Urinary Excretion of Creatin and Creatinin. W. MacAdam.
- 27 Autotherapy in Prevention and Cure of Purulent Infections. C. H. Duncan.
- 28 Treatment of Eczema. W. K. Sibley.
- 29 Extraction of Diabetic Cataract. M. H. Whiting.
- 30 Recent Progress of Gynecology. F. J. McCann.
- 31 Retrospect of Otolaryngology, 1913. M. Yearsley.
- 32 Positive Value of Cardiac Sign in Diagnosis of Gastric Cancer. W. Gordon.
- 33 Schlatter's Disease. Case Report. C. Corben.

21. Surgical Treatment in Intracranial Tumor.—A close study of the records of 497 cases of cerebral tumor was made by Tooth to arrive at some conclusion as to the indications for surgical treatment in these cases. He states that of all new growths the endotheliomata are most favorable for radical treatment. They occur almost entirely in the anterior part of the cranial cavity, and are therefore, as a rule, acces-

sible to operation. In spite of this there is a 46.6 per cent. mortality in the frontal region. In the central region the results are still better, with a mortality of 33.3 per cent. It would appear then that there is every justification for the radical treatment of endothelioma; the tuberculomata, though not malignant in the ordinary sense, cannot be treated surgically without grave risk of tuberculous meningitis. The sarcomata and carcinomata are comparatively few, and, if diagnosed as such, are not suitable for any operation other than the relief of pressure. Recurrence accounts mainly for the high mortality in glioma. Successful removal of a glioma undoubtedly affords relief of pressure, but recurrence practically always follows sooner or later.

The results of all surgical treatment of the extracerebellar cases are disappointing in the extreme. Attempts to remove these tumors must be abandoned for the present, until some safer *modus operandi* has been devised. The most that seems justifiable is to relieve pressure by free craniectomy, followed, after as long an interval as possible, by the second stage of decompression. In fact, in some cases it will be found that such relief may follow the first stage that the second may be indefinitely postponed.

The conditions which in Tooth's opinion may indicate the necessity for immediate relief, whether localization has been made or not, are referable to rise of intracranial pressure, and suggest either a rapid phase of growth of the tumor or an internal hydrocephalus. These are: (a) Increasing swelling of the optic disk, which should be measured ophthalmoscopically at very frequent intervals, say every two or three days. (b) The grosser form of optic neuritis, and particularly if there is a diminution of the visual acuity as measured by the test types. (c) Increasing drowsiness, mental dulness, slow cerebration, disorientation in time and place, and other mental states, come next in importance, even when unsupported by optic changes. (d) Respiratory distress, disturbance of respiratory and cardiac rhythm, especially in extracerebellar cases, are of prime importance. (e) Increase in the severity or frequency of convulsions, deepening paralysis, taken with advancing optic changes, indicate urgency, less so perhaps on their own merits. (f) Unbearable pain in the head may itself call for operative measures. All of these symptoms possess individual importance, but doubly so if supported by a degree of optic neuritis, and call for speedy relief.

25. Nephroptosis.—Pardhy discusses this subject in its relation to mental disorders and their treatment. He says that nephroptosis (movable kidney, floating kidney, dropped kidney) may cause serious vascular and ureteral obstruction and interference with the normal function of the kidney, which when often repeated causes varying degrees of dilatation of the calices or pelvis, flattening of pyramids, hydro-nephrosis, loss of kidney substance, and cystic degeneration. This may lead to auto-intoxication, causing, among other things, destruction or impaired function of the cerebral cells, and mental disorders. It is possible that the local effects of nephroptosis—backache, pain over the distribution of the last dorsal nerve, colitis, constipation, flatulence, etc.—contribute toward bringing on mental disorders. Nephropexy is the proper and rational procedure in cases of mental disorders, when movable kidney is present, and the only contraindications are those to be cited against any major operation. Nephropexy, to be of full benefit, must be performed properly and efficiently.

Pardhy urges that in all patients suffering from mental disorders, a thorough examination should be made to find whether the patient has movable kidney. If found to have nephroptosis, the chances of cure after nephropexy are at least 50 per cent., as a very low estimate. Even if fixing up the kidney does not cure the complaint, it cannot in any sense make the patient worse. The patient should be watched and taken care of for a prolonged period till the cure is established. The poorer class of patients should either be sent to an asylum soon after the operation, or be operated on in an asylum, so that they can be taken care of efficiently. The importance of early diagnosis of movable kidney in

cases of mental disorders, and the need of an early nephropexy, are emphasized by Pardy. The condition of threatening or established mental disorder is so serious from the patient's and from the social point of view that as soon as the diagnosis of associated movable kidneys is made, nephropexy should be performed without delay. In consideration of the serious nature of the complaint, palliative treatment by mechanical appliance, e. g., a kidney belt or corset, should only be resorted to if a major operation is contra-indicated.

Archives des Mal. de l'Appareil Digestif, Paris

March, VIII, No. 3, pp. 121-180

- 34 Tumors of the Ampulla of Vater. P. Docq and L. van Bever.
35 *Examination of Duodenal Juice for Pancreatic Ferments. (Du chimisme duodénal.) E. Glatz.

35. **Chemistry of the Duodenum.**—Glatz found on ten normal persons and twenty-two with various abdominal affections that when the pancreas was functioning normally the pancreatic ferments could always be discovered in the duodenal juice.

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

March, III, No. 3, pp. 257-352

- 36 Serodiagnosis of Pregnancy. (Des ferments protéolytiques anti-placentaires dans le sérum des femmes enceintes.) G. Ecalle, E. Partos and R. d'Ernst.

Bulletin de l'Académie de Médecine, Paris

March 31, LXXVIII, No. 13, pp. 491-522

- 37 *Intrabronchial Injections of Medicated Oil in Treatment of Gangrene of the Lungs. (De la méthode des injections massives intrabronchiques.) G. Guisez.

37. **Intrabronchial Injection of Drugs in Treatment of Gangrene of the Lungs.**—Guisez describes the technic with which he has injected from 20 to 25 c.c. of medicated oil directly into a bronchus, and states that his ten patients with gangrene of the lungs all recovered under this treatment. The patients had single or double gangrene, with fever and extreme prostration, and the local process rapidly healed up and the expectoration ceased. The experience of others has confirmed this almost specific action in case of gangrene, but tuberculosis is more refractory. Improvement may be realized but not a cure by this means, probably on account of the sclerous tissue that has formed which prevents the access of the medicated oil. He used among other drugs a 5 or 10 per cent. solution of guaiacol in oil.

Lyon Chirurgical, Lyons

April, XI, No. 4, pp. 314-424

- 38 *Irrigation of the Peritoneum with Ether. P. Santy.
39 Two Cases of Dislocation of the Articulation between the Trapezium and Metacarpal. L. Plisson.
40 The Posterior Marginal Fragment in Fracture of the Tibia. P. Japiot.
41 Visceral Anastomoses with Jaboulay's Button. M. Patel.

38. **Lavage of the Peritoneum with Ether.**—Santy undertook a series of experiments on rabbits to determine the immediate and after-effects of flushing out the peritoneum extensively with ether. He describes the histologic changes and concludes that they are too slight to constitute any danger in the use of the method, but there were immediate effects such as cyanosis, slowing of the respiration and symptoms of intoxication from absorption of the ether which led him to believe that collapse might be caused by too free use of it.

Presse Médicale, Paris

April 1, XXII, No. 26, pp. 245-252

- 42 *Hypophysis Extract in Gynecology. F. Jayle.
April 8, No. 28, pp. 265-272
43 *Diagnosis of Gastric Cancer by Cells Found in Stomach Content. (Le cyto-diagnostic du cancer de l'estomac.) P. Simon and L. Caussade.
44 Bacilli Found in Effusion in Knees in Case of Acute Articular Rheumatism. D. Danielopolu.

42. **Hypophysis Extract in Gynecology.**—Jayle relates ten typical cases in detail out of the fifty in which he has given a systematic course of injections of a solution of desiccated and prepared beef hypophysis (posterior lobe). The immediate results, he says, were excellent, as a rule, in various

chronic afebrile gynecologic affections. The effects were most marked in young women with lesions of the ovaries, tubes or peritoneum, mild but persisting; also in cases of climacteric hemorrhage and in cases of periods of congestion in the pelvis without macroscopic lesions. It can also effectually supplement conservative operations, and may answer certain of the indications for radiotherapy and electrotherapy. The mode of action seems complex; there are signs of contraction of the vessels, but there is also evidence that the secreting function of the ovary is modified by the hypophysis extract.

43. **Diagnosis of Gastric Cancer.**—Examination of the cells found in vomit or rinsing water had seldom given reliable information until Loeper and Binet modified the technic. They take the content from the fasting stomach after a brief preliminary rinsing out of the stomach and then pouring in a liter of physiologic salt solution. This is pumped out again at once, centrifuged and examined under the microscope, with or without staining. The fluid does not all come in contact with all the walls of the stomach, as a rule, unless the patient makes an effort to accomplish this by lying down and sitting up several times in succession, with possible cautious kneading of the stomach region. Simon and Caussade give a number of illustrations to show what to look for, and state that in thirteen cases the absence of cancer cells proved the benign character of the stomach trouble, fully confirmed by the course of the cases later, while in twenty-five cases of what proved later to be cancer the findings were invariably positive with one exception, in which the technic was probably at fault. The findings with cancer were positive regardless of the type of malignant disease, and as cancer in the stomach usually ulcerates early, this cytodiagnosis may permit early differentiation.

Beiträge zur Geburtshilfe und Gynaekologie, Leipsic

XIX, No. 2, pp. 167-314. Last indexed Jan. 17, p. 244

- 45 Various Types of Homologous Reproduction in Plants and Animals. (Homologe Akte und einzelne Arten der Fortpflanzung.) F. A. Kehrer.
46 Bacteriology of the Vagina in the New Born. (Scheidenflora neugeborener Mädchen.) G. Schmidgall.
47 Occurrence of Iodin and Chlorin in Human Ovaries. B. Weinberg.
48 The Blood during Delivery and the Puerperium. (Das Blut des Weibes in der Geburt und im Wochenbett.) W. Sieben.
49 Histogenesis of Pseudomucin Ovarian Cystomas. W. Lahm.
50 Rare Deformity. (Agnathus mit Synotie.) K. Hoffmann.
51 Formation of Artificial Vagina. E. Anderes.

Beiträge zur klinischen Chirurgie, Tübingen

LXXXVIII, No. 3, pp. 423-748

- 52 Experimental Study of Transverse Resection of the Esophagus. H. Fründ.
53 Fate of the Testicle after Removal of Tunica Vaginalis and Albuginea. Hanaoka.
54 Technic for Operations on Aneurysms. C. Stoltz.
55 Hemostasis in Operations on the Liver. (Blutstillung bei Leberoperationen.) K. Borszky and A. Baron.
56 Roentgen Findings after Exclusion of the Pylorus. T. Barsony.
57 Experimental Pathology of Gastric Ulcer. (Magengeschwür.) A. Baron.
58 Primary Trephining for Extraction of Bullet from Brain. C. Ritter.
59 Historical, Experimental and Clinical Study of Operative Treatment of Cavities in the Lungs. (Kavernenchirurgie.) F. Kroh.
60 Technic for Closing Fistulas into Organs. (Neue Verschlussmethode für äussere Hohlorganfisteln.) H. Biesenberger.
61 Correction of Deformed Thumb. (Operatives Verfahren um den von Geburt abnorm stehenden Daumen den andern Fingern gegenüber stellbar zu machen.) H. Biesenberger.
62 Sarcoma after Trauma. K. Hartmann.
63 Typical Fracture of Atrophic Femur. M. Brandes.
64 Tuberculosis of the Stomach. (Zur Pathogenese und Therapie der Magentuberkulose.) K. Keller.
65 Pathogenesis of Fistulas in Side of Neck. (Halsfisteln.) R. Wenglowski.

LXXXIX, No. 1, pp. 1-290

- 66 Goiter. (Das Kropfproblem.) E. Bircher.
67 Goiter Operations. (Ueber 1,400 Strumaoperationen der Krankenanstalt Aarau.) A. Bossart.
68 *Heart Disturbances with Endemic Goiter. W. Bigler.
69 Myoma of the Gastro-Intestinal Tract. H. Hauswirth.
70 Congenital Kidney Defects or Displacement. F. Oehler.
71 Kidney Tumors; Seven Cases. E. Hofmann.
72 Acquired Giant Growth of Right Leg. W. Bigler.
73 *Outcome of Treatment of Varicose Veins by Spiral Incision; Thirty Cases. (Behandlung des varikösen Symptomenkomplexes nach Rindfleisch-Friedel.) F. Meyer.

68. **Heart Disturbances with Endemic Goiter.**—Bigler gives the details of 100 cases saying that deranged heart functioning was evident in 70 per cent. of those examined. In two cases the heart disturbances were unmistakably connected with iodine treatment. In 43 per cent. there was tremor which he regards as a manifestation of thyroid intoxication.

73. **Spiral Incision for Varicose Veins.**—Meyer states that recent reexamination showed that only 41.66 per cent. of the eighteen patients with leg ulcers were permanently cured by the spiral incision. But all were promptly and permanently cured in the twenty-four cases in which this operation was done for varicose veins alone. With leg ulcer the lesion and varicose enlargement extend too deep into the tissues to be controlled by the superficial spiral incision.

Berliner klinische Wochenschrift

April 13, LI, No. 15, pp. 677-724

- 74 *Treatment of Syphilitic Nervous Disease. H. Oppenheim.
- 75 Fascia and Peritoneum Implant in Treatment of Rectal Prolapse. (Verwendung von frei transplantierten Fascien- und Peritonealstreifen in der Behandlung des Mastdarmvorfalles.) H. Hartung.
- 76 Operative Treatment of Tuberculous Spondylitis. (Operative Behandlung der tuberkulösen Entzündung der Wirbelsäule.) O. Vulpus.
- 77 Management of Duodenum Stump after Resection of the Stomach. (Zur Frage der Gefährdung des Duodenalstumpfes bei der Magenresektion Billroth II.) E. Melchior and S. Weil.
- 78 *Typhoid Bacilli in Blood of Healthy Carrier. E. Ebeling.
- 79 Modified Technic for Wassermann Reaction. (Erfahrungen mit dem Sachs'schen Cholesterinalkohol-extrakt und dem Lesser'schen Aetherextrakt bei der Wassermann'schen Reaktion.) G. Orkin.
- 80 Electrodes for Electrotherapy. (Neue Elektroden für die gefährlose Anwendung starker, bes. diathermischer Ströme in der Gynäkologie.) M. Amtschislowsky.
- 81 The Fibers of the Epithelium. (Zur Chemie der Zelle. VI.) P. G. Unna.
- 82 *Implants of Periosteum and Bone for Correction of Traumatic Deformities. (Periost- und Knochenüberpflanzungen; Vorschlag zur Heilung des Plattknickfusses.) M. Katzenstein.

74. **Treatment of Syphilitic Nervous Affections.**—Oppenheim reports that only 8 patients out of 20 with cerebral syphilis were favorably influenced by salvarsan treatment. In 3 others the condition became aggravated under it. Benefit was manifest also in 6 of 15 with spinal syphilis; in 2 the symptoms grew worse, and no effect was evident in the others. Of the 50 tabetics treated, only 10 showed any benefit; in 11 cases the symptoms rapidly progressed; in 2 of this group atrophy of the optic nerve developed, of which there had been no signs before. In 29 no influence from the salvarsan could be detected or if one symptom improved, others grew worse. The outcome was still less favorable in general paresis; 15 of the 24 in this group showed no effect from the treatment; 6 found their symptoms rapidly growing worse and only 2, or at most 3, showed a remission of their symptoms. No benefit was derived in 2 cases of paralysis agitans, epilepsy, chronic anterior poliomyelitis, and in one case of progressive muscular atrophy. His 2 cases of severe encephalitis following the salvarsan have already been published. One was particularly tragic as a young and talented actress wanted the salvarsan merely as a precautionary measure as she had had intercourse with an infected man. She had no symptoms herself, but after salvarsan she developed complete paraplegia, paralysis of bladder and rectum, decubitus, and optic nerve trouble. He has had no mishaps of this kind in the last year, and none ever terminated fatally.

78. **Typhoid Bacilli in Blood of Carrier.**—Fourteen primary and eighteen secondary cases of typhoid fever, with six deaths, were traced to this healthy carrier, but she had always cheated in sending dejecta for examination so that it was impossible to prove her a dangerous carrier. Finally her blood was examined, and typhoid bacilli were found in it.

82. **Periosteum-Grafting to Remedy Pain or Deformities.**—Katzenstein declares that bone and periosteum grafting operations are becoming routine procedures and restoring many cripples to active life. The method he applied in one case has a future, he thinks. It held the parts as firmly in place as if they had been nailed, but the support was with living engrafted tissue. Nothing but periosteum will display

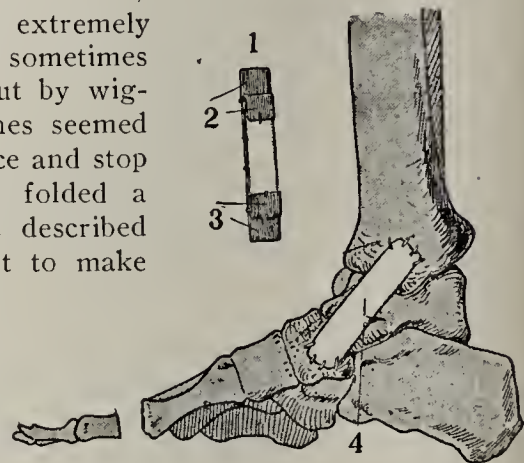
such a vital growth when implanted. He utilized this with a strip folded lengthwise, turning the proliferating side inward, leaving it exposed only at the ends. These ends are sutured to the bone to ensure intimate contact while there is no further contact anywhere with the osteogenetic surface of the strip.

In the case described a young woman had torn the internal lateral ligament, the consequence being a very painful chronic subdislocation of the foot on the tibia. The calcaneoscaphoid joint was abnormally movable, and every step was extremely painful. The pain sometimes waked her at night, but by wiggling her foot the bones seemed to spring back into place and stop the pain. Katzenstein folded a strip of periosteum as described above and implanted it to make

a new ligament, suturing the strip to freshened areas on the malleolus and scaphoid bone, turning in the bone-generating surface except at the ends. The foot was then immobilized in a varus

position for seven weeks, after which it seemed to be normal in every respect and the patient has even done mountain climbing without a trace of disturbance on the part of the foot during the nearly three years to date. He has applied the same technic in three cases of severe flat-foot and all functional disturbance was corrected at once. The patients do not even have to wear insoles.

The same result with flat-foot can sometimes be realized in an easier way by toughening the ligaments so that they no longer stretch to an abnormal extent. He accomplishes this by injecting 1 or 2 c.c. of 4 per cent. formaldehyde directly into the lateral ligament. This tightens up the ligament so much that in one case considerable massage was necessary to restore even normal elasticity. In two cases of extremely painful flat-foot rebellious for months to all measures, this tanning procedure cured at once, and there has been no return of trouble during the two years since. Insoles must be discarded. This method can be applied to all such cases, but it promises success only in the early stages, when the lax stretching of the ligament is what is causing the trouble. Katzenstein gives further an illustrated description of eight cases of deformity of bone in which he implanted an autograft of bone, and always with fine effect. He does not aim to supply a complete substitute for the missing bone, as the small piece of bone plus periosteum engrafted will develop to fit the place in response to the functional demands made on it.



Periosteum-grafting to remedy pain or deformities: 1, periosteum flap folded lengthwise; 2 and 3, osteogenetic layer; 4, new-formed ligament connecting tibia and scaphoid bone.

Deutsches Archiv für klinische Medizin, Leipzig

CXIV, Nos. 1-2, pp. 1-208. Last indexed April 4, p. 1127

- 83 Alternating and Pseudo-Alternating Pulse. H. v. Hoesslin.
- 84 Functional Testing of Diseased Kidneys. B. Griessman.
- 85 Testing Kidney Function with Phenolsulphonephthalein and by Schlayer's Method. F. Deutsch and W. Schmuckler.
- 86 Examining the Activity of the Kidneys by Means of a Test Meal. M. H. Hedinger and Schlayer.
- 87 Excretion of Sodium Chloride in Heart Disease. Barantschik.

Deutsche medizinische Wochenschrift, Berlin

April 9, XL, No. 15, pp. 737-784

- 88 Treatment of Acute Threatening Conditions in Tropical Diseases. (Akut bedrohlicher Zustände bei Tropenkrankheiten.) P. Mühlens.
- 89 Simple and Rapid Method for Quantitative Estimation of Uric Acid in Blood; Only 0.1 c.c. Serum Required. (Quantitative Schätzung der Harnsäure im Blute.) T. Brugsch and L. Kristeller.
- 90 Specific Nature of Protective Ferments in Serodiagnosis. (Verhalten des Blutserums Gesunder und Kranker gegenüber Plazentariweißen.) A. E. Lampé and R. Fuchs.

- 91 *Reducing the Size of the Carotid Arteries in Epilepsy. (Verengerung der Karotiden bei Epilepsie.) Momburg.
- 92 *Familial Syphilis and Keratitis. F. Lesser and P. Carsten.
- 93 No Benefit from Vaccine Therapy for Gonorrhea in Children. R. Hamburger.
- 94 Test for Coagulating Time of the Blood. (Einfache Methode zur Bestimmung der Gerinnungszeit des Blutes.) L. Loewenthal.
- 95 Malaria in Southeastern Germany. Malisch.

91. **Compression of Carotid Arteries to Arrest Epileptic Seizure.**—Momburg was led to try this measure from observation of the influence on the brain of ligation of the carotids. With thumb and finger he compressed both these arteries when a man fell in an epileptic seizure. The effect was striking, the convulsive movements ceased, a deep respiration followed, and the man opened his eyes, apparently conscious. Four men then took up the epileptic to carry him into a house but at once the symptoms reappeared, so Momburg applied compression anew to the carotids with both thumbs. Again the convulsive movements ceased, the man drew a deep breath, opened his eyes and responded to questions. Compression of the carotids for this purpose was first advocated by Reimer about 1855; Corning applied it later, and Volland at Momburg's instigation has applied it repeatedly to arrest seizures among the epileptics in his charge.

The assumption seems justified that the peculiar excitability of the brain responsible for the seizure can be reduced by diminishing the supply of blood to the brain. The next step is to seek permanent relief by definitely shutting off part of the blood supply, and Momburg accomplished this in two cases by tying a wire around one artery only just tight enough to partially obstruct the flow of blood through it, with a temporary silk thread for the other artery. Neither of the patients has had headache since and one had two brief seizures a week later but none since. The other had been having a seizure every two or three weeks for six years, but has had none since this operation a month ago. He adds that there is nothing to suggest any untoward byeffects from the procedure in any way. Collaterals will scarcely develop so long as the blood-supply is sufficient for the nourishment of the cells.

92. **Familial Syphilis in Connection with Keratitis.**—Lesser and Carsten give the family records in thirty-five cases of parenchymatous keratitis. They show that it is exclusively of syphilitic nature; tuberculosis does not even favor its development. The records further show that twice as many of the offspring develop signs of the inherited taint later as would be surmised from the findings during the first few years after birth. Mothers with a positive Wassermann are liable to bear syphilitic children even from six to twelve years after infection. The positive Wassermann of the fathers seems to be less baleful for the offspring.

Deutsche Zeitschrift für Chirurgie, Leipsic

CXXVII, Nos. 5-6, pp. 415-642

- 96 *Acute Progressive Encephalitis and Meningitis. Borchard.
- 97 Traumatic Aneurysms in the Balkan Wars. V. Subbotitch.
- 98 Foreign Bodies in the Duodenum. E. Melchior.
- 99 Ileus from Abnormal Fold in the Peritoneum. (Plica diaphragmatica ovarii als Ursache einer Darminkarzeration.) H. Andree.
- 100 Frost Gangrene. (Echte Erfrierungsgangränen im bulgarisch-türkischen Krieg.) A. W. Meyer and R. Kohlschütter.
- 101 *Alkaline Treatment of Septic Processes. Vorschütz.
- 102 Direct Transfusion of Blood. R. Göbell and A. Poggemann.
- 103 Volvulus of the Stomach. T. Kocher.
- 104 Successful Suture of Gunshot Wounds of the Heart. (Geheilte Fall von Schussverletzung des rechten Ventrikels.) Vorschütz.

96. **Acute Encephalitis.**—Borchard here discusses the three clinical types, acute progressive encephalitis, acute circumscribed meningitis and meningo-encephalitis, showing how all present the same clinical picture of progressive focal symptoms suggesting the necessity for operative intervention and liable to respond favorably to it. Even without infection, traumatic encephalitis seems to display a progressive tendency. The focal symptoms do not develop so suddenly as with a destructive injury of the brain or a traumatic hemorrhage; they are seldom manifest before the second day; there may be merely signs of irritation up to actual

paralysis. There is generally a pronounced progressive course, but it may stop suddenly and retrogress entirely, with or without treatment, even when infection is installed. The progressive course does not necessarily indicate infection. Symptoms of cortical epilepsy have been noted in some cases, but the motions were not so rapid as in epilepsy and half of them occurred still slower. In a case reported in detail two epileptic convulsions preceded by twelve hours the actual focal symptoms. The regularly increasing intensity of the focal symptoms is the characteristic feature of these cases, in connection with a history of trauma, infection or intoxication. There is generally a hint, at least, of rigidity of the back of the neck. Vertical nystagmus is a sign that the inflammation has extended inward and the prognosis becomes bad at once. Normal temperature is no sign that infection is not already at work. No tissue in the body is so sensitive as the brain to disturbances in circulation, and prompt trephining and draining provide conditions which permit the parts to heal. In the case reported the patient promptly recovered, as also in a second case in a syphilitic. The dura not only has to be slit, but the intrameningeal spaces must be drained and adhesions broken up. This permits the dura to cling close so no space is left for fluid to collect further.

101. **Alkaline Treatment of Septic Processes.**—Vorschütz says that administration of an alkali whips up the cells, causes an edematous loosening up of the tissues, augments the secretion of urine by its action on the kidneys, raises the blood-pressure, and increases the appetite. The cell is whipped up in its work of metabolism and of elaboration of antitoxins; consequently the alkali does no good unless the cell is capable of responding. He gives the details of nine cases and considerable experimentation on animals to demonstrate its action and also to prove that a deficiency of alkali is responsible for defective production of antibodies. By this means he is convinced that he has tided certain patients past the danger stage who would have been lost without it. He mixed 10 or 20 gm. of sodium bicarbonate in a bottle of seltzer water and had the patient drink this during the day. Children took half this amount. Some of the patients took this for weeks without disturbances; a healthy stomach rebels at these large doses of an alkali. Sometimes pain in the stomach compelled suspension for a day or so, but diarrhea was regarded as useful unless too profuse. The alkali can be given by proctoclysis or by intravenous infusion. The cases reported were severe septic processes, osteomyelitis, scarlatinal nephritis with abscess, etc., and all recovered.

Jahrbuch für Kinderheilkunde, Berlin

April, LXXIX, No. 4, pp. 385-506

- 105 Experimental Study of the Effects of Thymus Extract. R. Fischl. (To be continued.)
- 106 There Seems to Be a Family Predisposition to Scarlatinal Nephritis. P. Bode.
- 107 Connection between Rachitis and Spasmophilia. E. Aschenheim.

Medizinische Klinik, Berlin

April 5, X, No. 14, pp. 573-620

- 108 *Metabolism in Rachitis. (Stoffwechselprobleme der Rachitis.) P. Grosser.
- 109 Treatment of Trigeminal Neuralgia by Destruction of Gasserian Ganglion by Intracranial Injections. F. Härtel.
- 110 Salvarsanized Serum. (Experimentelle und klinische Untersuchungen mit Salvarsan-Serumlösungen.) B. Spiethoff.
- 111 *Roentgenotherapy of Myoma. (Myomherz und Tiefentherapie.) J. Mahler.
- 112 The Scientific Basis for Balneotherapy. (Balneotherapie; physiologische Voraussetzungen; klinische Anwendungsformen.) Landouzy and J. Heitz. Commenced in 13.
- 113 Technic and Indications for Obstetric Forceps. F. Heimann. April 12, No. 15, pp. 621-664
- 114 Bladder Tumors. (Harnblasengeschwülste.) L. Casper.
- 115 *Summation and Enhancing of Potency of Drugs by Combining Them. (Wirkung der Arzneigemische.) E. Bürgi. Commenced in No. 14.
- 116 *Asthenic Infantilism. (Der asthenische Infantilismus des weiblichen Geschlechts und seine Bedeutung für die ärztliche Praxis.) H. Albrecht.
- 117 *Artificial Sterilization of Women. A. Sarkissiantz.
- 118 Periodical Recurrence of Migraine. (Migräne als Rekursionsphänomen und ihr prädisponierendes Auftreten an bestimmten Tagen der Woche.) R. Traugott.

- 119 *Hemorrhoids Result of Stagnation of Feces in Rectum. (Aetiologie und Behandlung der Hämorrhoidalblutungen.) L. v. Aldor.
120 Football Paralysis, and Allied Conditions. (Physiologische und pathologische Bewegungsfragen.) M. Benedikt.

108. **Metabolism in Rachitis.**—Grosser's long article shows how little we really know in regard to the nature of rachitis, and the difficulties connected with research in this line. He reports extensive work of his own. One practical outcome of it is that besides the specific beneficial action of phosphorus plus cod liver oil, a similar beneficial action is apparent from subcutaneous injection of calcium glycerophosphate. Both this and the phosphorus-cod liver oil seem to exert a specific action on the lime metabolism in rachitis. None of the other drugs or combinations tested displayed this action to any degree.

111. **Myoma Heart.**—Mahler concludes from his analysis of his experience that uterine myomas are accompanied at first by merely functional disturbances on the part of the heart, but hypertrophy and dilatation of the heart soon follow. The heart disturbances resemble in many points those with exophthalmic goiter. It seems probable that the altered ovarian secretion has a directly injurious action on the heart, plus an indirect action from the upset balance in the ductless-gland system. Exposure of the ovaries to the Roentgen rays checks their perverted function and gives the cardiovascular system a chance to recuperate. He has treated fifteen myoma patients in this way, and regards the results as very satisfactory; the heart subsided more or less completely to normal size and functioning. He also reports excellent results in various other gynecologic cases.

115. **Modification of Action of Drugs by Combining Them.**—Bürgi has continued his research in this line since his earlier communication summarized in *THE JOURNAL*, 1911, lvi, 1862. He draws a sharp distinction between mere summation of the effects of combined drugs and enhancing of the potency of each by their combination. It seems to be a law, he says, that combining drugs of the same series which have the same pharmacologic point of attack, merely adds by summation of their individual actions. On the other hand, drugs of the same series but which have separate pharmacologic points of attack sometimes seem to have the potency of each enhanced when they are combined in certain proportions. He mentions as an example of this that belladonna preparations have no narcotic action alone; if the dose is large enough to induce anesthesia, other symptoms are produced which prevent a narcotic influence. But if a small amount of some belladonna preparation is mixed with one of the ordinary narcotics, the action of the latter is materially enhanced. He calls attention also to the curious fact that the combination of two drugs, each in half the dose found to be the limit dose for general anesthesia, showed that the potency of each was somewhat weakened by the combination, but then, if the dose of each was reduced still smaller, the potency of the mixture increased, and this was manifest down to extremely small doses. These experiences show, he reiterates, that with the actual limit dose we have to reckon with a reversal of the action of the drug. He found that the various organ extracts acted on the heart each in a different way; each influencing a different segment of the heart, so that there can be no question of summation or enhancing the potency by combining organ extracts.

116. **Asthenic Infantilism.**—Albrecht applies this term to describe a constitutional anomaly consisting in the persistence of infantile and juvenile forms of growth accompanied by a functional weakness and special readiness of the organs involved to yield to disease. The infantilism is the morphologic and the asthenia the functional manifestation of constitutional inferiority. But the infantile and asthenic phenomena on the part of the nervous system and the mind are what dominate the clinical picture, as a rule, especially the neurasthenia, the psychasthenia and the extreme sensibility of the sympathetic system. He says that women of this type form the majority of our patients—1,000 of the 6,018 gynecologic patients in his service, and fully 32 per cent. of the women that came to the dispensary. It is these women of

this asthenic infantile type that go from doctor to doctor, from one specialist to another, from internists to surgeons—each applying some different treatment but all failing to cure.

The main point in these cases is to bear in mind that large numbers of these patients find that under conservative measures and psychotherapy all their disturbances disappear, for a long time at least, without any local treatment and without any change in the objective findings. The special characteristic of the cases is that periods of complete clinical health alternate abruptly with periods of severe disturbances—the objective findings unmodified throughout.

117. **Artificial Sterilization of Women.**—This communication advocates severing the tubes between two ligatures, working through an incision in the roof of the anterior vagina. This is done at the same sitting as the evacuation of the uterus, when the pregnancy has not passed beyond four and a half months, and vaginofixation concludes the whole.

119. **Hemorrhoidal Hemorrhages.**—Aldor presents theoretical and clinical evidence to prove that hemorrhoids are as a rule not a local affection of the veins in the region, but are the result of a hemorrhagic chronic or repeatedly recurring inflammation of the rectum, and that this proctitis is the direct result of constipation restricted to the rectum. This part of the bowel has had its sensibility deadened so that residual feces stagnate there and set up inflammation even when the bowel functioning is supposed to be normal. Evacuation of the rectum and local treatment of the proctitis will cure the hemorrhoids, along with the proctitis. But constant vigilance is necessary and a diet as free from residue as possible—the reverse of the diet for ordinary constipation.

Münchener medizinische Wochenschrift

April 7, LI, No. 14, pp. 745-800

- 121 *Salvarsanized Serum. (Salvarsanserum.) A. Stühmer.
122 *Salvarsanized Serum in Syphilis of the Nervous System. (Zur Behandlung der Syphilis des Zentralnervensystems nach Swift und Ellis.) K. Eskuchen.
123 *Importance for Diagnosis and Prognosis of Repeated Local Tuberculin Reactions. Pringsheim.
124 Silicic Acid Metabolism in Cancer and Tuberculosis. (Kiesel-säurestoffwechsel bei Krebs und Tuberkulose und seine Bedeutung für die Therapie der Tuberkulose.) H. Kahle. (Zur Siliziumbehandlung der Tuberkulose.) R. Rössle.
125 Bolus Alba in Treatment of Cholera. (Ueber Cholerabehandlung und Choleraprophylaxe auf Grund meiner Erfahrungen in Nisch und Belgrad.) J. Stumpf.
126 Roentgenography of the Liver and Spleen. (Leber und Milz im Röntgenbild.) C. Löffler.
127 *Serodiagnosis of Pregnancy. (Weitere Untersuchungen über das Auftreten blutfremder proteolytischer Fermente im Blute Schwangerer. Untersuchung des Dialysates mittels Ninhydrin und gleichzeitiger Feststellung seines Stickstoffgehaltes mittels Mikroanalyse.) E. Abderhalden and A. Fodor. (Biologische Prüfung der Ergebnisse des Dialysierverfahrens.) E. Abderhalden and L. Grigorescu. (Verwertbarkeit der Abderhaldenschen Reaktion in der Diagnose der Schwangerschaft.) E. Schiff.
128 Treatment of Furunculosis in Infants with Actual Caution. (Behandlung der Furunkulose im Säuglingsalter mittels Thermokauter.) M. E. Schubert.
129 *Diagnosis of Cerebral Hemorrhage. (Hirnblutung.) J. Mendl.

121. **Salvarsanized Serum.**—Stühmer has been studying on rabbits how long the therapeutically active substances in salvarsan can be demonstrated in the serum after intravenous injection, and whether these substances are from the drug or are antibodies generated in consequence of its presence. He took nagana for the disease to be investigated, as syphilis in rabbits is irregular. He found that as late as seven days after the injection active substances could be demonstrated in the serum, both by chemical and biologic tests, the latter showing the presence of protecting and curing substances in respect to mice inoculated with the same trypanosomes. The facts observed show that it can not be a question of relics of the salvarsan alone; the products of its oxidation evidently participate. He says that this research was suggested by Swift and Ellis' work.

122. **Salvarsanized Serum.**—Eskuchen applied Swift and Ellis' technic in nine cases of tabes, two of cerebrospinal

syphilis and five of general paralysis, a total of sixty-eight injections. The objective findings did not seem to be modified, but the subjective symptoms were promptly and materially improved and the course of the disease seemed to be arrested.

123. Repeated Local Tuberculin Reactions as Index to Diagnosis and Prognosis.—Pringsheim has been conducting on 125 adults a series of experiments like those Bessau and Schwenke have been conducting on large numbers of children, testing repeatedly the local reaction to intradermal injection of tuberculin in three strengths (1:100; 1:1,000 and 1:10,000). In each case 0.1 c.c. of the weakest solution was injected in the thigh and a week later a similar injection was made in the other thigh. If both tests were negative, the procedure was repeated with the medium strength, and if this was negative, the strongest solution was then used. The size of the papule and area were measured and the redness and hardness noted each twenty-four hours for eight days. Pringsheim's patients were men between 20 and 60 in the city hospital for various troubles, and only one of the entire 125 failed to give a positive reaction. The findings with these tests confirm the importance of the procedure as a guide not only to diagnosis but for the prognosis. A marked local reaction shows that the tuberculosis is being vigorously combated in the organism, while a negative is a sign that the affection is slight and healing or else that the organism has given up the struggle and the tuberculosis has got the upper hand. Every one of the men showing increased local reaction has improved materially since these tests were applied, while of those showing no increase in the reaction 7.7 per cent. have died; in 7.8 per cent. the tuberculosis is stationary and only 59.1 per cent. show any signs of improvement.

127. Serodiagnosis of Pregnancy.—Abderhalden and Fodor here announce that besides the optic and ninhydrin dialysis methods for determination of the protective proteolytic ferments in the blood of pregnant women, they have worked out a third method by determination of the nitrogen in the dialysate. Their tables show concordant findings with these various technics. The ferments can be demonstrated also by the refractometer, the ultramicroscope, polarization, etc., and by stains.

129. Diagnosis of Cerebral Hemorrhage.—Mendl has noticed that there were marked hyperemia and a tendency to congestive seborrhea on the side of the face and scalp corresponding to the developing hemorrhage in the brain. The hair on that side also stands up, and it is impossible to make it lie smooth. The hyperemia in one side of the face may yield to pallor and a distressed expression, and there may be sensations of oppression in the heart region. These findings may persist for hours before there are other signs of the hemorrhage in the brain. The spastic contraction of the muscles causing the hair to "stand up on end" is a grave sign; he found it only in the cases which had an unfavorable outcome. It sometimes preceded the cerebral hemorrhage by several hours. It is possible, he suggests, that prompt and copious venesection might ward off the cerebral hemorrhage when this spastic contracture of the muscles involved shows the influence of substances from the crushed brain tissue which have entered the blood.

Wiener klinische Wochenschrift, Vienna

April 9, XXVII, No. 15, pp. 405-452

- 130 Ultimate Outcome of Operative Treatment of Mammary Cancer. (Operative Therapie des Brustdrüsenkrebses und deren Dauererfolge.) V. Lazarevic.
- 131 Means to Ensure Continence after Operations for Rectal Cancer. K. Goldschmied.
- 132 Influence of Menstruation on Sugar Content of the Blood. H. Kahler.
- 133 Radium Treatment of Uterine Cancer. R. Köhler and O. Schindler.
- 134 Case of Periodical Swelling of the Joints. (Hydrops articulorum intermittens.) A. Pulawski.
- 135 Roentgen Exposures of the Ovaries and Exophthalmic Goiter: Necessity for Discrimination as to Functioning of Different Ductless Glands. K. Wagner.

Zeitschrift für Urologie, Berlin

April, VIII, No. 4, pp. 241-352

- 136 Closed Pyonephrosis. (Geschlossene Pyonephrosen.) R. Lichtenstern.
- 137 Hematuria after Large Doses of Hexamethylenamin: Four Cases. (Hämaturien nach grossen Urotropingaben.) L. Simon.
- 138 Importance of Pancreas Disease for Surgery of the Urinary Passages. E. R. W. Frank.

Zentralblatt für Chirurgie, Leipsic

April 11, XLI, No. 15, pp. 625-672

- 139 *Transplanted Muscles with Nerves. (Hyperneurotisation; muskuläre Neurotisation; freie Muskeltransplantation.) P. Erlacher.
- 140 Enlarged Lymph-Nodes in the Axilla as Sign of Apical Process. (Axillare Lymphknoten und Lungentuberkulose.) Wieting.
- 141 Atropin as Aid in Operations on the Chest. A. Grave.
- 142 Device for Slow Aspiration of Effusions. (Einfache und sparsam arbeitende Vorrichtung zum Absaugen von Körperflüssigkeiten.) W. Hartert.

139. Transplanting Nerves with Muscles.—The experiments on animals reported showed that skilfully placed nerve fibers regenerated and grew as well as the muscle fibers in the implants.

Zentralblatt für Gynäkologie, Leipsic

April 11, XXXVIII, No. 15, pp. 545-584

- 143 Severe Hemorrhage from Atony of the Uterus Developing Five Hours after Expulsion of Placenta Preceded by Injection of Hypophysis Extract. (Hypophysenextrakt und Atonia uteri.) C. W. Bischoff.

Gazzetta degli Ospedali e delle Cliniche, Milan

XXXV, Nos. 40-41, pp. 417-440

- 144 The Albumin Reaction in the Sputum of Not Much Diagnostic Import. (L'albumino-reazione.) A. Fantoni.
- 145 Symptoms of Tumors in the Cerebellum. Greggio.
- 146 Movable Area of Dulness with Non-Adherent Ovarian Cysts Simulating Tuberculous Peritonitis. P. Azara.

Riforma Medica, Naples

April 4, XXX, No. 14, pp. 365-392

- 147 Glycosuria Follows Injection in Rabbits of Extract of the Celiac Plexus. (La glicosuria celiaca.) F. Galdi.
- 148 Reaction of the Blood Marrow to Injection in Animals of Thyroid and Hypophysis Extract and Epinephrin. G. Ollino. Commenced in No. 13.
- 149 Manifestations of Malaria in the Skin. (Manifestazioni cutanee della malaria, con particolare riguardo a una forma di ectima.) L. Chimisso. Commenced in No. 13.

Brazil-Medico, Rio de Janeiro

March 22, XXVIII, No. 12, pp. 113-122

- 150 Non-Identity of Ceylon and Brazil Anchylostoma. (Ainda sobre "anchylostoma braziliense"—Gomes de Faria, 1910.) G. de Faria.
- 151 Pediatrics and Infant Welfare Work. (Hygiene infantil.) L. Barbosa. Commenced in No. 11.

Pediatrics, St. Petersburg

VI, No. 1, pp. 1-80. Last indexed March 21, p. 976

- 152 *Relations between Orthostatic Albuminuria and Tuberculosis. P. Reyher.
 - 153 Prophylaxis of Diphtheria. I. Bomshtein.
 - 154 Results of Schloss' Mixture for Children in Dispensary Practice. M. S. Katznelson.
- No. 2, pp. 81-160
- 155 Defective Growth of Bones. (Osteogenesis imperfecta.) I. A. Schabad.
 - 156 Streptococcus Sepsis in Scarlet Fever; Recovery. O. I. Moltchanoff.

152. Connection Between Orthostatic Albuminuria and Tuberculosis.—Reyher gives the details of twenty cases of orthostatic albuminuria in which continued supervision over the children revealed underlying tuberculosis in every case.

Hygiea, Stockholm

LXXVI, No. 6, pp. 321-384

- 157 *Case of Acute Hemorrhagic Encephalitis in the Pons with Fatal Hemorrhage. S. Berg.
- 158 The Cutaneous Thermic Sense. (Histofysiologiska Studier över temperatursinnena i huden hos människan.) G. Häggqvist.

157. Acute Hemorrhagic Encephalitis.—A young woman hit her head in falling on the ice, and for five years thereafter had attacks of severe headache about once a year. She was otherwise healthy until she developed signs of acute encephalitis and died the third day in coma. Necropsy showed multiple hemorrhages in the pons but no bacteria could be found and nothing pathologic was found elsewhere.



THE ATLANTIC CITY SESSION

AMERICAN MEDICAL ASSOCIATION, SIXTY-FIFTH ANNUAL SESSION, ATLANTIC CITY, N. J., JUNE 22-26, 1914

OFFICIAL CALL

TO THE OFFICERS, FELLOWS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The sixty-fifth annual session of the American Medical Association will be held at Atlantic City, N. J., June 22-26, 1914.

The House of Delegates will convene at 10 a. m., Monday, June 22. In the House the representation of the various constituent associations for 1914 is as follows:

| | | | |
|----------------------------|---|--------------------------|----|
| Alabama | 3 | New Hampshire | 1 |
| Arizona | 1 | New Jersey | 3 |
| Arkansas | 2 | New Mexico | 1 |
| California | 3 | New York | 11 |
| Colorado | 2 | North Carolina | 2 |
| Connecticut | 2 | North Dakota | 1 |
| Delaware | 1 | Ohio | 6 |
| District of Columbia | 1 | Oklahoma | 2 |
| Florida | 1 | Oregon | 1 |
| Georgia | 3 | Pennsylvania | 9 |
| Idaho | 1 | Rhode Island | 1 |
| Illinois | 9 | South Carolina | 1 |
| Indiana | 4 | South Dakota | 1 |
| Iowa | 3 | Tennessee | 2 |
| Kansas | 2 | Texas | 5 |
| Kentucky | 4 | Utah | 1 |
| Louisiana | 2 | Vermont | 1 |
| Maine | 1 | Virginia | 3 |
| Maryland | 2 | Washington | 2 |
| Massachusetts | 5 | West Virginia | 1 |
| Michigan | 4 | Wisconsin | 3 |
| Minnesota | 2 | Wyoming | 1 |
| Mississippi | 2 | Canal Zone | 1 |
| Missouri | 5 | Hawaii | 1 |
| Montana | 1 | Philippine Islands | 1 |
| Nebraska | 2 | Porto Rico | 1 |
| Nevada | 1 | | |

The fifteen scientific sections of the American Medical Association, the Medical Department of the Army, the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each.

The general meeting, which constitutes the opening exercises of the Scientific Assembly of the Association, will be held at 10:30 a. m., Tuesday, June 23. The various sections will meet Tuesday at 2 p. m., and subsequently, according to their programs, on Wednesday and Thursday, June 24 and 25, and in some cases also on Friday morning, June 26.

The Registration Department will be open from 8:30 a. m. until 5:30 p. m., on Monday, Tuesday, Wednesday and

Thursday, June 22, 23, 24 and 25, and from 9 to 10 a. m., on Friday, June 26.

JOHN A. WITHERSPOON, President.

ALEXANDER R. CRAIG, Secretary.

MEMBERS OF THE HOUSE OF DELEGATES A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete, as a number of state societies are yet to hold their meetings at which delegates will be elected. The following is a list of the holdover delegates and of the newly elected members who have reported to THE JOURNAL in time to be included:

STATE DELEGATES

ALABAMA
E. D. Bondurant, Mobile.
H. T. Inge, Mobile.

ARIZONA
John E. Bacon, Miami.

ARKANSAS
William V. Laws, Hot Springs.

CALIFORNIA
George Hare, Fresno.
V. G. Vecki, San Francisco.
H. Bert Ellis, Los Angeles.

COLORADO
W. A. Jayne, Denver.
L. H. McKinnie, Colorado Springs.

CONNECTICUT
D. Chester Brown, Danbury.
E. J. McKnight, Hartford.

DELAWARE
Henry J. Stubbs, Wilmington.

DISTRICT OF COLUMBIA
G. Wythe Cook, Washington.

GEORGIA
M. A. Clark, Macon.

IDAHO
John N. Alley, Lapwai.

ILLINOIS
A. M. Harvey, Chicago.
A. M. Corwin, Chicago.
J. A. Koch, Quincy.

INDIANA
F. B. Wynn, Indianapolis.
C. S. Bond, Richmond.
J. Rilus Eastman, Indianapolis.
Edwin Walker, Evansville.

IOWA
J. C. Rockafellow, Des Moines.

CANAL ZONE
T. W. Earhart, Ancon.

KANSAS
George M. Gray, Kansas City.

KENTUCKY
J. W. Kincaid, Catlettsburg.
A. T. McCormack, Bowling Green.

MARYLAND
Hugh H. Young, Baltimore.

MASSACHUSETTS
Hugh Cabot, Boston.
C. P. Hooker, Springfield.
J. B. Blake, Boston.
H. G. Stetson, Greenfield.
L. F. Woodward, Worcester.

MICHIGAN

C. E. Boys, Kalamazoo.
F. C. Warnshuis, Grand Rapids.
L. J. Hirschman, Detroit.
E. T. Abrams, Dollar Bay.

MINNESOTA

W. L. Palmer, Albert Lea.
J. W. Andrews, Mankato.

MISSISSIPPI

S. W. Glass, Lyon.
L. C. Feemster, Tupelo.

MISSOURI

Robert M. Funkhouser, St. Louis.
E. J. Goodwin, St. Louis.

MONTANA

Le Roy Southmayd, Great Falls.

NEBRASKA

A. R. Mitchell, Lincoln.

NEVADA

B. F. Cunningham, Reno.

NEW JERSEY

W. S. Lalor, Trenton.
Linn Emerson, Orange.
Edward Guion, Atlantic City.

NEW MEXICO

William R. Tipton, E. Las Vegas.

NEW YORK

Henry L. Elsner, Syracuse.
Floyd M. Crandall, New York.
Edgar A. Vander Veer, Albany.

Wesley T. Mulligan, Rochester.
John C. Polak, Brooklyn.
S. W. S. Toms, Nyack.

NORTH CAROLINA

J. Howell Way, Waynesville.
H. A. Royster, Raleigh.

NORTH DAKOTA

James Grassick, Grand Forks.

OKLAHOMA

J. H. White, Muskogee.

OREGON

Walter T. Williamson, Portland.

PENNSYLVANIA

Thomas D. Davis, Pittsburgh.
William T. Hamilton, Philadelphia.
John B. McAlister, Harrisburg.
W. Rowland Davies, Scranton.
Americus R. Allen, Carlisle.
J. Montgomery Baldy, Philadelphia.
Herbert B. Gibby, Wilkes-Barre.
Luther B. Kline, Catawissa.
Adolph Koenig, Pittsburgh.

RHODE ISLAND

John W. Keefe, Providence.

SOUTH CAROLINA

Edgar A. Hines, Seneca.

TEXAS

Holman Taylor, Ft. Worth.
C. A. Smith, Texarkana.
Clay Johnson, Ft. Worth.

UTAH

Sol G. Kahn, Salt Lake City.

VERMONT

C. H. Beecher, Burlington.

VIRGINIA

J. Shelton Horsley, Richmond.

WASHINGTON

L. L. Love, Tacoma.

WISCONSIN

J. J. McGovern, Milwaukee.
Rock Sleyster, Waupun.

WYOMING

M. A. Newell, Sheridan.

DELEGATES FROM THE SECTIONS

PRACTICE OF MEDICINE

Ray L. Wilbur, San Francisco.

SURGERY

J. N. Jackson, Kansas City, Mo.

OBSTETRICS, GYNECOLOGY
AND ABDOMINAL
SURGERY

R. R. Smith, Grand Rapids, Mich.

OPHTHALMOLOGY

Melville Black, Denver.

LARYNGOLOGY, OTOLOGY
AND RHINOLOGY

Chevalier Jackson, Pittsburgh, Pa.

DISEASES OF CHILDREN

J. P. Sedgwick, Minneapolis.

PHARMACOLOGY AND THERA-
PEUTICS

Ray L. Wilbur, San Francisco.

PATHOLOGY AND PHYSI-
OLOGY

Richard M. Pearce, Philadelphia.

STOMATOLOGY

G. V. I. Brown, Milwaukee, Wis.

NERVOUS AND MENTAL
DISEASES

C. Eugene Riggs, St. Paul, Minn.

DERMATOLOGY

William A. Pusey, Chicago.

PREVENTIVE MEDICINE AND
PUBLIC HEALTH

M. Smith, Little Rock, Ark.

GENITO-URINARY DISEASES

V. D. Lespinasse, Chicago.

HOSPITALS

Fred A. Washburn, Boston.

ORTHOPEDIC SURGERY

John Ridlon, Chicago.

THE CHARMS OF THE CONVENTION CITY

A Descriptive Article from the Committee on Arrangements of This Queen of Resorts

The varied and unique charms of this city by the sea cannot be set down in a few desultory paragraphs, and hardly with a facile pen backed by the eloquence of a Cicero. Unique in climate, environment and situation, Atlantic City makes an appeal to persons of widely varied interests and inclinations. Its dry atmosphere, its surf bathing, its gay and picturesque Boardwalk with multitudinous attractions and amusements, and its hotel accommodations make it one of the greatest convention cities in the world. The advantages of holding a convention in Atlantic City may be understood when it is stated that the attendance at conventions held here is always greater than at the places at which preceding meetings were held. In some cases the increase is from 10 to 20 per cent., in most cases from 30 to 50 per cent., while it has occasionally been higher. No European resort is said to compare with it in natural advantages. One of the show places of America, it is at the same time the finest health and pleasure resort in the world. Those who have been here always want to come again, and those who have not are eager to see for themselves what constitutes the charm of this great meeting-place.

HOTELS

There are more than 100 large hotels and 900 smaller ones. Besides these, numerous boarding-houses cater to the comfort of the visiting public. Atlantic City is in a class with New York, Boston and Chicago in the superiority of its hotel accommodations, and the beach-front hotels are equal to those anywhere in appointments, cuisine and service. Many of these hotels are palaces in appointments and furnishings, maintain splendid orchestras and vie in securing the comfort of their guests. Atlantic City is fortunate in its proximity to three great cities. There is an excellent train service to these points and through them to all points throughout United States and Canada.

CLIMATE AND SANITATION

The city is situated on an island 10 miles long and less than a mile in width. The exceptional purity of the air and the dry fogs for which the place is noted have undoubted curative qualities, as the discerning physician will quickly observe. The healing powers of brine bathing—in summer on the humanity-crowded beach, and in winter through the numerous bathing establishments—are already well known to most persons.

The climate is dry and temperate, the average rainfall being 30 inches annually, and the average temperature 51.6. The soil is sandy and porous, readily absorbing the rainfall. The broad, safe beach, with an absence of shifting sands, is an ideal play place for the 150,000 who in summer throng in jubilant masses into the sea. It is said to be the most perfect bathing beach on the Atlantic coast. The climatic conditions are thus unsurpassed and ideal. In thirty-nine years Atlantic City has had an average of only two days in each year in which the temperature was 90 degrees or over. In winter the Gulf Stream modifies the surrounding salt water and keeps up a temperature of very moderate average; in summer the prevailing winds are from the south.

In brief, the climate of Atlantic City is adapted to almost every condition that is brought to the attention of the average practitioner, but it is particularly beneficial in certain ailments. As a place for convalescents to recuperate after an operation, or for recovery after a wasting illness, it is ideal. It has long been a resort for hay-fever patients, suggested as equal to an ocean trip without that dread of all travelers, seasickness. The patient may sit out on the piers, reading or writing and absorbing the pure air, with no fear that some wandering pollen may be wafted toward him.



Fig. 1.—Atlantic City in an early period.

ATLANTIC CITY AS A PLACE TO DWELL

A considerable advantage possessed by Atlantic City is its permanent character. It has a large resident population, clean, wide, well-paved streets, good marketing facilities, an excellent electric-light system, and everything, in short, that goes with a large city except great manufacturing establishments and factories. All who visit Atlantic City know of its famous Boardwalk, its luxurious hotels and its grand beach, but there are many who have yet to learn that one of the most attractive features of the "World's Playground" is comprised in the thousands of comfortable homes within its borders.

Atlantic City is an ideal place in which to "rest, recuperate and recreate," but above all it is a model location for permanent residences. From whatever point of view the subject be considered, whether of hygiene, convenience, comfort or economy, Atlantic City has advantages to offer that cannot be found elsewhere. Each year such benefits are coming to be more and more recognized, and because of them, in an eminent degree, the population of the city has increased from about twelve thousand in 1890 to over fifty-five thousand in 1914, the latter figures being accepted by the United States Treasury Department as approximately correct.

THE BEGINNING OF THE CITY

In the early days of the city the cottages were erected entirely with a view to summer residences. They were simply frame shells, generally two stories high, very few having even brick foundations. Bath-tubs were unnecessary because there was plenty of bathing water in the ocean. Drinking-water was secured by catching the rain from the roof in cisterns or barrels. If heat were provided at all it was supplied through the medium of old-fashioned portable stoves.

The only feature of the old-style house that survives is the porch, which has been modernized and improved on until it has become a thing of architectural beauty and luxury. With the development of modern utilities, including water, sewerage, gas, electricity and trolley service, the old-fashioned flimsy cottages gave way to palatial homes, new

residential sections were improved and well-equipped apartment-houses came into being. As a result the city can boast of thousands of residences to suit the most fastidious taste, while hundreds of apartment-houses, many of them with automatic elevators, are equipped in a manner to rival cosmopolitan structures. The houses as a rule are heated by hot water or steam with auxiliary open wood fire-places. They are fitted up with both gas and electricity, while the gas hot-water heater is frequently installed.

BEAUTIFUL RESIDENCES

Generally the cottages are erected on open ground and surrounded by green lawns, terraces and imposing flower-beds. This gives the opportunity for the continual sunshine which has made Atlantic City famous to penetrate to every part of the house. The furnishings are often gorgeous but also appropriate. Most of the houses are to be let furnished ready for housekeeping by the season or by the year, at prices that give only a fair percentage of return on the investment and that are no higher than charges for similar service in the larger cities.

Houskeepers from other cities who have had experience in Atlantic City have spoken in high praise of the Atlantic City markets. Everything in season can be obtained fresh and luscious at reasonable rates. New York and Philadelphia markets are within easy reach, while hundreds of farmers in the immediate vicinity dispose of their entire produce, including poultry, eggs and butter, in Atlantic City.

CHURCHES AND SCHOOLS

There are churches for every denomination, and in some cases several for each, so distributed as to make them easily accessible. The clergymen officiating are among the leaders in their profession.

The Atlantic City public schools, including a most efficient high school, are reputed to be among the most proficient in the world. There are in addition several desirable private schools for both boys and girls. A resident here, whether in cottage or hotel, can send children to any of the schools, for a short or long time, whether it be for a week, month, term or year.



Fig. 2.—A group of modern Atlantic City residences and apartment buildings.



Fig. 3.—View of the Boardwalk, the hotels and a beach scene.

SERVICE TO PHILADELPHIA

Philadelphia is so near that commuting is as quickly accomplished as from points, for instance, on the Pennsylvania R. R. main line. A Lower Chelsea cottager can take the Atlantic Avenue trolley line, transfer to the steam train, and by subway connection in Philadelphia, reach Broad and Chestnut streets within an hour and a half. He can leave for New York at 7:45 a. m., have six hours in New York and be again in his home before 9 o'clock at night. Again, he can leave for New York at 9:15 in the morning, have three hours in New York and be in his home at 6:30 in the evening. The post-office gives frequent mail service, while the newspapers of all the important cities of the world are obtainable each day.

THE CITY SHOPS

The ladies' shops in Atlantic City are so enticing that many patrons from adjacent cities, including New York, Philadelphia, Baltimore, Washington and Pittsburgh, come to patronize them. It is the height of luxury for women to take a rolling-chair and proceed from store to store to do their purchasing, without leaving the chair. Many of the shops are branches of noted New York, London and Paris houses, and the newest importations are seen here even sooner than they appear in the metropolis. Alongside these shops, catering to the modern wants of the public, are others featuring the wares of Japan, Armenia, Turkey, Egypt and Syria. They have beautiful displays of colorful merchandise, delicate cobwebby laces, articles of virtu of great artistic value, oriental carpets and rugs of wonderful beauty, and costly and exquisite jewels. The dark-skinned foreign salespeople lend an added charm with their expressive eyes, quaint speech and eloquent gestures.

RECREATION IN ATLANTIC CITY

For recreation, Atlantic City is the place *par excellence*. There is the always famous Boardwalk, the strand with its

piers and the ocean bathing. Then come unparalleled waters for boating and fishing. The best kind of roads around the city, with paved streets within, make automobiling a luxury. The finest theatrical productions are shown in Atlantic City, many of the new plays being produced here for the first time. One of the finest golf-clubs in the country is at Northfield, accessible to visitors, and a new course is being laid out at Absecon which is to be called the "Millionaires' Club."

There are endless diversions to be found in the wonders of the ocean view. Delightful memories of golden moments by the booming and ever-restless sea may be gathered, and charming encounters with the spirit of romance that seems in the very atmosphere. Out at the inlet are fleets of little sail-boats ready to be hired by disciples of Izaak Walton who would while away the time with rod and reel, or pleasure parties eager to sail over the smooth waters into the deeper curve of the sea. There are many sand-bars situated along the upper end, and on bright days the clam-diggers may be discerned across the stretch of waters digging for clams in what appears from the shore to be deep water. Quiet or excitement may be obtained as the taste may run, and cottages can be obtained where diversion is plentiful or on the outskirts where all is peaceful.

THE BOARDWALK

The most peculiar and distinctive feature of Atlantic City is of course the famous Boardwalk. It is an ocean promenade erected about 10 feet above the beach proper. It is 8 miles long with a practically unobstructed ocean view. On its widest portion it is 60 feet wide. The topography of the city being narrow, and the Boardwalk running along its entire length, all of the cottages are brought within easy reach of the great esplanade.

On this famed thoroughfare a great procession marches and countermarches in an unceasing, never-ending throng. All seems animation and gaiety. The members of the fair sex are clad in the most wonderful garments of the passing mode. The most extreme styles prevail, and eccentricities

in color costuming and design are so general as to attract little attention. Many new fads have had their première on the Boardwalk. Here the first Teddy Bear put in an appearance, and the harem skirt, the Cleopatra stocking and the skillet hat were first seen in America on the famous Boardwalk of Atlantic City.

At night it is a scene of fairy-like splendor. The sparkling jewels of the fair women who promenade, clad in wonderful gowns of every color and description, seem to vie with the myriad of electric lights stretching for miles on either side.

Six great piers extend out into the sea where concerts by noted bands may be enjoyed, net-hauls witnessed, and hippodromes and quality vaudeville used to fill spare moments. Dancing in all the modern forms is of course a popular diversion. Several of the piers have ballrooms with

excellent floors for the accommodation of those who care to "trip the light fantastic." Tango contests are held throughout the winter and exhibitions frequently given by noted exponents of the art.

THE PEERLESS CONVENTION CITY

Thus it may be seen that Atlantic City has advantages for residents rarely combined in one locality. It has health and comfort, combined with convenience and economy, that make life worth living. Each year adds to the number of families retired from business that have selected Atlantic City as a final abode. But above and beyond all the attraction is the almost perpetual sunshine, or as it has been said of Atlantic City, "nine months of sunshine and three months of mild winter."



Fig. 4.—The Country Club.

TRANSPORTATION TO THE MEETING

Rates for Round Trips to Atlantic City—Announcement of the Transportation Committee

The Committee on Transportation and Place of Session suggests that Fellows consult the local ticket-agent in their home town for full information regarding rates, time limits, extensions and stop-over privileges preparatory to purchasing railway ticket for the Atlantic City session. The tariff schedules on file at every ticket-office will allow the local agent to quote rates from any point. In addition to this, with the assistance of the agent, a physician can plan for an additional trip either going or coming. These side trips, of course, can be arranged for from Atlantic City, but in most instances a better rate can be obtained if a complete itinerary is submitted to the local agent. The committee announces the following rates for the Atlantic City session:

Special Tourist Rates

The Trunk Line Association has authorized a rate of 2 cents a mile in each direction with a minimum of \$1 for the round trip, going and returning via same route only; tickets to be sold and good, going, June 20 to 22, and returning to reach the original starting-point not later than June 29.

The Western Passenger Association calls attention to the very favorable tourist fares to Atlantic City which will be available to persons desiring to attend the annual session. The general basis of these fares is 2 cents a mile in each direction up to the eastern gateway, added to the fares tendered therefrom. These fares are on as liberal a basis as are made by the lines of the Western Passenger Association.

The New England Passenger Association announces the following fares: Two cents per mile in each direction, short-

line mileage, plus fares tendered from basing points for the round trip; going and returning via same route only. Reductions apply only from principal stations where tariffs are on file and through tickets are in stock. Other stations will require not less than forty-eight hours' notice to the ticket-agent so that fares and tickets may be obtained from the general passenger department of the railroad interested. Tickets to be sold and good going June 20-22, and returning to reach original starting-point not later than June 29. Reductions will not apply on the Bangor & Aroostook R. R., or Eastern Steamship Corporation.

The Southwestern Passenger Association calls attention to the summer tourist fares which are in effect from practically all points in this territory to Atlantic City at the time the session is held. These fares are on the basis of 2 cents per mile, with long limits.

The Trans-Continental Passenger Association announces that the several lines of this association individually announce special fares from California and North Pacific Coast points to their eastern termini and to certain destinations east of their Eastern termini, as follows: From California common points to Chicago, \$72.50; to New York or Philadelphia, \$108.50. Tickets will be sold from North Pacific Coast points on certain days in May, and daily from June 1 to September, both inclusive, 1914, and from California on special dates in April to September, inclusive, full details concerning which can be obtained from local ticket-agents. Nine-month tourist fares and arrangements approximating 2 cents per mile in each direction, or about one fare and one-

third for the round trip, are in effect daily from California and North Pacific Coast common points to Chicago, St. Louis, New Orleans and other points. From California to Chicago and return, \$109.50. St. Louis or New Orleans and return, \$104.

American Medical Special Train to Atlantic City

A special train of all-steel equipment, including club car, drawing-room sleeping-cars, dining-car and observation-car, will leave Chicago, Twelfth Street Station, 6:30 p. m., Sunday, June 21, over the Michigan Central "Niagara Falls Route," via Buffalo and the Pennsylvania Railroad, and will reach Atlantic City Monday, June 22 in ample time for dinner. The round-trip fare from Chicago will be \$29.50, with a thirty-day limit from date of sale, by which time the original starting point must be reached.

This special train will be stopped at Niagara Falls, Monday morning at 7 o'clock or a little after, at one of the most favorable places for viewing the falls. A sufficient length of time will be allowed to permit passengers to leave the train for this purpose. Special cars from different points west of Chicago are now being arranged, and as hereafter noted the Chicago Medical Society will have space reserved on the train.

Stop-over privileges will be allowed at all points on the Michigan Central, including Niagara Falls. A stop-over not to exceed ten days will be allowed by the Pennsylvania Railroad at Buffalo and Philadelphia on deposit of the ticket with the depot ticket-agent immediately on arrival. This will permit a stop-over at Philadelphia and a side trip to New York. The round-trip fare from Philadelphia to New York is \$4. Round-trip side trips may be made from Niagara Falls to Toronto, \$2, limit two days, and to Thousand Islands and Alexandria Bay, \$11.75, limit thirty days. Sight-seeing tours at Niagara Falls may be obtained from the ticket-agents at Niagara Falls, covering circuit tour of Niagara River with view of the Falls and Rapids, at \$1, and including additional carriage ride around Goat Island, 50 cents extra.

Tickets will be accepted for transportation, meals and berth extra, on steamers of the D. & C. Navigation Company between Buffalo and Detroit on presentation to ticket-agent or purser of the steamer line.

Further information can be obtained from representatives of the Michigan Central Railroad, or by addressing Mr. C. C. Clark, General Agent, Passenger Department, 228 South Clark Street, Chicago.

CHICAGO MEDICAL SOCIETY SPECIAL CARS

Dr. Charles H. Parkes, secretary, announces that special cars reserved for members of the Chicago Medical Society will be attached this year to the American Medical Special. This will give those members who go to Atlantic City a delightful "personally conducted" trip. The schedule planned is to start from Chicago at 6:30 on the evening of Sunday, June 21. The train will stop for a short time at Niagara Falls and the party will reach Atlantic City in time for dinner Monday evening. Members of the Chicago Medical Society planning to go to Atlantic City should at once reserve space on these special cars. Further details will be found in the announcement of the American Medical Special.

J. RAWSON PENNINGTON, Chairman.

PENNSYLVANIA LINES

The Pennsylvania Lines will operate a special train leaving Chicago at 3 p. m., Sunday, June 21, reaching Atlantic City about 2 o'clock the next afternoon. Train will run through solid, will be an all-steel train, including compartment-observation car, library-club car, standard sleeping-cars and Pennsylvania dining-cars, serving table d'hôte dinner at \$1 per plate and à la carte breakfast and luncheon the next day. The tourist fare, Chicago to Atlantic City and return, will be \$29.50, with a limit of thirty days, and may read via Washington if parties so desire, enabling them to stop at Baltimore and Washington on the return trip for ten days each, but not to exceed the final limit, date of deposit counting as one day, if deposited with depot ticket-agent immediately on arrival. As many of the physicians and surgeons will want to go on to New York after the convention

is over, thirty-day tickets can be purchased to New York and return at fare of \$30 and an opportunity will be given to deposit these tickets at Philadelphia, where stop-over will be granted for ten days, but not to exceed the final limit of the ticket, date of deposit counting as one day, and excursion tickets purchased from Philadelphia to Atlantic City and back at \$2.50. Diverse route tickets to New York and Boston ranging in price from \$34 to \$46 will also be on sale. These tickets will also be good on regular trains on payment of extra fare on trains on which this is charged, except Broadway Limited, Trains 28 and 29. Those coming from beyond Chicago can purchase tickets from their home agent which will be good on the special train.

THE GRAND TRUNK SYSTEM

The Grand Trunk Railway System announces that it will have on sale June 1 daily up to and including September 30, round-trip, thirty-day excursion tickets to Atlantic City, via the Grand Trunk-Lehigh Valley Double Track Route, via Philadelphia and the Scenic Route of America; also sixty-day circle tour tickets going via New York, returning via Philadelphia, Baltimore and Washington at the following rates:

Chicago to Atlantic City and return, \$29.10, thirty-day limit.

Chicago to New York, returning via Philadelphia, Baltimore and Washington, \$32.40, sixty-day limit.

On the thirty-day tickets, liberal stop-overs are allowed in the United States and all intermediate points in Canada. On the sixty-day tourist tickets, stop-overs are allowed at all intermediate points en route.

The Grand Trunk Railway System operates three solid vestibule trains leaving Chicago daily at 11:05 a. m., 3:30 p. m. and 11:05 p. m., carrying steel underframe coaches, steel Pullmans and dining-cars, electric lighted throughout. It will also have many other interesting summer trips on sale beginning June 1, including circle tours going one way and returning another.

BALTIMORE AND OHIO RAILROAD

The "picturesque" Baltimore & Ohio Railroad offers the advantages of three all-steel, electrically lighted trains daily between Chicago and Philadelphia, where connection is made with the "mile-a-minute" trains on the Atlantic City Railroad for Atlantic City. These trains leave Chicago at 8 a. m., 11 a. m. and 5:45 p. m., and arrive in Philadelphia at 10:15 a. m., 2:02 p. m. and 8:19 p. m., respectively, the next day. Trains leave Philadelphia for Atlantic City every hour from 5 a. m. to 11 p. m. The trains passing through the mountains in daytime are equipped with observation cars from which may be viewed some of the most beautiful scenery in the United States. On tickets sold to Atlantic City and return at \$29.10, the return limit on which will be thirty days from date of sale, stop-over within the limit of the ticket will be given at all points in both directions. In addition to the reduced fares to Atlantic City, summer excursion tickets will be sold to New York and Boston and return at greatly reduced fares, which may be taken advantage of by making a side trip from Philadelphia to Atlantic City and return at a cost not to exceed \$2 for the round trip. The summer excursion tickets sold to New York and Boston and return will be limited for return within sixty days from date of sale, and will be valid going one way and returning another.

HOTEL RESERVATIONS

Although Atlantic City is a city of hotels, and can easily accommodate those in attendance on the annual session, Fellows are urged to make their hotel reservations early. It will be a great comfort on arriving at Atlantic City to go at once to a hotel which is expecting you rather than to make a round of hotels, finding a number of them completely filled and finally being compelled to take the first lodgings which can be found in a hurried personal search. The list of hotels appearing in this issue locates the different hotels and gives their rates. Make your selection, write to the manager and take with you to Atlantic City his reply assuring you that a reservation has been made for your use. Then, on arriving at Atlantic City all you will have to do is to go to this hotel and register.

PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

PROGRAM OF OPENING MEETING

Apollo Theater

Tuesday, June 23, 10:30

Music.

Call to Order. President, JOHN A. WITHERSPOON, Nashville, Tenn.

Invocation. REV. HENRY MERLE MELLEN, Atlantic City.

Address of Welcome. ENOCH HOLLINGSHEAD, Pemberton, N. J., President, Medical Society of New Jersey.

Introduction and Installation of President-Elect VICTOR C. VAUGHAN, Ann Arbor, Mich.

Address. VICTOR C. VAUGHAN, President.

Music.

THE PROGRAMS OF THE SECTIONS

Outline of the Scientific Proceedings—The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order which will be followed in the Official Program nor is the list complete. The Official Program will be a pamphlet similar to those issued in previous years, and will contain the final program of each section with abstracts of the papers, also lists of committees, programs of the General Meeting and of the meetings of the House of Delegates, lists of entertainments, map of Atlantic City and other information. To prevent misunderstandings and to protect the interests of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each member on registration.

SECTION ON PRACTICE OF MEDICINE

MEETS IN ST. PAUL'S CHURCH

CHAIRMAN, CHARLES LYMAN GREENE, ST. PAUL, MINN.;
SECRETARY, ROGER S. MORRIS, CLIFTON SPRINGS, N. Y.

Tuesday, June 23—2 p. m.

Will Sprue Become Endemic in the United States? Notes on Cases Invalidated from the Tropics (10 minutes).
H. B. HIATT, High Point, N. C., and WILLIAM ALLAN, Charlotte, N. C.

The Syndrome of Adrenal Insufficiency (15 minutes).
TOM A. WILLIAMS, Washington.

Neurasthenia and Tuberculosis (Concealed) (15 minutes).
GEORGE DOUGLAS HEAD, Minneapolis.

The Nervous Side of Physical Disorders (15 minutes).
CHARLES P. EMERSON, Indianapolis.

The Use of Atophan and Radium Emanation in the Treatment of Gout and the Arthritides (15 minutes).
ARTHUR F. CHACE, New York.

Intrarectal Administration of Sodium Salicylate in Acute Rheumatic Fever with Satisfactory Results (10 minutes).
LOUIS G. HEYN, Cincinnati.

Wednesday, June 24—9 a. m.

SYMPOSIUM ON NUTRITION

JOINT MEETING WITH THE SECTION ON PATHOLOGY AND
PHYSIOLOGY, IN ST. PAUL'S CHURCH

The Specificity of the Nutrients.
L. B. MENDEL, New Haven, Conn.

The Specific Dynamic Action of Food.
GRAHAM LUSK, New York.

The Intermediary Metabolism. OTTO FOLIN, Boston.

The Total Energy Requirement in Disease as Determined by Calorimetric Observations.
EUGENE F. DU BOIS, New York.

Wednesday, June 24—2 p. m.

The Heart in the Pneumonias (10 minutes).
ROBERT N. WILLSON, Philadelphia.

Differentiation of Various Types of Aortic Insufficiency (10 minutes).
ROBERT B. PREBLE, Chicago.

The Treatment of Heart Involvement in Syphilis (15 minutes). HARLOW BROOKS and JOHN CARROL, New York.

The Four Common Types of Heart-Disease (15 minutes).
RICHARD C. CABOT, Boston.

Cardiovascular and Renal Responsibility in the Disturbances of Cardiorenal Disease (15 minutes).
ALFRED STENGEL, Philadelphia.

Effect of Low and High Nitrogen Diet on Renal Function Tests in Chronic Nephritis (10 minutes).
C. FROTHINGHAM, JR., Boston.

Studies in Liver Function (15 minutes).
L. G. ROWNTREE, Baltimore.

Thursday, June 25—9 a. m.

Essential Factors in the Diagnosis of Duodenal and Gastric Ulcers (15 minutes).
CHRISTOPHER GRAHAM and GEORGE EUSTERMAN, Rochester, Minn.

End-Results in Gastric and Duodenal Ulcer (15 minutes).
ELLIOTT P. JOSLIN, Boston.

Gastric Cancer in the Young: A Study of Fourteen Cases in Patients Under the Age of 31 (15 minutes).
FRANK SMITHIES, Chicago.

Focal Infection. Its Broader Application in the Etiology of General Disease (15 minutes).
FRANK BILLINGS, Chicago.

The Newer Bacteriology of Various Infections Determined by Special Methods (15 minutes).
E. C. ROSENOW, Chicago.

The Dead Space and Alveolar Air in Emphysema and Bronchial Asthma (15 minutes).
C. F. HOOVER, Cleveland.

Thursday, June 25—2 p. m.

Late Manifestations of Inherited Syphilis with Especial Reference to Arterial Disease (15 minutes).
HENRY F. STOLL, Hartford, Conn.

Various Types of Lues: A Clinical and Laboratory Study. The Abelin Reaction. Direct Subdural Injections (15 minutes).
W. E. ROBERTSON and J. V. KLAUDER, Philadelphia.

A Study of the Arneth Formulas (10 minutes).
GRAHAM E. HENSON, Jacksonville, Fla.

Salvarsan in Pernicious Anemia (15 minutes).
JAMES S. BROTHERHOOD, Clifton Springs, N. Y.

The Medical Application of Blood-Transfusion by the Syringe-Cannula System without Skin Incision (10 minutes).
E. LINDEMAN, New York.

SECTION ON SURGERY

MEETS IN MORRIS GUARDS' HALL

CHAIRMAN, CHARLES H. FRAZIER, PHILADELPHIA; SECRETARY,
E. S. JUDD, ROCHESTER, MINN.

Tuesday, June 23—2 p. m.

Chairman's Address: The Cerebrospinal Fluid as a Problem in Intracranial Surgery.

CHARLES H. FRAZIER, Philadelphia.

A Contribution to the Surgery of Brain Tumors.

HERMAN KUTTNER, Breslau, Germany.

Osteoplastic Closure of the Trifacial Canals. An Experimental and Clinical Study Illustrated by Lantern-Slides.
ALLEN B. KANAVEL, Chicago.

Treatment of Unlocalized Intracranial Injuries by Drainage Through a Subtemporal Approach.

VILRAY P. BLAIR, St. Louis.

Consideration of 275 Cases of Acute Appendicitis, with Special Reference to Complications and Causes.

ARCHIBALD MACLAREN, St. Paul, Minn.

Has the Last Word Been Spoken Concerning Appendicitis?

J. E. MOORE, Minneapolis.

Wednesday, June 24—9 a. m.

Plastic Operations on the Kidney, and the Practical Application of Facts Demonstrated Experimentally.

JOHN B. MURPHY, Chicago.

Congenital Cystic Kidney.

F. B. LUND, Boston.

A Simple Method of Tapping a Distended Bladder and Making Permanent Drainage.

W. L. RODMAN, Philadelphia.

Testing the Efficiency of the Collateral Circulation; Its Importance in Determining Surgical Intervention and of Applying the Tests.

R. MATAS, New Orleans.

Aneurysm of the Posterior Tibial Artery, with Report of Two Cases.

ALEXIUS MCGLANNAN, Baltimore.

Experimental Surgery of the Heart and Lungs.

AXEL WERELIUS, Chicago.

Wednesday, June 24—2 p. m.

Oration on Surgery: The Relations of the Surgeon to the Conquest of Cancer.

JOSEPH BLOODGOOD, Baltimore.

Exploration of the Knee-Joint and Its Teachings.

F. M. CORNER, London, England.

Exophthalmos and Methods of Surgical Treatment.

C. H. MAYO, Rochester, Minn.

Mechanism for Injuries of the Shoulder Region: Results of Forty Operations.

T. TURNER THOMAS, Philadelphia.

Operation on Thoracic Wall for Relief of Bronchial Asthma.

E. WYLLYS ANDREWS, Chicago.

Aperiosteal Amputation (Hirsch-Bunge).

HENRY H. M. LYLE, New York.

Thursday, June 25—9 a. m.

Anoci-Association in Relation to Operations on Gall-Bladder and Stomach.

GEORGE W. CRILE, Cleveland.

A Clinical Research in the Surgery of the Upper Abdomen.

ARTHUR D. BEVAN, Chicago.

The Problem of Intestinal Obstruction: Effort to Explain Variable Clinical and Experimental Results.

FRED T. MURPHY and BARNEY BROOKS, St. Louis.

Internal Hernia Due to an Aberrant Middle Colic Artery.

ALEXANDER PRIMROSE, Toronto.

The Rodman Operation for Cancer of the Breast.

DONALD GUTHRIE, Sayre, Pa.

Thursday, June 25—2 p. m.

SYMPOSIUM ON SURGICAL SERVICE IN THE HOSPITAL

JOINT MEETING WITH THE SECTION ON HOSPITALS IN MORRIS GUARDS' HALL

The Standardization of the Surgeon.

J. M. T. FINNEY, Baltimore.

The Standardization of the Surgical Clinic.

F. D. GILBRETH, New York.

The Surgical Service in Hospitals.

H. O. COLLINS, Minneapolis.

Friday, June 26—9 a. m.

Some Present-Day Problems in the Surgical Treatment of Gastric and Duodenal Ulcer.

HAROLD COLLINSON, Leeds, England.

Cancer Vaccine and Anticancer Globulins as an Aid in the Surgical Treatment of Malignancy.

J. W. VAUGHAN, Detroit.

Hodgkin's Disease.

C. H. BUNTING, Madison, Wis., and J. L. YATES, Milwaukee, Wis.

Penetrating Wounds of the Abdomen.

RANDOLPH WINSLOW, Baltimore.

SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

MEETS IN MORRIS GUARDS' HALL

CHAIRMAN, E. GUSTAV ZINKE, CINCINNATI; SECRETARY, BROOKE M. ANSPACH, PHILADELPHIA

Tuesday, June 23—2 p. m.

Chairman's Address: A Few Important but Unsolved Problems in Obstetrics, Gynecology and Abdominal Surgery.

E. GUSTAV ZINKE, Cincinnati.

The Treatment of Albuminuria of Pregnancy.

EDWARD J. ILL, Newark.

The Treatment of the Toxemias of Pregnancy.

A. J. RONGY, New York.

The Treatment of Placenta Praevia.

EDWARD P. DAVIS, Philadelphia.

Hysterotomy.

JOHN B. DEEVER, Philadelphia.

Wednesday, June 24—9 a. m.

SYMPOSIUM ON SURGERY OF THE LARGE INTESTINE

The Pathogenesis of the Pericolic Membranes. (Lantern Demonstration.)

ARTHUR E. HERTZLER, Kansas City, Mo.

Experimental and Clinical Studies of Colon Stasis.

JOSEPH RILUS EASTMAN, Indianapolis.

The Condition of a Few Patients Two Years After Ileostomy.

CHARLES L. BONIFIELD, Cincinnati.

Resection of the First Portion of the Large Intestine and the Resulting Effect on Its Function.

WILLIAM J. MAYO, Rochester, Minn.

Some Surgical Phases of the Sigmoid.

CHARLES A. L. REED, Cincinnati.

Wednesday, June 24—2 p. m.

SYMPOSIUM ON SPECIFIC AND PROTECTIVE FERMENTS

JOINT MEETING WITH THE SECTION ON PATHOLOGY AND PHYSIOLOGY AND THE SECTION ON PHARMACOLOGY AND THERAPEUTICS, IN MORRIS GUARDS' HALL

The Present Status of the Investigation.

EMIL ABDERHALDEN, Halle, Germany.

Parenteral Protein Digestion.

VICTOR C. VAUGHAN, Ann Arbor, Mich.

The Mechanism, Diagnostic and Prognostic Significance of Skin Reaction.

FREDERICK P. GAY, Berkeley, Cal.

Limitations of the Dialysis Method as a Practical Test for Pregnancy.

CHESTER M. ECHOLS, Milwaukee.

Biologic Tests in Pregnancy and Cancer.

C. F. JELLINGHAUS and J. R. LOSEE, New York.

Thursday, June 25—9 a. m.

The Present Status of Pyelography. (Lantern Demonstration.)

FLOYD E. KEENE and HENRY K. PANCOAST, Philadelphia.

Personal Experience with Exclusion of the Pylorus in the Treatment of Ulcer.

WILLARD BARTLETT, St. Louis.

Common Errors in Gall-Tract Surgery.

C. E. RUTH, Des Moines.

Thrombosis and Emboli: Their Significance and Consequences in Abdominal and Pelvic Surgery.

ANGUS McLEAN, Detroit.

The Application of Taylor Factory-Management to Hospital Surgery.

ROBERT L. DICKINSON, Brooklyn.

Thursday, June 25—2 p. m.

SYMPOSIUM ON UTERINE HEMORRHAGE

The Pathologic Physiology of Uterine Bleeding.

EMIL NOVAK, Baltimore.

Physiologic and Pathologic Variations of the Generative Organs Causing Atypical Bleeding; Diagnostic Aspects.

JOHN G. CLARK, Philadelphia.

Radium Treatment of Uterine Hemorrhage.

HOWARD A. KELLY, Baltimore.

Roentgen Therapy in Uterine Hemorrhage.
GEORGE E. PFAHLER, Philadelphia.
Fundamental Intrapelvic Perineorrhaphy.
ALBERT GOLDSPOHN, Chicago.

Friday, June 26—9 a. m.

Pelvic Varicosities. A Definite Symptom-Complex.
WILLIAM EDGAR DARNALL, Atlantic City, N. J.
The Embryology of the Umbilical Region (Lantern Demonstration).
THOMAS S. CULLEN, Baltimore.
Vesicovaginal and Rectovaginal Fistulas.
HENRY O. MARCY, Boston.
Potent Factors in Failure of Operations for Retrodisplacement of the Uterus. FREDERICK C. HOLDEN, New York.
The Importance of a Clear Understanding of Changes in the Nervous System Incident to Pregnancy.
RALEIGH R. HUGGINS, Pittsburgh, Pa.

SECTION ON OPHTHALMOLOGY

MEETS IN THE PAROCHIAL SCHOOL

CHAIRMAN, FRANK C. TODD, MINNEAPOLIS; SECRETARY, GEORGE S. DERBY, BOSTON

Tuesday, June 23—2 p. m.

Chairman's Address. FRANK C. TODD, Minneapolis.
Tumors of the Optic Nerve.
W. GORDON M. BYERS, Montreal.
Ocular Manifestations of the Toxemia of Pregnancy; Clinical Report of a Case. WARD A. HOLDEN, New York.
Two Cases of Acute Retrobulbar Neuritis Associated with Marked Acetonuria.
LEE MASTEN FRANCIS, Buffalo, N. Y.
Chronic Ocular Tuberculosis. Necropsy Findings in a Case of Tuberculosis of the Hypophysis Cerebri. With lantern demonstration. F. H. VERHOEFF, Boston.

Wednesday, June 24—9 a. m.

Epithelioma of the Lids. CARL FISHER, Rochester, Minn.
Hereditary Glaucoma (Simplex); the Report, with Operative Notes, of Four Generations of One Family.
F. PHINIZY CALHOUN, Atlanta, Ga.
Sclerocorneal Trephining for Glaucoma, with Tabulated Results of Seventy-Six Operations Performed by Col. R. H. Elliot and a Clinical Study of Twenty-Seven Operations by the Author.
WALTER R. PARKER, Detroit.
Late Infection Following a Trephining for Glaucoma.
E. V. L. BROWN, Chicago.
Value of Miotics in Chronic Glaucoma.
WILLIAM CAMPBELL POSEY, Philadelphia.

Wednesday, June 24—2 p. m.

Atrophy of the Optic Nerve in Myopia.
THEODORE AXENFELD, Freiburg, Germany.
International Standard for Testing Vision, and Standardizing Other Visual Tests. EDWARD JACKSON, Denver.
Is Tuberculosis an Important Factor in Phlyctenular Ophthalmia? SAMUEL THEOBALD, Baltimore.
A Study of the Effect of the Correction of Ametropia on Heterophoria with a Consideration of Some Associated Conditions. WILLIAM ZENTMAYER, Philadelphia.

Thursday, June 25—9 a. m.

Safe and Speedy Extraction of the Immature Cataractous Lens Following Preliminary Capsulotomy.
HOMER E. SMITH, Norwich, N. Y.
The Influence of Hookworm Disease on the Eyes. A Study of Fifty-Three Cases. J. W. JERVEY, Greenville, S. C.
Convergence Insufficiency. ALEXANDER DUANE, New York.
Trefoil or Stellate Keratectomy for Anterior Staphyloma.
S. LEWIS ZIEGLER, Philadelphia.

Thursday, June 25—2 p. m.

Further Observations on the Hemiopic Pupillary Reaction Obtained with a New Clinical Instrument.
CLIFFORD B. WALKER, Boston.
Experimental Researches in Methyl Alcohol Inhalation.
H. H. TYSON and M. J. SCHOENBERG, New York.
Enucleation with Transplantation of Fat into the Orbit
EDWARD STIEREN, Pittsburgh, Pa.
Demonstration of Sarcomas.
WALTER B. WEIDLER, New York.
Demonstration of the Action of Trephining on Rabbits' Eyes.
E. C. ELLETT, Memphis, Tenn.

SECTION ON LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY

MEETS IN GUILD HALL, ASCENSION CHURCH

CHAIRMAN, BURT R. SHURLY, DETROIT; SECRETARY, FRANCIS P. EMERSON, BOSTON

Tuesday, June 23—2 p. m.

Chairman's Address: Preventive Otolaryngology.
BURT R. SHURLY, Detroit.
Chronic Focal Infection of the Nose, Mouth, Throat and Ear.
JOSEPH C. BECK, Chicago.
The Faucial Tonsil as a Gateway to General Infection.
NORTON L. WILSON, Elizabeth, N. J.
Latent and Tertiary Syphilis in Diseases of the Nose and Throat.
CHARLES R. C. BORDEN, Boston.

Wednesday, June 24—9 a. m.

The Reconstruction of the Nasal Septum after the Submucous Operation. J. A. BABBITT, Philadelphia.
The Relation of Pathologic Conditions in the Nose and Throat to the Development and Treatment of Hyperthyroidism.
S. P. BEEBE, New York.
The Clinical Classification of Ethmoiditis.
E. M. HOLMES, Boston.
The Pathology of Ethmoiditis.
GEORGE E. SHAMBAUGH, Chicago.
Applied Anatomy and Surgical Treatment.
HARRIS P. MOSHER, Boston.

Wednesday, June 24—2 p. m.

Hemorrhage from the Superior Petrosal Sinus as a Complication in Operations on the Lateral Sinus.
JOHN RANDOLPH PAGE, New York.
Metastatic Manifestations of Sinus Thrombosis.
SEYMOUR OPPENHEIMER, New York.
Treatment of Deafness Due to Ossicular Fixation.
PHILIP D. KERRISON, New York.
Progress in the Treatment of Otitic Meningitis.
SAMUEL J. KOPETZKY, New York.

Thursday, June 25—9 a. m.

The Indirect Method of Intralaryngeal Operation.
H. HOLBROOK CURTIS, New York.
The Direct Method of Intralaryngeal Operation.
CHEVALIER JACKSON, Pittsburgh, Pa.
The Suspension Method of Killiam.
ROSS H. SKILLERN, Philadelphia.
The Value of Radiography in the Diagnosis of Diseases of the Nose and Throat. SAMUEL IGLAUER, Cincinnati.
Laryngeal Papilloma. HARMON SMITH, New York.

Thursday, June 25—2 p. m.

The Surgical Problem in Connection with the Cranial Accessory Sinuses. JOHN F. BARNHILL, Indianapolis.
Lantern Slides of Roentgenograms of the Nasal Accessory Sinuses. LEE M. HURD, New York.
Vaccines in Otitis Media.
R. BISHOP CANFIELD, Ann Arbor, Mich.

- End-Results Following the Yankauer Operation on the Eustachian Tube. JOHN L. LOUGEE, Boston.
- Operations for Clefts of the Hard and Soft Palate. LINN EMERSON, Orange, N. J.
- The Origin of Labyrinthine Rest-Tone. EDMUND P. FOWLER, New York.
- Sonorous Vibrations in Ear-Disease. LESTER M. HUBBY, New York.
- The Relation of the Rhinopharynx to the Middle Ear and Mastoid. E. L. JONES, Cumberland, Md.

SECTION ON DISEASES OF CHILDREN

MEETS IN PLAY-ROOM, SEASIDE HOTEL

CHAIRMAN, F. S. CHURCHILL, CHICAGO; SECRETARY, F. R. GENGENBACH, DENVER

Tuesday, June 23—2 p. m.

- Chairman's Address: The Wet-Nurse in Hospital Practice. FRANK SPOONER CHURCHILL, Chicago.
- An Analysis of Cases of Infant-Feeding in Private Practice (15 minutes). C. G. KERLEY, New York.
- Some Practical Breast-Milk Problems (12 minutes). A. W. MYERS, Milwaukee, Wis.
- The Feeding of Skimmed Breast-Milk (15 minutes). FRANK C. NEFF, Kansas City, Mo.
- Care of Delicate and Premature Children in the Home (15 minutes). H. M. McCLANAHAN, Omaha.
- Differential Diagnosis of Pyloric Stenosis (15 minutes). P. V. K. JOHNSON, Los Angeles.

Wednesday, June 24—9 a. m.

- Refractory or So-Called "Fast" Cases of Meningococcus Meningitis (15 minutes). HENRY HEIMAN, New York.
- Urinary Analysis in the Diagnosis and Treatment of Diseases of Infancy and Childhood (15 minutes). ROWLAND GODFREY FREEMAN, New York.
- Amebic Dysentery in Children (15 minutes). L. R. DEBUYS, New Orleans.
- Further Observations Continuing the Relation of Heat to Infant Mortality (15 minutes). HENRY F. HELMHOLZ, Chicago.
- Further Investigation of the Bacillus Abortus Infection in Children (15 minutes). J. P. SEDGWICK, Minneapolis.

Wednesday, June 24—2 p. m.

- The Use of Boiled Milk in Infant-Feeding (15 minutes). ROGER H. DENNETT, New York.
- Experiences with "Whey-Modified Milk" in Infant-Feeding (15 minutes). JEROME S. LEOPOLD, New York.
- Experiments with Swine Fat in Infant-Feeding (15 minutes). JOHN ZAHORSKY, St. Louis.
- The Absorption of Fat from the Intestinal Tract of the Actively Tuberculous Child (15 minutes). FREDERICK W. SCHLUTZ, Minneapolis.
- The Influence of Starch on Infant Digestion (15 minutes). THOMAS S. SOUTHWORTH, New York.
- The Metabolism of Carbohydrates with Special Reference to Its Effect on the Absorption of Fat and Nitrogen and on the Retention of Salts (15 minutes). F. B. TALBOT and LEWIS W. HILL, Boston.
- Blood-Pressure in Normal Infants (15 minutes). C. F. JUDSON, Philadelphia.
- A Study of the Blood-Pressure in Anemia in Infancy (15 minutes). JOHN LOVETT MORSE and EDWIN T. WYMAN, Boston.
- Some Case Studies in the Purpuras of Childhood (15 minutes). I. A. ABT, Chicago.

Thursday, June 25—9 a. m.

- Treatment of Inguinal Hernia in Infants (15 minutes). F. X. WALLS, Chicago.

- A Further Clinical Study of the Efficiency of Sodium Chlorid in the Therapeutics of Bright's Disease (15 minutes). H. LOWENBURG, Philadelphia.
- Diagnosis and Treatment of the Late Type of Hereditary Syphilis (15 minutes). B. S. VEEDER, St. Louis.

Thursday, June 25—2 p. m.

- The Relation of Bovine Tuberculosis to Early Tuberculosis in Childhood (15 minutes). T. C. McCLEAVE, Berkeley, Cal.
- Thoracic Complications of Rickets (15 minutes). J. HOWLAND and E. A. PARKS, Baltimore.
- The Clinical and Pathologic Study of Hydrocephalus (15 minutes). KENNETH D. BLACKFAN and W. E. DANDY, Baltimore.
- The Examination of the Chest in Children (15 minutes). RICHARD M. SMITH, Boston, and CLIFFORD D. SWEET, Fresno, Cal.
- Investigation of the Diagnostic Value of Spinal Percussion and Auscultation (15 minutes). LANGLEY PORTER, San Francisco.
- Fragilitas Ossium (15 minutes). MAURICE OSTHEIMER, Philadelphia.

SECTION ON PHARMACOLOGY AND THERAPEUTICS

MEETS IN GYMNASIUM, GRAMMAR SCHOOL

CHAIRMAN, JOHN F. ANDERSON, WASHINGTON, D. C.; SECRETARY, M. I. WILBERT, WASHINGTON, D. C.

Tuesday, June 23—2 p. m.

- Chairman's Address. JOHN F. ANDERSON, Washington, D. C.
- Studies on the Absorption of Drugs. ROBERT A. HATCHER and CARY EGGLESTON, New York.
- Enteroclysis, Hypodermoclysis and Intravenous Injection. LAWRENCE LITCHFIELD, Pittsburgh, Pa.
- The Therapeutics of Pericarditis. RAY L. WILBUR, Palo Alto, Cal.
- Therapy of Cardiovascular Disturbances. L. H. NEWBURGH, Boston.
- Studies in Diabetes. A. I. RINGER, Philadelphia.
- The Effects of Vapor Baths on the Total Non-Coagulable Nitrogen of the Blood in Nephritis. J. H. AUSTIN and T. G. MILLER, Philadelphia.

Wednesday, June 24—9 a. m.

SYMPOSIUM ON SPECIFIC AND PROTECTIVE FERMENTS

JOINT MEETING WITH SECTION ON PATHOLOGY AND PHYSIOLOGY AND SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

(For titles and authors of papers to be presented, see program of Section on Obstetrics, Gynecology and Abdominal Surgery.)

Wednesday, June 24—2 p. m.

- SYMPOSIUM ON THE USE OF THE ROENTGEN RAY AND RADIUM IN THERAPY
- The Place of the Roentgen Ray in Therapeutics. GEORGE C. JOHNSTON, Pittsburgh, Pa.
- Radium and Roentgen Rays in Radiotherapy: Their Use and Limitations. WILLIAM S. NEWCOMET, Philadelphia.
- SYMPOSIUM ON THE USE OF DRUGS IN SURGICAL PRACTICE
- Preparation of Patients for Operation. A. D. WHITING, Philadelphia.
- Postoperative Treatment of Surgical Cases. GEORGE P. MÜLLER, Philadelphia.
- The Medical Treatment of Chronic Intestinal Stasis. W. A. BASTEDO, New York.

An Examination of Some Commercial Preparations of Pituitary Extract Made from the Posterior Lobe of the Pituitary Body

GEORGE B. ROTH, Washington, D. C.

Thursday, June 25—9 a. m.

SYMPOSIUM ON THE PREVENTION AND TREATMENT OF DIPHTHERIA

Active Immunization in Diphtheria by Toxin-Antitoxin Mixtures. WILLIAM H. PARK, New York.

Diphtheria Antitoxin. SAMUEL S. WOODY, Philadelphia.

SYMPOSIUM ON DIET IN TYPHOID FEVER

Diet in Typhoid Fever. LEWELLYS F. BARKER, Baltimore.

The Effects of Food on Metabolism in Typhoid Fever.

WARREN COLEMAN, New York.

Dietetic Limitations in Typhoid Fever.

DAVID L. EDSALL, Boston.

The Value of Salicylates in Acute Articular Rheumatism.

JOSEPH L. MILLER, Chicago.

The Pharmacology of Sodium Tartrate.

WILLIAM SALANT, Washington, D. C.

Thursday, June 25—2 p. m.

JOINT MEETING WITH SECTION ON PREVENTIVE MEDICINE AND PUBLIC HEALTH

SYMPOSIUM ON HOOKWORM DISEASE

Etiology and Treatment of Hookworm Disease.

C. WARDELL STILES, Washington, D. C.

Treatment of Hookworm Disease.

A. T. McCORMACK, Bowling Green, Ky.

SYMPOSIUM ON PELLAGRA

Pellagra. C. H. LAVINDER, Savannah, Ga.

SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN PLAY-ROOM, HOTEL DENNIS

CHAIRMAN, WILLIAM OPHÜLS, SAN FRANCISCO; SECRETARY, A. J. CARLSON, CHICAGO

Tuesday, June 23—2 p. m.

Chairman's Address: Anatomic Structure and Function.

W. OPHÜLS, San Francisco.

Experimental Chronic Gastric Ulcer.

J. C. FRIEDMAN and W. W. HAMBURGER, Chicago.

Studies on Duodenal Obstruction. J. W. DRAPER, New York.

Roentgenographic Studies of the Function of the Ileocolic Valve. J. T. CASE, Battle Creek, Mich.

Studies in Experimental Diabetes.

F. M. ALLEN, San Diego, Cal.

Blood-Transfusion in Pancreatic Diabetes.

A. J. CARLSON, Chicago.

Wednesday, June 24—9 a. m.

SYMPOSIUM ON NUTRITION

JOINT MEETING WITH SECTION ON PRACTICE OF MEDICINE

(For titles and authors of papers to be presented see program of Section on Practice of Medicine.)

Wednesday, June 24—2 p. m.

SYMPOSIUM ON SPECIFIC AND PROTECTIVE ENZYMES

JOINT MEETING WITH SECTIONS ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY AND PHARMACOLOGY AND THERAPEUTICS

(For titles and authors of papers to be presented see program of Section on Obstetrics, Gynecology and Abdominal Surgery.)

Thursday, June 25—9 a. m.

Relation of Diet to Cancer. L. D. BULKLEY, New York.

The Influence of Heredity on the Incidence of Cancer in Mice. MAUDE SLYE, Chicago.

Abderhalden's Test in the Diagnosis of Cancer.

C. F. BALL, Rutland, Vt.

A Study of the Ferment Activity of the Blood-Serum during Pregnancy and under Normal and Pathologic Conditions by the Abderhalden Method.

F. H. FALLS and C. S. BACON, Chicago.

Adenomyoma of the Rectovaginal Septum.

D. S. D. JESSUP, New York.

Carcinoma of the Prostate.

B. F. McGRATH, Rochester, Minn.

The Pineal Gland in Relation to Somatic, Sexual and Mental Development.

C. P. McCORD, Detroit.

Thursday, June 25—2 p. m.

Immunity in Tuberculosis.

G. B. WEBB and G. B. GILBERT, Colorado Springs, Colo.

The Selective Bactericidal Action of Gentian Violet.

J. W. CHURCHMAN, New Haven, Conn.

The Hectic-Weinberg Complement-Fixation Test as a Control over the Wassermann.

R. B. H. GRADWOHL, St. Louis.

The Pathologic Physiology of Arteriosclerosis.

L. F. BISHOP, New York.

Urea and Quinin Injection in Goiter.

L. F. WATSON, Oklahoma City.

The Parathyroid Glands.

D. MARINE, Cleveland.

SECTION ON STOMATOLOGY

MEETS IN CRAIG HALL

CHAIRMAN, WILLIAM C. FISHER, NEW YORK; SECRETARY, EUGENE S. TALBOT, CHICAGO

Tuesday, June 23—2 p. m.

Chairman's Address.

WILLIAM C. FISHER, New York.

The Section of Stomatology as a Factor in the Evolution of Dental and Medical Science.

GEORGE V. I. BROWN, Milwaukee.

Mesothelial Tumors of the Jaw.

ROBERT H. IVY, Philadelphia.

Cystic Tumors of the Jaw. GORDEN NEW, Rochester, Minn.

Differential Diagnosis of Major Mouth Lesions.

STEWART L. McCURDY, Pittsburgh, Pa.

Methods of Obtaining Dental Service in Hospitals by the Appointment of Interns.

HERBERT L. WHEELER, New York.

Thursday, June 25—9:30 a. m.

The Scientific Routine of Tooth-Brushing and Mouth-Cleaning.

JOSEPH HEAD, Philadelphia.

Ostcoplastic Surgery of the Face.

WAYNE W. BABCOCK, Philadelphia.

Fracture of the Inferior Maxilla.

HENRY S. DUNNING, New York.

Bacteriology of Alveolar Abscess.

THOMAS GILMER, Chicago.

Acute Parenchymatous Glossitis.

VIRGIL LOEB, St. Louis.

Thursday, June 25—2 p. m.

The Peridental Membrane as a Source of Infection.

DANIEL H. SQUIRE, Buffalo, N. Y.

Mouth Infection in Relation to Nervous Affection.

C. B. CRAIG, New York.

SECTION ON NERVOUS AND MENTAL DISEASES

MEETS IN BRIGHTON CASINO

CHAIRMAN, W. W. GRAVES, ST. LOUIS; SECRETARY, GEORGE A. MOLEEN, DENVER

Tuesday, June 23—2 p. m.

Chairman's Address: Some Factors Tending toward Adequate Instruction in Nervous and Mental Diseases.
W. W. GRAVES, St. Louis.

Juvenile Psychosis: Report of a Case.

H. H. DRYSDALE, Cleveland.

Tuberous Sclerosis and Other Unusual Features in Epilepsy.

N. S. YAWGER, Philadelphia.

Nervous and Mental Disturbances Following Castration in Women.

ALFRED GORDON, Philadelphia.

Acute Myelitis, Secondary to Perirectal Abscess, Developing a Few Hours after Severe Fright.

WILLIAM G. SPILLER, Philadelphia.

Wednesday, June 24—9 a. m.

Occlusion of the Posterior-Inferior Cerebellar Artery: Report of Cases.

A. C. GILLIS, Baltimore.

Cerebellar Symptoms and Localization. Illustrated by Lantern-Slides and Moving Pictures.

CHARLES K. MILLS and T. H. WEISENBURG, Philadelphia.

Results Following Seventy-Five Injections of Salvarsanized Serum.

C. EUGENE RIGGS and ERNEST M. HAMMES, St. Paul, Minn.

A Brief Report on Cases of Paresis Treated by Intraspinal Injections of Salvarsanized Serum.

L. B. PILSBURY, Lincoln, Neb.

The Value of Early Diagnosis in Syphilis of the Central Nervous System: Its Relation to Treatment.

HENRY A. COTTON, Trenton, N. J.

Wednesday, June 24—2 p. m.

The Borders of the Areas of Anesthesia, Analgesia and Thermo-Anesthesia in Lesions at the Different Levels of the Sensory Tract.

OTFRID FOERSTER, Breslau, Germany.

Ankylosis of the Shoulder-Joint in Association with Brachial Neuritis and Pulmonary Lesion of the Right Lung.

D. J. MCCARTHY, Philadelphia.

Tumors of the Crus.

JOHN H. W. RHEIN, Philadelphia.

Landry's Paralysis. Report of a Case with Necropsy.

EDWARD D. FISHER, New York.

Thursday, June 25—9 a. m.

SYMPOSIUM ON THE PROBLEM OF THE PREVENTION OF NERVOUS AND MENTAL DISEASE

A Brief Summary and Analysis of the Work Done by Psychanalysts, with Reference to the Diagnosis and Treatment of the Psychoses.

JAMES J. PUTNAM, Boston.

First Signs in Childhood of Compulsion Neuroses.

SMITH ELY JELLIFFE, New York.

The Diagnosis of Preinsane Temperaments During School Examinations.

E. B. HOAG, Los Angeles.

Genetic Factors in One Hundred Cases of Psychoneuroses.

DONALD GREGG, Brookline, Mass.

The "Not Insane" and "Voluntary" Admissions to the Psychopathic Hospital, Boston.

E. E. SOUTHARD, Boston.

Present Teaching of Psychiatry in American Medical Schools.

ROSS MOORE, Los Angeles.

The Ideal Course in Psychiatry for Medical Schools.

H. DOUGLAS SINGER, Hospital, Ill.

Thursday, June 25—2 p. m.

Some Experiences with Alcohol Injection in Trigeminal and Other Neuralgias.

WILFRED HARRIS, London, England.

Results of Psychanalytic Therapy in Dementia Praecox.

A. A. BRILL, New York.

Kraepelin's Conception of Paraphrenia.

MORRIS J. KARPAS, New York.

The Use of Celluloid Splints in the Treatment of Diseases of the Nervous System.

G. WILSE ROBINSON, Kansas City, Mo.

Subarachnoid Hemorrhage: A Contribution to the Subject of Spontaneous Hemorrhage.

S. LEOPOLD, Philadelphia.

Acute Disseminated Sclerosis and Its Visual Symptoms.

ROBERT FOSTER KENNEDY, New York.

A Case of Myasthenia Gravis.

CHARLES A. MCKENDREE, Cromwell, Conn.

Mental Disease and the Transportation of Psychopathic Patients.

PHILIP COOMBS KNAPP, Boston.

SECTION ON DERMATOLOGY

MEETS IN SEASIDE HOTEL

CHAIRMAN, RICHARD L. SUTTON, KANSAS CITY, MO.; SECRETARY, HOWARD FOX, NEW YORK

Tuesday, June 23—2 p. m.

Chairman's Address: The Future of Dermatology in America.

RICHARD L. SUTTON, Kansas City, Mo.

Granuloma Annulare, with a Report of Four Cases,

M. B. HARTZELL, Philadelphia.

The Necessity for the Establishment of a National Leprosarium.

W. C. RUCKER, Washington, D. C.

The National Care of Leprosy.

ISADORE DYER, New Orleans.

A New Method of Treatment of Lupus Vulgaris.

M. L. HEIDINGSFELD, Cincinnati.

The Desiccation Treatment of Congenital and New Growths of the Skin and Mucous Membranes. A Lantern Demonstration.

WILLIAM CLARK, Philadelphia.

Wednesday, June 24—9 a. m.

A Few Practical Points on the Treatment of Leg Ulcers.

A. RAVOGLI, Cincinnati.

Unusual Types of Diphtheria of the Skin. Report of Two Cases.

FRANK CROZER KNOWLES, Philadelphia.

The Diseases and New Growths of the Skin of Lymphatic Origin.

G. ARNDT, Berlin.

Summary of Research Studies in Psoriasis.

JAY F. SCHAMBERG, R. W. RAIZISS and JOHN A. KOLMER, Philadelphia.

Further Experiences with Intravenous Autoserum Injections in the Treatment of Inveterate Skin Diseases.

WILLIAM S. GOTTHEIL and DAVID I. SATENSTEIN, New York.

The Use of Salvarsan in Non-Syphilitic Diseases.

WILLIAM H. BEST, Brooklyn

Wednesday, June 24—2 p. m.

A Statistical Study of Syphilis. The Relation of Its Symptoms to Subsequent Tabes Dorsalis or General Paralysis.

CHARLES J. WHITE, Boston

Syphilis in the American Negro.

H. H. HAZEN, Washington, D. C.

Observations on Strains of the Pallida Group of Spirochetes

HENRY J. NICHOLS, Washington, D. C.

A Sero-Enzyme Test for Syphilis. The Treatment of Syphilis of the Nervous System.

JOHN A. FORDYCE, New York

The Treatment of Syphilis of the Nervous System by Intradural Injections of Neosalvarsan.

UDO J. WILE, Ann Arbor, Mich.

Cerebrospinal Examinations in "Cured" Syphilis in Which the Biologic Method Has Been Used as a Control.

B. C. CORBUS, Chicago.

The Intravenous Administration of Mercury in Syphilis.

JEROME KINGSEURY and PAUL E. BECHET, New York.

Thursday, June 25—9 a. m.

Association of Erythema Nodosum and Tuberculosis.

O. H. FOERSTER, Milwaukee, Wis.

Pemphigoid in the New-Born (Pemphigus Neonatorum) with Report of an Epidemic.

H. N. COLE and H. O. RUH, Cleveland.

Radium: Its Use and Limitations in Skin-Diseases.

FRANK E. SIMPSON, Chicago.

An Unusual Case of Bromoderma of the Legs.

LUDWIG WEISS, New York.

A Case of White-Spot Disease Occurring on the Penis and Scrotum.

GEORGE M. MACKEE and FRED WISE, New York.

Sarcoid of Boeck.

S. E. SWEITZER, Minneapolis.

SECTION ON PREVENTIVE MEDICINE AND PUBLIC HEALTH

MEETS IN ST. PAUL'S CHURCH

CHAIRMAN, M. P. RAVENEL, MADISON, WIS.; SECRETARY, C. HAMPSON JONES, BALTIMORE

Tuesday, June 23—2 p. m.

Chairman's Address and Oration: The Education of Health Officers.

M. P. RAVENEL, Madison, Wis.

Report of Committee on Poverty.

W. A. EVANS, Chicago; PAULINE M. TOWNSEND-HANSON, Marshalltown, Iowa; MARY LAWSON NEFF, Fairfield, Iowa; J. N. HURTY, Indianapolis; S. C. KNOFF, New York.

Report of Committee on Cerebrospinal Meningitis.

R. Q. LILLARD, Nashville, Tenn.; JAMES A. HAYNE, Columbia, S. C.; R. H. VON EZDORF, Mobile, Ala.

Wednesday, June 24—9 a. m.

Present-Day Public-Health Activities.

FRANCIS E. FRONCZAK, Buffalo, N. Y.

The Importance of Proper Sanitary Measures in the Preparation of Foodstuffs.

M. CLAYTON THRUSH, Philadelphia.

Criticism of an Attempt to Prove that a Public-Health Laboratory May Distribute Infection.

JOHN S. FULTON, Baltimore.

Some Important Phases of Railway Sanitation.

N. E. CAMPBELL, Chicago.

Wednesday, June 24—2 p. m.

Principles of State Control of Tuberculosis with Special Reference to Pennsylvania's System.

ALBERT P. FRANCINE, Philadelphia.

Enemies of the Consumptive.

C. AM ENDE, New York.

The Prevention of Tuberculosis by Periodic Examinations of Schoolchildren.

MARY E. LAPHAM, Highlands, N. C.

Certain Problems in Infant Mortality.

C. J. HUNT, Harrisburg, Pa.

Thursday, June 25—9 a. m.

County Health Organizations in the United States.

LOUIS I. DUBLIN, New York.

School-Spread of Contagious Diseases and How to Control It.

MYER SOLIS-COHEN, Philadelphia.

Thursday, June 25—2 p. m.

SYMPOSIUMS ON PELLAGRA AND HOOKWORM

JOINT MEETING WITH SECTION ON PHARMACOLOGY AND THERAPEUTICS

(For titles and authors of papers to be presented see program of Section on Pharmacology and Therapeutics.)

SECTION ON GENITO-URINARY DISEASES

MEETS IN ST. PAUL'S CHURCH

CHAIRMAN, ARTHUR L. CHUTE, BOSTON; SECRETARY, LOUIS E. SCHMIDT, CHICAGO

Tuesday, June 23—2 p. m.

The Value of Hydrotherapy in Urologic Cases.

W. F. MARTIN, Battle Creek, Mich.

Transplantation of Fat in Genito-Urinary Surgery.

GUSTAV KOLISCHER, Chicago.

The Ultimate Results of Genital Tuberculosis in the Male.

J. DELLINGER BARNEY, Boston.

The Diagnosis and Treatment of Gonorrhea.

C. C. WARDEN, Los Angeles.

Endoscopic Treatment of Nocturnal Emissions.

ALEXANDER RANDALL, Philadelphia.

The Radical Removal of Certain Types of Diseased Verumontanum with Notes on Their Pathology.

A. G. RYTINA, Baltimore.

The Colliculus Seminalis as a Factor in Chronic Diseases of the Urethra.

A. L. WOLBARST, New York.

Wednesday, June 24—9 a. m.

Operative Treatment of Infections of the Seminal Duct.

WILLIAM T. BELFIELD, Chicago.

Permanent Epididymotomy.

V. LESPINASSE, Chicago.

The Treatment of Hydrocele with Special Reference to Phenol Injections.

R. H. HERBST, Chicago.

Malignant Disease of the Testes and Its Operative Treatment.

FRANK HINMAN, Baltimore.

A Method of Controlling Hemorrhage after Suprapubic Removal of the Hypertrophied Prostate.

E. L. KEYES, JR., New York.

The Rôle of Functional Kidney Tests and the Preoperative and Postoperative Treatment in the Reduction of Prostatectomy Mortality.

B. A. THOMAS, Philadelphia.

Some Unusual Urologic Conditions and Their Surgical Features.

HUGH H. YOUNG, Baltimore.

Suprapubic Prostatectomy.

CHARLES E. BARNETT, Fort Wayne, Ind.

Wednesday, June 24—2 p. m.

Chairman's Address.

ARTHUR L. CHUTE, Boston.

Extraperineal Rupture of the Bladder. Its Surgical Management.

E. FULLER, New York.

Surgery of the Bladder.

J. BENTLEY SQUIER, New York.

Diverticula of the Urinary Bladder with Report of Cases.

WILLIAM E. LOWER, Cleveland.

Influence of Collargol Injections on the Kidney.

D. N. EISENDRATH, Chicago.

Renal Infection; a Further Experimental Study of Its Relations to Impaired Ureteric Function.

WILLIAM H. BARBER and J. W. DRAPER, New York.

Observations on Renal Functions Determined by Ureteral Catheterization and Phenolsulphonephthalein Test.

GEORGE G. SMITH, Boston.

Thursday, June 25—9 a. m.

A Study of the Action of the Colon Bacillus on the Kidney.

I. S. KOLL, Chicago.

The Treatment of Pyelitis.

JOHN GERAGHTY, Baltimore.

Continuous Painless Renal Hemorrhage and Its Treatment.

WILLIAM M. SPITZER, Denver.

The Value of Renal Functional Tests in Surgical Conditions of the Urinary Tract.

W. F. BRAASCH and G. J. THOMAS, Rochester, Minn.

Differential Diagnosis of Nephrolithiasis and Renal Tuberculosis by Roentgenography.

M. KROTOSZYNER, San Francisco.

Thursday, June 25—2 p. m.

Surgical Interference in Nephritis. L. E. SCHMIDT, Chicago.
 Acute Unilateral Hematogenous Infection of the Kidney.
 JOHN H. CUNNINGHAM, JR., Boston.
 Hemic Infection of the Kidney.
 GRANVILLE MACGOWAN, Los Angeles.

SECTION ON HOSPITALS

MEETS IN THE MARLBOROUGH-BLENHEIM HOTEL

CHAIRMAN, L. B. BALDWIN, MINNEAPOLIS; SECRETARY, JOHN
 A. HORNSBY, CHICAGO

Tuesday, June 23—2 p. m.

Chairman's Address. L. B. BALDWIN, Minneapolis.

SYMPOSIUM ON HOSPITAL CARE OF COMMUNICABLE DISEASES

The Care of Communicable Diseases in General Hospital.
 ROBERT J. WILSON, New York.
 Administrative Technic in the Special Communicable Dis-
 ease Hospital. D. L. RICHARDSON, Providence, R. I.
 Communicable Diseases as a Public-Health Problem.
 J. W. KERR, Washington, D. C.

Wednesday, June 24—9 a. m.**SYMPOSIUM ON PHYSICAL THERAPY IN THE MODERN HOSPITAL**

Physical Therapy in Its Relation to the Hospital Patient
 from the Point of View of the Internist.
 WALTER L. BIERRING, Des Moines, Iowa.
 Six Years' Experiences in the Medicomechanical Department
 of the Massachusetts General Hospital.
 C. HERMAN BUCHOLZ, Boston.
 Applied Physical Therapy. PETER J. PEEL, Chicago.

Wednesday, June 24—2 p. m.

Hospital Preparation for Successful Surgery.
 THOMAS A. SHALLON, Philadelphia.
 Principles of Clinical Organization.
 H. S. PLUMMER, Rochester, Minn.
 Report of the Committee on Hospital Abuses of Charity.
 JOSEPH D. FARRAR, Philadelphia.

Thursday, June 25—9 a. m.**Election of Officers.****SYMPOSIUM ON AIR PROBLEMS IN HOSPITALS**

Tests of Ventilating Plants. E. H. BASS, Minnesota.
 Air Examination in Hospitals.
 C. E. A. WINSLOW, New York.
 Hospital Experiments with Air. W. A. SMITH, Baltimore.
 Possibilities of Window Ventilation.
 S. S. GOLDWATER, New York.
 Possibilities of Mechanical Ventilation.
 ARTHUR K. OHMES, New York.
 Comparisons of Old and New Hospitals.
 T. J. VAN DER BRENT, New York.

Thursday, June 25—2 p. m.**SYMPOSIUM ON SURGICAL SERVICE IN THE HOSPITAL**

JOINT MEETING WITH SECTION ON SURGERY IN
 MORRIS GUARDS' HALL

(For titles and authors of papers to be presented, see pro-
 gram of Section on Surgery.)

SECTION ON ORTHOPEDIC SURGERY

MEETS IN G. A. R. HALL

CHAIRMAN, LEONARD W. ELY, SAN FRANCISCO; SECRETARY,
 EMIL S. GEIST, MINNEAPOLIS

Tuesday, June 23—2 p. m.

Chairman's Address: Orthopedic Surgery: Its Scope and
 Its Future. LEONARD W. ELY, San Francisco.

Some Remarks on the Etiology and Pathology of Bone and
 Joint Tuberculosis.

JOHN FRASER, Edinburgh, Scotland.

The Orthopedist and the Treatment of Chronic Diseases.

J. E. GOLDTHWAIT, Boston.

Ankylosis: An Experimental Study.

NATHANIEL ALLISON, St. Louis.

Arthroplasty with the Aid of Animal Membrane.

W. S. BAER, Baltimore.

Arthroplasty of the Elbow-Joint.

W. RUSSELL MACAUSLAND, Boston.

Wednesday, June 24—9 a. m.

A Neglected Type of Ankle-Fracture.

F. J. COTTON, Boston.

The Three Cardinal Signs in the Diagnosis of Fractures
 Into or Near Joints. W. G. STERN, Cleveland.

The Treatment of Fractures of Both Bones of the Legs.

FRANK E. PECKHAM, Providence, R. I.

Necrotic Bone and the Subsequent Changes Which It Under-
 goes. D. B. PHEMISTER, Chicago.

Results of Operative Procedures in Resection of the Knee.
 M. S. HENDERSON, Rochester, Minn.

The Sacro-Iliac and Sacrovertebral Articulations.

C. A. ERDMAN, Minneapolis.

Wednesday, June 24—2 p. m.

Coxa Vara.

JOHN RIDLON, Chicago.

Coxa Vara Adolescentium.

ARTHUR STEINDLER, Des Moines, Iowa.

Scoliosis.

E. G. ABBOTT, Portland, Me.

Congenital Scoliosis; with Specimen Including the Thorax.
 H. B. THOMAS, Chicago.

The Relation of Bony Anomalies of the Lumbar and Sacral
 Spine to the Cause and Treatment of Scoliosis.

Z. B. ADAMS, Boston.

Bone and Joint Cases; with Lantern-Slide and Moving-
 Picture Illustrations.

MICHAEL HOKE and FREDERICK HODGSON, Atlanta.

Moving Pictures of Deformities in Children.

JAMES K. YOUNG, Philadelphia.

Thursday, June 25—9 a. m.

Original Use of the Bone-Graft in Pott's Disease, Fractures
 and Other Conditions. FRED H. ALBEE, New York.

Hibbs' Osteoplastic Operation for Pott's Disease of the
 Spine. Results of Clinical Observations and Animal
 Experimentation. B. P. FARRELL, New York.

Recurrent Spondylolisthesis with Paralysis. Bone-Splint
 Transplantation; Recovery.

F. EDWIN W. RYERSON, Chicago.

Use of Transplant from Tibia as a Unit of a Joint.

JOHN F. GOLDEN, Chicago.

Observations on Bone Transplantation (Albee's Method)
 for the Cure of Pott's Disease.

CHARLES M. JACOBS, Chicago.

Thursday, June 25—2 p. m.

The Psychic Element Manifested in Many Cases of Ortho-
 pedic Surgery. B. E. MCKENZIE, Toronto.

The Relation of Posture and Intestinal Derangements to
 Coxitis. ROBERT B. OSGOOD, Boston.

Mechanics and Pathology of the Hip in Their Relation to
 the Diagnosis and Treatment of Diseases of the Hip-
 Joint. P. W. NATHAN, New York.

Syphilitic Arthritis; the Question of Diagnosis.

ARCHER O'REILLY, St. Louis.

Syphilis of the Knee-Joint.

JOHN L. PORTER, Chicago.

Syphilitic Bone and Joint Conditions.

HENRY W. FRAUENTHAL, New York.

Demonstration of the Results of Research Which Promise to Be of Great Interest

A new instrument of precision in clinical study having extraordinary features will be shown for the first time. It is presented as a free-will offering from the dental to the medical profession, by a distinguished member of the former.

Exhibits should be shipped in ample time to reach Atlantic City not later than June 20. This will enable installation by Monday and readiness for the stream of visitors early Tuesday morning. The exhibits should be addressed to Dr. Frank B. Wynn, Director Scientific Exhibit, American Medical Association, Atlantic City, N. J., care Exposition Building. The exhibitor should indicate on the box by whom sent, and write a letter to the director so that it will arrive not later than June 19, addressed in care of Dr. I. E. Leonard, Atlantic City, stating how the exhibit was shipped, whether or not it is to be opened and when he will arrive to supervise the installation of the exhibit.

The map shows the Philadelphia Convention Center area, bounded by the Delaware River to the east and the University of Pennsylvania to the west. The main exhibition hall is a large rectangular area divided into sections numbered 1 through 18. Section 1 is at the bottom left, near the river, and section 18 is at the top right. The registration bureau, scientific exhibit, commercial exhibit, post office, and information center are located in a central area, marked with a square symbol. The map also shows various streets, including Atlantic Avenue, Delaware Avenue, and Pennsylvania Avenue. A legend at the bottom left indicates that solid black squares represent headquarters, open squares represent meeting places, and squares with a dot represent both headquarters and meeting places. A scale bar at the bottom right indicates a distance of one half mile.

LEGEND:

- HEADQUARTERS
- MEETING PLACE
- ◼ HEADQUARTERS AND MEETING PLACE

**REGISTRATION BUREAU
SCIENTIFIC EXHIBIT
COMMERCIAL EXHIBIT
POST OFFICE
INFORMATION**

ONE HALF MILE

Alamac (7)
 Apollo Theater (6)
 Ascension Church (14)
 Brighton (4)
 Calafonte (8)
 Commercial Exhibit (A)

Craig Hall (13)
Dennis (2)
Grammar School (12)
G. A. R. Hall (17)
Haddon Hall (9)
Information Bureau (A)

Marlborough-Blenheim (3)
Morris Guards Hall (15)
Odd Fellows Hall (16)
Parochial School (18)
Post Office—A. M. A. (A)
Registration Bureau (A)

St. Paul's Church (11)
Scientific Exhibit (A)
Seaside (10)
Shelburne (1)
Traymore (5)

TABLE OF DAILY RATES AND ACCOMMODATIONS OFFERED BY ATLANTIC CITY HOTELS

| Hotels Grouped by Streets | | Plan | Rooms Without Private Bath | | | | Rooms with Private Bath | | | | |
|---------------------------|----------|--------|----------------------------|-------------|-----------------|------------------|-------------------------|-------------|-----------------|------------------|--|
| | | | For One Person | | For Two Persons | | For One Person | | For Two Persons | | |
| | | | Single Room | Double Room | Double Room | Extra Large Room | Single Room | Double Room | Double Room | Extra Large Room | |
| On the Boardwalk— | | | | | | | | | | | |
| ROYAL PALACE | American | \$3.50 | \$4.00 | \$7.00 | to \$9.00 | \$5.00 | to \$8.00 | \$10.00 | to \$14.00 | | |
| RUDOLF | American | 3.50 | 4.00 | 7.00 | 8.00 | 5.00 | 6.00 | 9.00 | 12.00 | | |
| ST. CHARLES | American | 3.50 | 4.50 | 6.00 | to 8.00 | 6.00 | 7.00 | 8.00 | 10.00 | | |
| SEASIDE | American | 3.50 | 5.00 | 6.00 | 7.00 | 6.00 | 7.00 | 10.00 | 14.00 | | |
| HADDON HALL | American | 3.50 | 5.00 | 6.00 | 8.00 | 6.00 | 7.00 | 10.00 | 12.00 | | |
| CHALFONTE | American | 3.50 | to 4.50 | 6.00 | to 8.00 | 6.00 | 6.00 | 10.00 | to 14.00 | | |
| ALAMAC | American | 4.00 | 5.00 | 8.00 | to 10.00 | 6.00 | 7.00 | 10.00 | 8.00 | | |
| ALAMAC | European | 2.00 | 3.00 | 4.00 | 5.00 | 4.00 | 5.00 | 10.00 | 16.00 | | |
| TRAYMORE | American | 4.00 | 6.00 | 8.00 | 9.00 | 6.00 | 13.00 | 11.00 | to 18.00 | | |
| BRIGHTON | American | 4.50 | 7.00 | 9.00 | to 16.00 | 7.00 | 9.00 | 10.00 | to 18.00 | | |
| MARLBOROUGH-BLENHEIM | American | 5.00 | 6.00 | 9.00 | 10.00 | 6.00 | to 12.00 | 6.00 | to 14.00 | | |
| MARLBOROUGH-BLENHEIM | European | 3.00 | 4.00 | 5.00 | 6.00 | 4.00 | to 10.00 | 10.00 | to 16.00 | | |
| DENNIS | American | 4.00 | 5.00 | 7.00 | 8.00 | 6.00 | to 9.00 | 12.00 | 15.00 | | |
| SHELBURNE | American | 5.00 | 6.00 | 10.00 | 12.00 | 7.00 | 8.00 | 8.00 | 10.00 | | |
| SHELBURNE | European | 3.00 | 4.00 | 6.00 | 8.00 | 5.00 | 6.00 | 10.00 | 12.00 | | |
| CHELSEA | American | 5.00 | 6.00 | 8.00 | 10.00 | 7.00 | 8.00 | | | | |
| Pacific Avenue— | | | | | | | | | | | |
| HALL'S COTTAGE | American | 2.00 | 2.00 | 4.00 | 4.00 | .... | .... | .... | .... |  |  |
| HALL'S COTTAGE | European | 1.00 | 2.00 | 2.00 | 2.00 | .... | .... | .... | .... |  |  |
| MCGINLEY | American | 2.00 | 3.00 | 3.00 | 4.00 | .... | .... | .... | .... |  |  |
| MCGINLEY | European | 1.00 | 2.00 | 2.00 | 3.00 | .... | .... | .... | .... |  |  |
| Oriental Avenue— | | | | | | | | | | | |
| TOURNAINE | American | 2.50 | 3.00 | 5.00 | .... | 4.00 | 5.00 | 7.00 | 8.00 | | |
| Rhode Island Avenue— | | | | | | | | | | | |
| WESTMONT | American | 2.50 | 3.00 | 5.00 | 6.00 | 4.00 | 5.00 | 7.00 | 8.00 | | |
| Massachusetts Avenue— | | | | | | | | | | | |
| PHILLIPS HOUSE | American | 2.50 | 3.50 | 5.00 | to 8.00 | .... | 5.00 | 8.00 | 8.00 | | |
| New Jersey Avenue— | | | | | | | | | | | |
| PIERREPONT | American | 3.50 | 4.00 | 7.00 | 8.00 | 4.50 | 5.00 | 9.00 | 10.00 | | |
| MRS. LANCKEN | European | 1.00 | 1.00 | 2.00 | 2.00 | .... | .... | .... | .... |  |  |
| DOWLING COTTAGE | American | 2.00 | 2.50 | 4.00 | .... | .... | 3.00 | 5.00 | .... |  |  |
| St. Charles Place — | | | | | | | | | | | |
| RALEIGH | American | 3.00 | .... | 5.00 | 6.00 | 4.00 | .... | 7.00 | 8.00 | | |
| Maryland Avenue— | | | | | | | | | | | |
| GOODFELLOW | American | 2.00 | 3.00 | 4.00 | 5.00 | .... | 3.00 | 5.00 | .... |  |  |
| HALCYON HALL | American | 2.00 | 2.50 | 4.00 | 5.00 | .... | .... | .... | .... |  |  |
| HALCYON HALL | European | 1.00 | 1.50 | 2.00 | 3.00 | .... | .... | .... | .... |  |  |
| LAMBORN | American | 2.50 | 3.50 | 5.00 | .... | 4.00 | .... | 8.00 | .... |  |  |
| Virginia Avenue— | | | | | | | | | | | |
| WHITTIER | American | 2.00 | 2.50 | 4.00 | .... | .... | .... | 6.00 | 7.00 | | |
| BERKSHIRE INN | American | 2.00 | 3.00 | 4.00 | 6.00 | 3.00 | 4.00 | .... | .... |  |  |
| BERKSHIRE INN | European | 1.00 | 1.50 | 2.00 | to 3.00 | .... | .... | .... | .... |  |  |
| AVON INN | American | 2.00 | 2.00 | 3.50 | 4.00 | 2.50 | 3.00 | 5.00 | 5.50 | | |
| AVON INN | European | 1.00 | 1.00 | 2.00 | 2.50 | 2.00 | 2.00 | 3.00 | 3.00 | | |
| CALVERT | American | 2.00 | 2.50 | 4.00 | 5.00 | .... | 5.00 | 8.00 | 10.00 | | |
| CALVERT | European | 1.00 | 1.50 | 2.00 | 3.00 | .... | 3.00 | 6.00 | 8.00 | | |
| GRAND ATLANTIC | American | 2.50 | 3.00 | 5.00 | to 7.00 | 4.00 | to 5.00 | 7.00 | to 10.00 | | |
| BOTHWELL | American | 2.50 | .... | 5.00 | .... | 4.00 | .... | 8.00 | .... |  |  |
| WILTSHIRE | American | 2.50 | 3.00 | 5.00 | 6.00 | .... | .... | 8.00 | 10.00 | | |
| SOTHERN | American | 2.50 | 3.00 | 5.00 | 6.00 | 3.50 | 4.00 | 7.00 | 8.00 | | |
| MORTON | American | 3.00 | 3.50 | 5.00 | 6.00 | .... | .... | 7.00 | to 10.00 | | |
| RAYMOND | American | .... | 2.50 | 4.00 | to 6.00 | .... | .... | 7.00 | 7.00 | | |
| ABSECON | American | 2.50 | 3.00 | 5.00 | 6.00 | .... | .... | 5.00 | 5.00 | | |
| ABSECON | European | 1.50 | .... | 2.00 | 3.00 | .... | .... | .... | .... |  |  |
| ALBEMARLE | American | 2.50 | .... | 4.00 | .... | .... | .... | .... | .... |  |  |
| RITA HALL | American | 2.00 | to 3.00 | 4.00 | to 6.00 | 3.00 | to 4.00 | 6.00 | to 7.00 | | |
| RITA HALL | European | 1.00 | to 1.50 | 2.00 | to 3.00 | .... | .... | .... | .... |  |  |
| WRIGHT'S CATTAGE | American | 2.00 | to 3.00 | 4.00 | to 6.00 | .... | .... | .... | .... |  |  |
| WRIGHT'S COTTAGE | European | 1.00 | to 2.00 | 2.00 | to 4.00 | .... | .... | .... | .... |  |  |
| Pennsylvania Avenue— | | | | | | | | | | | |
| MELROSE HALL | American | 2.50 | 3.00 | 5.00 | 6.00 | 3.00 | 3.50 | 6.00 | 7.00 | | |
| WYNNEFIELD | American | 2.00 | 2.50 | 4.00 | 5.00 | .... | .... | 6.00 | 7.00 | | |
| WYNNEFIELD | European | 1.00 | 1.50 | 2.00 | 3.00 | .... | .... | 4.00 | 5.00 | | |
| NEW CHATHAM | American | 2.50 | 3.00 | 5.00 | 6.00 | .... | .... | .... | .... |  |  |
| STEVENSON | American | 2.50 | 3.50 | 5.00 | .... | .... | 3.50 | 6.00 | .... |  |  |
| North Carolina Avenue— | | | | | | | | | | | |
| COLONIAL | American | 2.50 | 3.00 | 6.00 | 6.00 | 4.00 | 4.00 | 8.00 | 8.00 | | |
| South Carolina Avenue— | | | | | | | | | | | |
| DIXIE | American | 2.00 | 2.00 | 3.00 | 3.00 | 2.50 | 2.50 | 5.00 | 5.00 | | |
| DIXIE | European | 1.00 | 1.00 | 2.00 | 2.00 | 1.50 | 1.50 | 3.00 | 3.00 | | |
| IROQUOIS | American | 3.00 | 4.00 | 5.00 | 6.00 | 5.00 | 6.00 | 7.00 | 8.00 | | |
| IROQUOIS | European | 1.50 | 2.00 | 2.00 | 3.00 | 3.00 | 4.00 | 5.00 | 6.00 | | |
| NEW PRINCESS | American | 3.00 | .... | 5.00 | 6.00 | 4.00 | .... | 8.00 | .... |  |  |
| NEW PRINCESS | European | 1.50 | .... | .... | .... | .... | .... | .... | .... |  |  |
| RADNOR | American | 1.50 | 2.50 | 3.00 | 4.00 | .... | .... | .... | .... |  |  |
| RADNOR | European | .75 | 1.50 | 1.50 | 2.00 | .... | .... | .... | .... |  |  |
| NEW ENGLAND | American | 2.50 | to 3.00 | 5.00 | to 6.00 | 4.00 | .... | 7.00 | .... |  |  |
| SILVERSIDE | American | 3.00 | 3.50 | 5.00 | 6.00 | .... | .... | .... | .... |  |  |
| SILVERSIDE | European | 1.50 | 2.00 | 2.00 | 3.00 | .... | .... | .... | .... |  |  |
| Ocean Avenue— | | | | | | | | | | | |
| BON AIR | American | 2.00 | .... | 3.50 | 4.00 | .... | .... | .... | .... |  |  |
| Tennessee Avenue— | | | | | | | | | | | |
| NATIONAL | European | 1.00 | to 2.00 | 2.00 | to 3.00 | .... | .... | .... | .... |  |  |
| KENWOOD | American | 2.00 | 2.50 | 3.00 | 4.00 | .... | .... | .... | .... |  |  |
| CONTINENTAL | American | 2.00 | 2.50 | 4.00 | 4.00 | 3.50 | 4.00 | 6.00 | 7.00 | | |
| CONTINENTAL | European | 1.00 | 1.50 | 2.00 | 3.00 | 1.50 | 2.00 | 3.00 | 4.00 | | |
| ELBERON | American | 1.50 | 2.50 | 4.00 | 5.00 | 3.50 | .... | 6.00 | 7.00 | | |
| ELBERON | European | 1.00 | 1.50 | 2.00 | 2.50 | .... | .... | .... | .... |  |  |
| LOUVAN | American | 2.00 | 2.50 | 4.00 | .... | .... | .... | .... | .... |  |  |
| TRACY | American | 2.00 | 3.00 | 4.00 | .... | .... | .... | .... | .... |  |  |
| FREDONIA | American | 2.50 | 3.00 | 4.00 | to 7.00 | 3.50 | to 7.00 | 5.00 | to 6.00 | | |
| FREDONIA | European | 1.50 | 2.00 | 2.00 | 3.00 | 2.50 | 3.00 | .... | .... |  |  |
| HOWARD | American | 2.00 | 2.50 | 4.00 | 4.50 | .... | .... | .... | .... |  |  |
| HOWARD | European | 1.00 | 1.50 | 2.00 | 2.50 | .... | .... | .... | .... |  |  |
| GREATER PITTSBURGH | American | 1.75 | 2.00 | 2.50 | 3.00 | .... | .... | .... | .... |  |  |
| GREATER PITTSBURGH | European | 1.00 | 1.25 | 1.50 | 2.00 | .... | .... | .... | .... |  |  |
| BEAUMONT | American | 2.00 | 2.50 | 3.00 | 4.00 | .... | .... | .... | .... |  |  |
| BEAUMONT | European | 1.00 | 2.00 | 2.00 | 2.50 | .... | .... | .... | .... |  |  |

| | | | | | | | | | |
|------------------|----------|------|---------|------|---------|------|---------|------|------|
| St. James Place— | | | | | | | | | |
| SEA CREST | American | 2.00 | .... | .... | .... | .... | .... | .... | .... |
| SEA CREST | European | 1.00 | .... | .... | .... | .... | .... | .... | .... |
| FLANDERS | American | 1.50 | 2.00 | 3.00 | 4.00 | .... | .... | .... | .... |
| ELWOOD | American | 2.00 | 2.50 | 4.00 | 5.00 | .... | .... | .... | .... |
| ELWOOD | European | 1.00 | 1.50 | 2.00 | 3.00 | .... | 3.50 | 5.00 | 6.00 |
| DEVONSHIRE | American | 2.50 | 3.00 | 4.00 | 6.00 | .... | 2.00 | 3.00 | 4.00 |
| ST. JAMES | American | 2.00 | 2.50 | 3.50 | to 4.00 | .... | .... | 6.00 | .... |
| New York Avenue— | | | | | | | | | |
| VICTORIA | American | 2.00 | 3.00 | 4.00 | 4.00 | .... | .... | .... | .... |
| VICTORIA | European | 1.00 | 1.00 | 2.00 | 2.00 | .... | .... | .... | .... |
| MERVINE | American | 2.50 | 3.00 | 5.00 | 6.00 | .... | .... | .... | .... |
| MERVINE | European | 1.00 | 1.50 | 2.50 | 3.00 | .... | 5.00 | 8.00 | 8.00 |
| NETHERLAND | American | 2.00 | 2.50 | 4.00 | 4.00 | 3.50 | 3.00 | 5.00 | 6.00 |
| WALDORF | American | 2.50 | 2.50 | 4.00 | 4.00 | .... | .... | 6.00 | .... |
| BELLVILLE | American | 1.50 | to 3.00 | 3.00 | to 6.00 | .... | .... | .... | .... |
| BELLVILLE | European | 1.00 | 1.50 | 2.00 | 3.00 | .... | .... | .... | .... |
| NEW HYGEIA | American | 1.50 | 1.75 | 2.75 | 3.00 | .... | .... | .... | .... |
| NEW HYGEIA | European | .75 | 1.00 | 1.50 | 1.75 | .... | .... | .... | .... |
| Kentucky Avenue— | | | | | | | | | |
| BARNAY'S | European | 3.00 | 5.00 | 5.00 | 7.00 | 4.00 | 7.00 | 6.00 | 8.00 |
| NEW CLARION | American | 2.00 | to 3.50 | 4.00 | to 6.00 | 3.00 | to 4.50 | 5.00 | .... |
| NEW CLARION | European | 1.00 | 1.50 | 2.00 | 3.00 | .... | .... | .... | .... |
| FRONTENAC | American | 2.50 | 2.50 | 4.00 | 5.00 | .... | .... | .... | .... |
| MONTICELLO | American | 2.50 | 3.00 | 4.00 | 5.00 | 4.00 | 5.00 | 6.00 | 7.00 |
| MONTICELLO | European | 1.50 | 2.00 | 2.00 | 3.00 | 2.50 | 3.50 | 3.50 | 5.00 |
| WESTMINSTER | American | 2.00 | 2.50 | 4.00 | 5.00 | 3.00 | 4.00 | 5.00 | 6.00 |
| WESTMINSTER | European | 1.00 | 1.50 | 2.00 | 3.00 | 2.00 | 2.50 | 3.00 | 4.00 |
| SILVERTON | American | 1.50 | to 2.50 | 3.00 | 4.00 | .... | .... | .... | .... |
| Illinois Avenue— | | | | | | | | | |
| CRAIG HALL | American | 2.50 | 3.00 | 5.00 | 6.00 | 3.50 | 4.00 | 6.00 | 7.00 |
| Park Place— | | | | | | | | | |
| GLASLYN-CHATHAM | American | 2.50 | 3.00 | 5.00 | .... | .... | .... | 8.00 | .... |
| Michigan Avenue— | | | | | | | | | |
| PENNYHURST | American | 3.00 | 3.00 | 5.00 | 6.00 | 4.00 | to 5.00 | 7.00 | 8.00 |
| ARLINGTON | American | 2.50 | 3.00 | 4.00 | 5.00 | .... | 5.00 | 7.00 | 8.00 |
| ARLINGTON | European | 1.00 | 1.50 | 2.00 | 3.00 | .... | .... | .... | .... |
| EDISON | American | 2.00 | 2.50 | 3.50 | 4.00 | 2.50 | 3.00 | 5.00 | 5.50 |
| EDISON | European | 1.00 | 1.50 | 2.00 | 2.50 | 1.50 | 2.00 | 3.00 | 3.50 |
| FRANCIS | American | 1.50 | 2.00 | 3.00 | 4.00 | 3.50 | 4.00 | 5.00 | 5.50 |
| Arkansas Avenue— | | | | | | | | | |
| EMMETT | American | 1.25 | to 2.00 | 2.50 | 3.00 | .... | .... | .... | .... |
| EMMETT | European | .50 | to 1.00 | 1.00 | 1.50 | .... | .... | .... | .... |
| Georgia Avenue— | | | | | | | | | |
| MILLER COTTAGE | American | 1.50 | 2.00 | 3.00 | 3.50 | .... | .... | .... | .... |

MEETING-PLACES AND HEADQUARTERS

The numerals refer to the map, p. 1607.

BOARD OF TRUSTEES: Directors' Room, Marlborough-Blenheim (3).

JUDICIAL COUNCIL: Marlborough-Blenheim (3).

HOUSE OF DELEGATES: Traymore Solarium (5).

COUNCIL ON HEALTH AND PUBLIC INSTRUCTION: Marlborough-Blenheim (3).

GENERAL MEETING: Apollo Theater (6).

SCIENTIFIC EXHIBIT, COMMERCIAL EXHIBIT, REGISTRATION BUREAU, INFORMATION, TELEPHONES AND BRANCH POST-OFFICE: Exposition Building, Kentucky Avenue and Boardwalk (A).

SECTION, HOTEL HEADQUARTERS AND MEETING-PLACES

PRACTICE OF MEDICINE: Hotel Dennis (2)—St. Paul's Church (11).

SURGERY: Hotel Chalfonte (8)—Morris Guards' Hall (15).

OBSTETRICS AND GYNECOLOGY: Haddon Hall (9)—Morris Guards' Hall (15).

ORTHOPEDIC SURGERY: Hotel Chalfonte (8)—G. A. R. Hall (17).

OPHTHALMOLOGY: Hotel Traymore (5)—Parochial School (18)—Marlborough-Blenheim (3).

LARYNGOLOGY, OTOLOGY AND RHINOLOGY: Hotel Brighton (4)—Guild Hall, Ascension Church (14).

DISEASES OF CHILDREN: Seaside House (10)—Seaside House (10).

PHARMACOLOGY AND THERAPEUTICS: Hotel Dennis (2)—Grammar School Gymnasium (12).

PATHOLOGY AND PHYSIOLOGY: Hotel Shelburne (1)—Playroom, Hotel Dennis (2).

STOMATOLOGY: Craig Hall (13)—Craig Hall (13).

NERVOUS AND MENTAL DISEASES: Hotel Brighton (4)—Brighton Casino (4).

DERMATOLOGY: Seaside House (10)—Hotel Chalfonte (8).

PREVENTIVE MEDICINE AND PUBLIC HEALTH: Hotel Shelburne (1)—St. Paul's Church (11).

GENITO-URINARY DISEASES: Hotel Alamac (7)—Odd Fellows Hall (16).

HOSPITALS: Marlborough-Blenheim (3)—Marlborough-Blenheim (3).

LOCAL COMMITTEE ON ARRANGEMENTS

William Edgar Darnall, Chairman, 1704 Pacific Avenue.

E. C. Chew, Treasurer. Henry T. Harvey, Secretary.

SUBCOMMITTEES

COMMITTEE ON FINANCE

George Scott, 1109 Pacific Avenue, Chairman.

COMMITTEE ON ENTERTAINMENT

William J. Carrington, 905 Pacific Avenue, Chairman.

COMMITTEE ON SECTION ENTERTAINMENT

W. E. Jonah, 1616 Pacific Avenue, Chairman.

COMMITTEE ON HOTELS

Thomas D. Taggart, 25 South Indiana Avenue, Chairman.

COMMITTEE ON HALLS AND MEETING-PLACES

Walt P. Conaway, 1723 Pacific Avenue, Chairman.

COMMITTEE ON SECTION MEETINGS

Byron G. Davis, 1512 Pacific Avenue, Chairman.

COMMITTEE ON PROGRAMS

C. Coulter Charlton, 114 South Illinois Avenue, Chairman.

COMMITTEE ON PRINTING

Walter Reynolds, 27 South Indiana Avenue, Chairman.

COMMITTEE ON BADGES

E. H. Harvey, 20 North Florida Avenue, Chairman.

COMMITTEE ON SCIENTIFIC EXHIBIT

I. E. Leonard, 2842 Atlantic Avenue, Chairman.

COMMITTEE ON REGISTRATION

William Martin, 36 S. North Carolina Avenue, Chairman.

COMMITTEE ON INFORMATION

Richard Bew, 1217 Pacific Avenue, Chairman.

COMMITTEE ON ALUMNI ENTERTAINMENTS

Joseph C. Marshall, 1517 Pacific Avenue, Chairman.

COMMITTEE ON POST-OFFICE AND TELEPHONES

C. Garrabrandt, 19 North Pennsylvania Avenue, Chairman.

COMMITTEE ON COMMERCIAL EXHIBIT

E. Guion, 34 S. North Carolina Avenue, Chairman.

LADIES' COMMITTEE

Mrs. E. H. Harvey, 20 North Florida Avenue, Chairman.

REGISTRATION

The Importance of Registering Early—A Few Instructions Given

The Bureau of Registration will be located in the Exposition Building, Kentucky Avenue and Boardwalk. A committee of local physicians will assist members in registration.

A branch post-office will be opened and a Bureau of Information established in connection with the Registration Bureau.

Members must register in order to obtain the official badge and program. The badge will be necessary for admission to entertainments. All are urged to register as soon as they can name their hotels.

The Registration Department will be open from 8:30 a. m. to 5:30 p. m., on Monday, Tuesday, Wednesday and Thurs-

day, June 22, 23, 24 and 25, and from 9 to 10 a. m. on Friday, June 26.

Attention is called to the following directions:

1. Each physician desiring to register will first fill out the registration card. One should write very plainly, or print, as the cards are given to the printer to use as "copy" for putting the names in the daily *Bulletin*.

2. *Each Fellow who has paid his annual dues* in full will present his pocket card (which was sent him from the Chicago office) and his filled-out registration card at a window marked "Registration by Pocket Card."

3. A delay, in order that the records may be consulted, always inconveniences those who have paid their dues but who fail to present their pocket cards, as suggested above. Be sure to bring your "pocket card."

4. *Fellows who have not paid their dues* will present registration card and make payment at a window marked "Cash."

5. *Each applicant for Fellowship* will present his registration card at the window marked "New Fellows," with a certificate of membership in his state society. Prospective Fellows, however, will save delay and annoyance by sending in their applications before the session. All such applications should be mailed to the American Medical Association, 535 North Dearborn Street, Chicago, so as to arrive not later than June 10.

6. Each Fellow on registering will receive a badge, a copy of the Official Program containing a full announcement of the scientific proceedings, invitations to the social functions, and such other notices as may be of interest.

PUBLIC HEALTH SUNDAY IN PHILADELPHIA

In accordance with the plan followed for several years past, speakers on appropriate public health topics will be furnished for the churches, June 21, the Sunday preceding the session, only this year, instead of furnishing speakers for Atlantic City churches, speakers will be supplied for all the churches in Philadelphia desiring an address on public health. This plan was followed last year in Minneapolis and St. Paul with great success, practically all of the churches participating, including the Jewish, Roman Catholic and all of the Protestant denominations. The work of supplying speakers for the churches is under the direction of the Council on Health and Public Instruction. A local committee, of which Dr. Edward Martin is chairman, has been appointed by the Philadelphia County Medical Society to cooperate with the Council in this work. Arrangements for filling the Philadelphia pulpits are now going on and it is anticipated that a large proportion of the eight hundred churches in Philadelphia will participate in the observance of Public Health Sunday in the churches. Further details will be given later as the plans develop.

SOCIAL ENTERTAINMENTS

(The official Fellow's badge, or one of those provided for ladies and guests, will be required for admission to entertainments, and to piers and other places to which free entrance is granted to those in attendance on the annual session.)

An excellent series of entertainments and amusements has been provided for the Fellows and the visiting ladies.

Monday night there will be banquets and smokers of some of the societies which meet before the session.

Tuesday night, the banquets, smokers and vaudevilles of the sections and the various medical alumni and class reunions.

Wednesday night a reception and ball in honor of the President will be given in the Music Room, Steel Pier. This is the most formal of the social functions of the meeting.

Thursday night there will be a musicale in the Ball Room and Music Room on the Steel Pier.

The program for the ladies' entertainment includes an introduction reception Tuesday afternoon; formal reception at the Marlborough-Blenheim at 2 o'clock Wednesday afternoon, and *thé dansant* at 4 o'clock Thursday afternoon at the Atlantic City Yacht Club.

ALUMNI REUNIONS

Alumni Associations that may desire to hold reunions during the meetings of the American Medical Association are requested to communicate, through their secretaries, with Dr. Joseph C. Marshall, Chairman of the Committee on Alumni Entertainments, 1517 Pacific Avenue, Atlantic City, the date desired for such meetings and any suggestions of entertainments they may wish to provide should be stated. Places of meeting or entertainment will be selected for them on request.

THE SECTION BANQUETS

The customary banquets of the sections of the Association will occur on Tuesday evening, June 23, at 7:30 o'clock (unless otherwise announced). Tickets are obtainable from the secretaries of the respective sections.

A joint dinner of the Section on Ophthalmology and the Section on Laryngology, Otology and Rhinology in honor of their guests, will be held at the Hotel Shelburne at 7 o'clock on Tuesday evening, June 23. The dinner will be followed by a Section burlesque arranged especially for this occasion by the Entertainment Committee: Joseph D. Lewis, Chairman; Carl Fisher; Ross H. Skillern, and George S. Crampton.

BANQUET OF WOMEN PHYSICIANS

The women physicians attending the meeting of the American Medical Association will have a dinner at the Hotel Chelsea, Tuesday evening, June 23, at 7:30 o'clock. Those desiring to attend will please remit \$3 to Dr. Clara K. Bartlett, 4301 Atlantic Avenue, Atlantic City.

ALPHA OMEGA ALPHA

The Alpha Omega Alpha Fraternity will meet at the Seaside Hotel, Wednesday, June 24. A luncheon will be served at 12:30 p. m., and a short session will be held immediately following.

MEETING OF NON-AFFILIATED ORGANIZATIONS

The American Academy of Medicine is to meet in Atlantic City, June 19-21. The headquarters and meetings will be at the Hotel Dennis. The social session and banquet will be given at the same place on the evening of June 20, at 7 o'clock. The general topic of the meeting will be "The Practice of Medicine and the Industries," and several valuable papers are promised.

ASSOCIATION OF STATE SECRETARIES AND EDITORS

Dr. Lillian H. South, secretary of the Association of State Secretaries and Editors, announces the annual dinner of this organization to be held at the Marlborough-Blenheim, Monday evening, June 22, at 7 o'clock. This year it will be a subscription dinner at \$3.50 a cover. All secretaries and editors are requested to be present and to advise Dr. South as early as possible if they are planning to attend, in order that places may be reserved. An interesting program is being arranged for this occasion. Remember to bring your Association bar pin with you to the meeting.

POST-OFFICES AND TELEPHONES

An Association Post-Office will be maintained at the Registration Bureau in the Exposition Building, Kentucky Avenue and Boardwalk. Guests are requested to order mail addressed to them "Care American Medical Association, Exposition Building," or to their hotels, as preferred.

Telephone booths will be provided at each meeting-place for the use of Fellows.

THE COMMERCIAL EXHIBIT

Books, Instruments, Surgical Appliances, Foods, Drugs, Furniture, Etc., to be Shown at Atlantic City

The commercial exhibit at the Atlantic City session will have commodious quarters in the Atlantic City Exposition Building, corner of Kentucky Avenue and the Boardwalk. The scientific exhibit, registration department, post-office, information bureau, etc., will be under the same roof as the commercial exhibit.

The sincere and studious efforts of the various firms have made the commercial exhibit a real educational demonstration of medical, surgical and pharmaceutical advances. Each succeeding year sees this feature of the meeting appealing more directly to the members of the profession. Here the physician is offered annually an opportunity to become posted on the newer methods introduced in medical work and to obtain this information through demonstrations which are practical and easily remembered with a small expenditure of time. It is the earnest desire of the officials who superintend the exhibits to have each display of such high class that it will be instructive and beneficial and may rightly be regarded by the profession as a part of the educational advantages of the meeting.

Physicians are urged to feel free to examine each exhibit and to ask questions concerning every demonstration in which they are interested. They can do this without fear of importunity to purchase unless they desire to do so, since one of the principal purposes of the demonstrations given in connection with exhibits is to obtain an interchange of opinion which will mutually benefit both the physician and the manufacturer.

In short, as one physician remarked, these exhibits contain a mine of new ideas for the practitioner who at home is usually so much absorbed in the daily cares of routine medical work that he does not have time to keep abreast of present advances through current medical literature. Dr. Edward Guion of Atlantic City is the local chairman and Will C. Braun, 535 North Dearborn Street, Chicago, Ill., is the superintendent of exhibits.

Following we give a list of the exhibitors with a series of brief notices concerning those firms from whom we have received a statement descriptive of their exhibits.

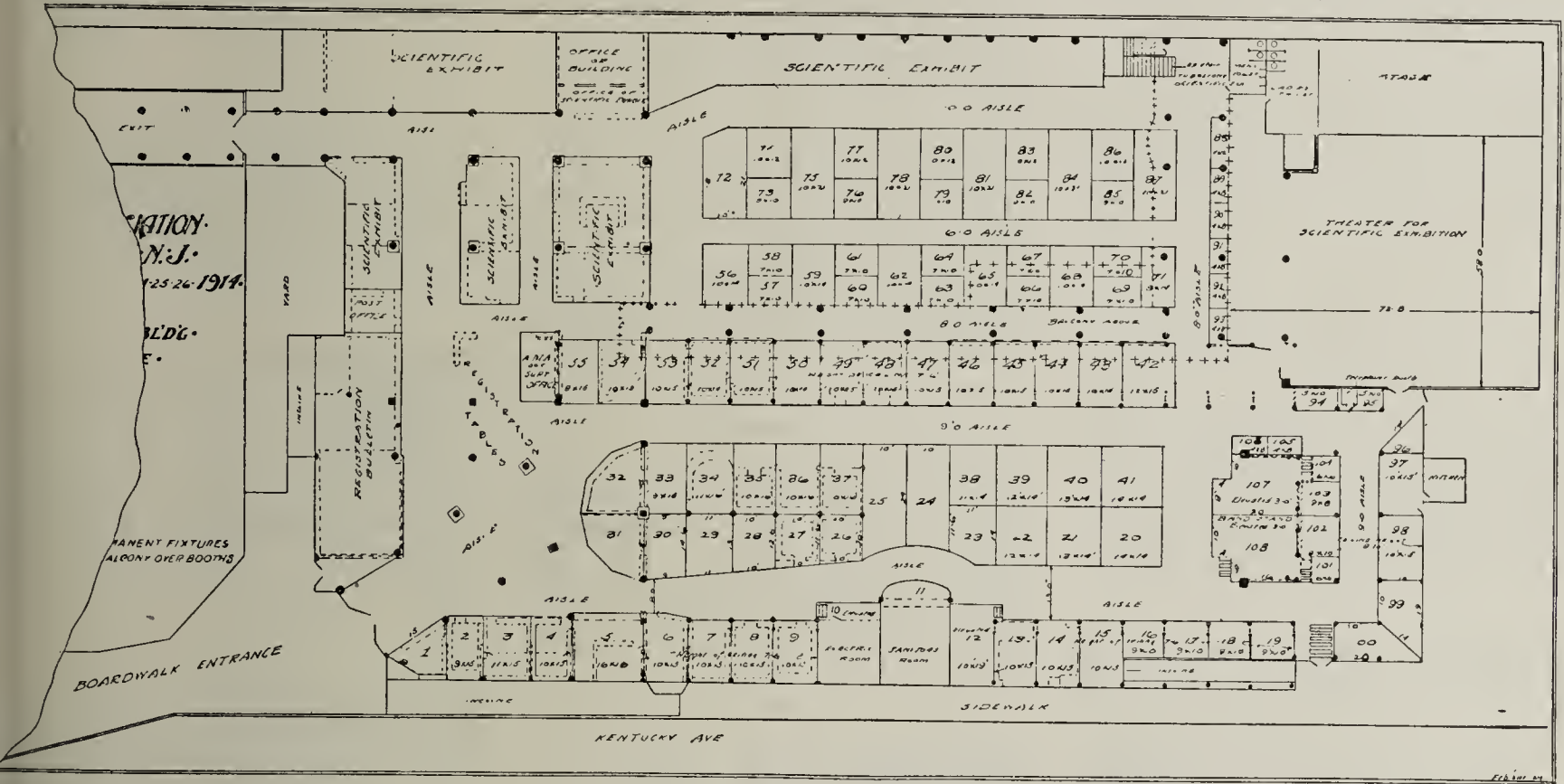


DIAGRAM OF EXHIBIT HALL

| Exhibitors | | Space | |
|--|-------|---|-------------|
| Alison Co., W. D., Philadelphia..... | 83 | Green & Bauer, Hartford, Conn..... | 91 |
| Abulob Co., New York City..... | 18 | Hardy & Co., F. A., Chicago..... | 75-77 |
| Abulobatory Pneu. Splint Mfg. Co., Chicago | 10 | Hoerber, Paul B., New York City..... | 1 |
| Atomik Footwear Co., New York City..... | 44 | Horlick's Malted Milk Co., Racine, Wis.. | 5 |
| Antiseptic Supply Co., New York City..... | 85 | Hygienic Fibre Co., New York City..... | 82 |
| Articulator Agency Co., New York City.. | 11 | Hynson Westcott Co., Baltimore, Md.... | 33 |
| Atkinson & Co., D., New York City..... | 26 | Indiana Springs Co., Kramer, Ind..... | 95 |
| Bellington Chemical Co., Yonkers, N. Y.. | 54 | Jaech Mfg. Co..... | 102 |
| Bour & Co., Chicago..... | 74 | Johnson & Co., Mead, Jersey City, N. J.. | 49 |
| Busch & Lomb Opt. Co., Rochester, N. Y. | 86 | Kelley-Koett Mfg. Co., Covington, Ky... | 98 |
| Burd, Charles R. | 102 | Kny-Scheerer Co., New York City..... | 87 |
| Burger Bros., New Haven, Conn..... | 94 | Lea & Febiger, Philadelphia..... | 3 |
| Bz Co., Frank S., Hammond, Ind..... | 21-40 | Leitz, Ernst, New York City..... | 7 |
| Bkiston's Son & Co., P., Philadelphia.. | 4 | Lentz & Sons, Chas., Philadelphia..... | 35 |
| Borden's Condensed Milk Co., N. Y. City.. | 96-97 | Life Savings Devices Co., Chicago..... | 99 |
| Bry & Co., Geo. W., Chicago..... | 92 | Lippincott & Co., J. B., Philadelphia.... | 52-53 |
| Brown, D. V., Philadelphia..... | 28 | Macalaster, Wiggan & Co., Boston..... | 57 |
| Brdick Cabinet Co., Milton, Wis..... | 12 | Machlett & Son, E., New York City..... | 103 |
| Broughs Wellcome & Co., N. Y. City... | 84 | Maltine Co., The, Brooklyn, N. Y..... | 89-90 |
| Bpbell Electric Co., Lynn, Mass..... | 63 | McIntire, Magee & Brown Co., Phila.... | 71 |
| Bnes Artif. Limb Co., Kansas City, Mo. | 76 | McIntosh Bat. and Opt. Co., Chicago.... | 81 |
| Btle Co., Wilmet, Rochester, N. Y..... | 73 | Mellins Food Co., Boston..... | 55 |
| Bicago Medical Book Co., Chicago..... | 50 | Meyer & Co., Wm., Chicago..... | 47 |
| Bown Surg. Inst. Co., N. Y. City..... | 100 | Meyrowitz, Inc., E. B., N. Y. City..... | 43 |
| Bvis Co., F. A., Philadelphia..... | 17 | Miller Rubber Co., The, Akron, Ohio.... | 69-70 |
| Bmel Linen-Mesh System Co., N. Y. City | 34 | Morris & Schraeder, New York City.... | 61 |
| Bvilbiss Mfg. Co., Toledo, Ohio..... | 8 | Mosby Co., C. V., St. Louis, Mo..... | 56 |
| BZeng Standard Co., Camden, N. J..... | 78 | Mueller & Co., V., Chicago..... | 29-30 |
| Bctro Surgical Inst. Co., Rochester, N. Y. | 38 | Mulford Co., H. K., Philadelphia..... | 42 |
| Bchild Bros. & Foster, N. Y. City..... | 2 | Physicians' Specialty Co., Leesburg, Va.. | 101 |
| Bbes Drv Plate Co., Rochester, N. Y.. | 60 | Physicians' Supply Co., Philadelphia... | 48 |
| | | Pierce, Harvey R., Philadelphia..... | 67 |
| | | Pilling & Son, Geo. P., Philadelphia..... | 51 |
| | | Pompeian Co., The, Washington, D. C.... | 88 |
| | | Precision Thermom. & Inst. Co., Phila.... | 13 |
| | | Pulvola Chemical Co., Jersey City, N. J.. | 106 |
| | | Radium Chemical Co., Pittsburgh, Pa.... | 62 |
| | | Rebman Company, New York City..... | 80 |
| | | Reinschild Chemical Co..... | 79 |
| | | Sanitary Products Co., Chicago..... | 37 |
| | | Saunders Co., W. B., Philadelphia..... | 31-32 |
| | | Scheidel-Western X-Ray Coil Co., Ch'go.. | 107-108 |
| | | Schering & Glatz, New York City..... | 105 |
| | | Schieffelin & Co., New York City..... | 6 |
| | | Scholl Mfg. Co., Chicago..... | 58 |
| | | Smith, Kline & French Co., Philadelphia. | 9 |
| | | Snook-Roentgen Mfg. Co., Philadelphia.. | 14 |
| | | Spirella Co., The, Philadelphia..... | 65 |
| | | Squibb & Son, E. R., New York City.... | 72 |
| | | Storm, Dr. Katherine L., Perkasie, Pa... | 66 |
| | | Surgical Narcosis Supply Co..... | Table Space |
| | | Taylor Inst. Co., Rochester, N. Y..... | 24-25 |
| | | Teter Mfg. Co., Cleveland, Ohio..... | 16 |
| | | Van Orden Corset Co., New York City.... | 36 |
| | | Victor Electric Co., Chicago..... | 63-64 |
| | | Waite & Bartlett Mfg. Co., N. Y. City.. | 104 |
| | | Wall & Ochs, Philadelphia..... | 27 |
| | | Wampole, H. K., Philadelphia..... | 20 |
| | | Wappler Electric Mfg. Co., N. Y. City.. | 22-39 |
| | | Weder Manufacturing Co., Philadelphia.. | 59 |
| | | Weissfeld Bros., New York City..... | 85 |
| | | Welch Grape Juice Co., Westfield, N. Y.. | 45-46 |
| | | White Sulphur Springs | 19 |
| | | Wilson & Wilson, Boston..... | 93 |
| | | Wood & Co., Wm., New York City..... | 41 |
| | | Woelf, Michael, New York City..... | 15 |
| | | Zemmer Co., Pittsburgh, Pa..... | 23 |

Publishers and Books

D. APPLETON & Co., New York City. Space 26. A representative number of new medical books will be displayed, including "Anemia and Resuscitation," by George W. Crile, A.M., M.D. "Borderline Diagnosis," by J. N. Hall, B.S., M.D. Stockton's "Diseases of the Stomach," Behan's monograph on "Pain," and Dr. W. C. Man Thompson's "Occupational Diseases." Two of their most important publications, Gwathmey's "Anesthesia" and Kelly's "Kidney Diseases," are shown in proof form.



P. BLAKISTON'S SON & COMPANY, Philadelphia. Space 4. During the past year this firm have made large progress in the work of "service-giving" to the profession. Their product has been large and the quality right up to the Blakiston standard. Representatives of the firm will have much of

interest and value to present, especially in books on Diseases of Children, Diseases of Old Age, Practice of Medicine, Obstetrics, Ophthalmology, Surgery, Chemistry and Clinical Diagnosis.

CHICAGO MEDICAL BOOK Co., Chicago. Space 50. Will exhibit a most complete assortment of the latest English importations. A representative showing will also be made of the best and newest medical works of the various American publishers. These will make their booth one of the most interesting at the coming meeting.

PAUL B. HOEBER, New York City. Space 1. An exhibit of Medical Books that, on account of its variety, will interest every visitor. Their own publications, consisting of monographs by Osler, Ehrlich, Wright, Mackenzie, Lewis, Squier, Einhorn, Paget, etc., will be supplemented by the new and important English, German and French publications. There will also be the wonderful reproduction of Leonardo da Vinci's Anatomy, the original edition of Vesalius and other rare items. Specialists in all lines will find numerous monographs to interest them.



LEA & FEBIGER, Philadelphia and New York. Space 3. There will be exhibited the following new works: Ashhurst's Surgery, Lynch on the Rectum, Newcomet on Radium, Braun's Local Anesthesia, Norris on Blood-Pressure, Wright and Smith on the Nose and Throat, Knowles on Skin Diseases, Osler's "Modern Medicine," Vol. III, Goodman on Blood-Pressure. New editions just published: Kanavel on the Hand, Hare's Bedside and Office Diagnosis, Ballenger on the Nose, Throat and Ear, Jackson on the Skin, Harrington's Hygiene.

published: Kanavel on the Hand, Hare's Bedside and Office Diagnosis, Ballenger on the Nose, Throat and Ear, Jackson on the Skin, Harrington's Hygiene.

J. B. LIPPINCOTT COMPANY, Philadelphia. Spaces 52 and 53. Numerous new, modern and practical books by authoritative writers on medical subjects and allied sciences will be found at this exhibit. A series of remarkable enlarged anatomical studies from Piersol's Anatomy is to be a feature of the exhibit, which every practitioner will want to see.



C. V. MOSBY COMPANY, St. Louis, Mo. Space 56. Will feature Loeb's "Operative Surgery of the Ear, Nose and Throat," two volumes; Crossen's "Operative Gynecology"; Barnes' "The Tonsils"; Hoyt's "Practical Therapeutics"; Gardner-Simonds' "Handbook of Practical Sanitation." They will also have an attractive line of monographs. Their new and revised Golden Rule Series will be one of the special features of the display.

REBMAN COMPANY, New York. Space 80. Attention is drawn at this exhibit to Schmidt "Malignant Tumors of the Abdominal Viscera." Rudolf Krause "A Normal Course in Histology." Krause "Surgery of the Brain and Spinal Cord." Rutten "Diseases of the Labyrinth." Mitchell "Doctor in Court." Reed "Sex; Its Origin and Determination." Kingsbury "Chromosomes." Gardner "Iconograms." Regional "Dermatology" (new edition). Greeff "External Diseases of the Eye" (new edition).



W. B. SAUNDERS COMPANY, Philadelphia. Spaces 31 and 32. There will be many new books and new editions in this exhibit of unusual value, such as Crile and Lower's Anoci-Association, Thomson's Clinical Medicine, Kerley's Practice of Pediatrics, Allen's Local Anesthesia, Murphy's Clinics for June, a new Mayo volume, Ward's Clinical Hematology, Kaplan's Serology of Nervous and Mental Diseases, Mallory's beautiful Pathologic Histology, new editions of Da Costa's Modern Surgery, Grulec's Infant-Feeding, Brill's Psychanalysis, Stelwagon's Diseases of the Skin, etc.

WILLIAM WOOD & Co., New York City. Space 41. A great number of important books of most recent publication, indicating an unusually active year in medical publishing, will be displayed. Some of the most important works, from a scientific and practical viewpoint are: "Reference Handbook of the Medical Sciences," 8 volumes, new edition; Cunningham's "Manual of Practical Anatomy," two volumes, new edition; Stedman's Medical Dictionary, La Garde's "Gunshot Wounds," Yeo's "Manual of Medical Treatment," two volumes, new edition; Castellani's "Tropical Medicine," new edition; May's "Manual of Diseases of the Eye," new edition; Cunningham's "Text-Book of Anatomy," new edition; Tredgold's "Mental Deficiency," new edition. Attention is called to the *British Journal of Surgery*, a new quarterly, now in its second year.

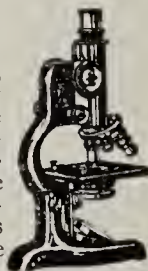
Apparatus, Instruments and Furniture

W. D. ALLISON Co., Indianapolis. Space 83. Attractive, practical and time-saving office devices will be shown at this space. Automatic tables; ingeniously designed medicine cabinets; examining and treatment chairs; stools; stands; waste receptacles; reception-room furniture, and everything incident to the complete modern office. Representative styles will be on exhibition.



ANATOMIK FOOTWEAR Co., New York City. Space 44. Their shoes for men, women and children will be exhibited. The construction of their footwear is such that it affords full support for the whole of the foot, whereas in ordinary shoes (as illustrated in the accompanying sketch), the weight-bearing part of the foot overhangs the base of the shoe.

BAUSCH & LOMB OPTICAL Co., Rochester, N. Y. Space 86. New models in microscopes, microtomes, centrifuges and other laboratory apparatus and supplies will be displayed by this firm. The instruments shown will form an instructive demonstration of the most recent improvements in diagnostic apparatus which advances in laboratory examination have made necessary.



FRANK S. BETZ Co., Chicago. Spaces 21 and 40. This exhibit will consist of an unusually large display of surgical instruments, batteries, operating-tables, lamps, sterilizers, high-frequency outfits and complete medical, surgical and hospital equipment. A special feature of this exhibit will be a flash coil which makes a skiagraph of the chest of the heaviest patient after very brief exposure.

GEO. W. BRADY & Co., Chicago. Space 92. There will be exhibited some of the work done by various x-ray operators who are using the new Paragon X-Ray Plates. These plates are said to have met with great success since placed on the market, owing to their very fine quality, great speed and accuracy in bringing out minuteness of detail and shadow outlines.

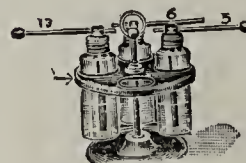


DEVILBISS MANUFACTURING COMPANY, Toledo, Ohio. Space 8. A display of a full line of prescription and patients' atomizers. Special attention will be called to the style of construction used in the manufacture of DeVilbiss Atomizers, their utility and their advantages for both office and prescription purposes.

FORBES DRY PLATE Co., Rochester, N. Y. Space 60. This firm will display a very interesting series of radiographs made on Forbes X-Ray Plates showing their extremely wide latitude, the quality attained in Forbes Plates which reduces the chance of failure to a minimum and makes them so simple and easy to work.



F. A. HARDY & Co. Spaces 75 and 77. A line of eye, ear, nose and throat surgical instruments—for the most part specialties manufactured by this firm—as well as a number of ophthalmologic specialties, will be exhibited. All instruments on display will be up-to-date and many are of new design.



JAECKH MANUFACTURING Co., Cincinnati, Ohio. 102. Demonstrations will be made of cleaning machines for use in residences, hospitals, etc., air compressing machines for supplying compressed air in medical offices, garages or in any building where an air pressure up to 200 pounds is desired; the new Robertson Compressed Air and Vacuum Machine constructed especially for the doctor's office, and also an inexpensive yet efficient spraying and nebulizing outfit.

KNY-SCHIEERER COMPANY, New York City. Space 87. There will be given demonstrations of latest improvements in operating-tables adjustable in height to suit the convenience of the surgeon, the Hawley table for the suspension and immobilization of the trunk and extremities without lifting or disturbing the patient, the Honan apparatus for anesthesia by the intravenous route and modern sterilizing apparatus of all kinds.

ERNST LEITZ, New York City. Space 7. This firm will follow its policy as in past exhibitions to display everything in the way of optics for equipping the private practitioner's laboratory and laboratories of hospitals and medical schools. Some new instruments to be exhibited are the Leitz New Microscope II S, Leitz Thoma-Metz Haemacytometer, Leitz Binocular Microscope with Single Objective, Leitz Greenough Binocular Microscope, Leitz Improved Base Sledge Microtome.



THE MCINTIRE, MAGEE & BROWN Co., Philadelphia. Space 71. This firm has something worth "Blowing about" in the new model Ophthalmometer for measuring the curves of the Eye Cornea correctly. Also the improved adjustable instrument table as well as the Phoria-Meter for measuring the amount of muscular imbalance of the eye at the reading distance. These and many other useful accessories and office equipment for the Oculist use will be demonstrated.

CHAS. LENTZ & SONS, Philadelphia. Space 35. An extensive exhibit of many newly devised instruments will be completed for the occasion and the great diversity of apparatus shown will make this display of interest to all branches of the profession. A great many of the instruments to be shown have been perfected through the cooperation of a number of prominent surgeons of Philadelphia.

V. MUELLER & Co., Chicago. Spaces 29-30. A complete line of surgical instruments, electrically lighted diagnostic instruments, and in fact all modern surgical appliances will be demonstrated. Among other bone-operating engines will be shown the Martel Automatic Engine for cranial operations or for general bone operations. A number of new x-ray accessories, such as screens, protecting devices, measuring instruments, etc., will also be shown.

GEORGE P. PILLING & SON Co., Philadelphia. Space 51. The Faught Blood-Pressure Apparatus will be demonstrated by an expert on blood-pressure. A Faught apparatus will be shown that during the past two or three years has been recording more than 1,500 times up to the 450 point. The apparatus is only intended to register to 300 point. This particular demonstrating instrument has been used not only up to 300 point, but again half way around, which is equivalent to 450 mm.

PRECISION THERMOMETER AND INSTRUMENT Co., Philadelphia. Space 13. The many features which make for accuracy in diagnostic work as determined by the use of the new Nicholson Sphygmomanometer will be demonstrated. This mercurial apparatus is easy to read, simple to operate, records both systolic and diastolic blood-pressure, is not affected by climate or temperature and small in size so that it can be carried in the pocket.

SCHOLL MFG. Co., Chicago. Space 58. Physicians who are interested in orthopedic work will be interested in the demonstrations to be given at this booth. The orthopedic appliances originated by this firm offer practical and unique methods of fitting corrective supports to the individual foot.

TAYLOR INSTRUMENT COMPANIES. Spaces 24 and 25. At this exhibit a staff of trained medical men will demonstrate the use of the "Tycos" sphygmomanometer in general practice. The demonstrations will cover the taking of systolic, diastolic, and pulse-pressure. Few booklets and other literature on the relation of blood-pressure in diagnosis of acute and chronic diseases will be distributed. Besides the "Tycos" sphygmomanometer, this exhibit will include a display of "Tycos" fever thermometers.

VILMOT CASTLE COMPANY, Rochester, N. Y. Space 73. Those interested in sterilizing equipment for hospitals will find the Castle Pressure Dressing Sterilizer for bed pans of particular interest. This firm will also show the newest Castle-Rochester Outfits designed for offices and small hospitals; a Washer Sterilizer; small Water Kill; Milk Pasteurizer, etc. Information in regard to the design and construction of the complete line of Castle Hospital Sterilizers will be supplied.

WALL & OCHS, Philadelphia. Space 27. The Ul-tex "one-piece" Bifocal Lens will be exhibited. This appliance is formed from a solid piece of crown glass and having two wholly distinct spherical curves upon one surface. In this lens there is no zone of cloudiness, no distortion of the object being viewed and no rainbow colors.

THE PHYSICIANS SUPPLY Co. of Philadelphia. Space 48. A full line of high grade surgical instruments, especially the latest in nose and throat specialties; also electrically lighted diagnostic instruments, sterilizers, bags and medicine cases will be displayed.

MICHAEL WOOLF, New York City. Space 15. This firm, known as "The R House of New York," will exhibit many attractive ophthalmic specialties, including the new model of their Ski-optometer and combined muscle test. Their eye, ear, nose and throat adjustable electric bracket and lamp and other electric specialties have always made their exhibit a most interesting one.

Apparatus—Electric

DEZENG-STANDARD Co., Camden, N. J. Space 78. Several new instruments will be exhibited. Among them a socket current controller embodying new and highly important features; an improved type of Electric Ophthalmoscope; a greatly improved model Naso-Pharyngoscope having external snap contact and upright image; a line of new instrument tables; a new electric near-point muscle test for use with the DeZeng Phoro-Optometer. Also a full line of electrically lighted diagnostic instruments for eye, ear, nose and throat work. Demonstration daily.

ELECTRO SURGICAL INSTRUMENT COMPANY, Rochester, N. Y. Space 38. Instruments made by this firm are constructed after the designs and suggestions of many physicians based on their practical experience. A line of electrically lighted diagnostic and operative instruments will be exhibited, such as urethroscopes, proctosigmoidoscopes, mastoid transilluminators, cystoscopes, nasopharyngoscopes, etc. Controllers and socket cautery transformers will also be shown.

GREEN & BAUER, INC., Hartford, Conn. Space 91. The well-known Clover Leaf X-Ray Tubes will comprise the main feature of this exhibit. It will be explained why the quality of these tubes is unsurpassed for all purposes and physicians will be enabled to observe the proper technic of manipulating them as demonstrated by experts in radiography and phototherapy.

MACALASTER, WIGGIN Co., Boston and Chicago. Space 57. A fine line of x-ray tubes and accessories will be shown. They have developed a new water-cooled tube which radiographers state is doing splendid work. The target is of tungsten, and the water chamber is large, allowing long, continued runnings without over-heating. The regular line of tubes and accessories also will be shown.

THE WM. MEYER Co., Chicago. Space 47. A demonstration of their well-known line of interrupterless X-Ray equipments with the latest improvements in same, in the way of radiography and fluoroscopy without any guess work, also a moderate-priced klinoscope, which will do both vertical as well as horizontal fluoroscopic work. All the other various X-Ray appliances made by this company will be demonstrated.

McINTOSH BATTERY & OPTICAL Co., Chicago. Space 81. There will be demonstrated a new X-Ray Transformer, combining speed, efficiency and protection. Visiting radiologists will be presented with a valuable x-ray appliance especially prepared for this meeting. The McIntosh Universalmode, Polysine Generator, Portable Coils and other specialties will be shown.

F. B. MEYROWITZ, Inc., New York. Space 43. Will exhibit a full line of ophthalmological apparatus and special instruments. Among these might be mentioned the Marple Electric Ophthalmoscope, Klaar Headlight, Zeiss Magnifying Loupe, a most convenient form of Pocket Battery, a "Shockless" Rheostat, a new form of Mouth Gag, Nernst Operating Lamp and a full line of eye, ear, nose and throat instruments.

E. MACHLETT & SON, New York City. Space 103. X-Ray tubes for deep therapeutic and radiographic work will be demonstrated. Physicians will be given an opportunity to see the tube in operation and the technic of applying it therapeutically will be explained.

SCHEIDEL-WESTERN X-RAY COIL COMPANY, Chicago. Spaces 107-108. Whether you are an x-ray operator or not, this exhibit will prove particularly interesting. Demonstrations will be given daily of the latest apparatus for roentgenoscopic examinations. There will also be shown a new interrupterless transformer which is said to be the first machine of this type where both the voltage and amperage will be under absolute control at all times.

VICTOR ELECTRIC Co., Chicago. Spaces 63 and 64. New apparatus and accessories brought out since the Minneapolis meeting will constitute the exhibit of this well-known concern, and there will be plenty to interest every physician or surgeon, regardless of his specialty, for this firm reports that it has broken more of its records for turning out new apparatus, during the past year, than during any similar period in its history.

WAPPLER ELECTRIC MANUFACTURING Co., Inc., New York City. Spaces 22 & 39. A large exhibit of electro-medical and therapeutic apparatus and electro-surgical and diagnostic instruments. There will be demonstrated the interrupterless King model X-Ray machines and interrupterless treatment type X-Ray machines which are fitted with their new single-impulse timer, and also fitted with a new serial timer. The exhibit will also include the Excell high frequency machine and a complete line of cystoscopes, urethroscopes, headlights, diagnostic instruments, controllers, pantostats, galvanic and faradic wall plates, etc.

WEDER MANUFACTURING Co., Philadelphia. Space 59. A demonstration of the "De Lyte Surgeon," ever-ready case, consisting of electric light, directly transmitted, (1) through Ear Speculum, magnifying tympanic membrane, (2) through Nasal Speculum, showing turbinates, allowing packing for hemorrhage under direct illumination, (3) by using attachable Tongue Depressor, illuminating the throat, (4) for transillumination of sinuses, (5) with head-band attachment, for emergency operation.

Foods and Milk Preparations

BORDEN'S CONDENSED MILK Co., New York City. Spaces 96-97. At these booths not alone will the firm exhibit their Balted Milk in powder form, but they will also serve Borden's Malted Milk Ice Cream. To those who have tasted this ice cream in the past, this will be a welcome announcement. To those who have not this is an urgent invitation to try it.

HORLICK'S MALTED MILK Co., Racine, Wis. Space 5. As in past years this firm will display the Original-Genuine Malted Milk, together with Horlick's Food and Horlick's Diastoid. They will also serve the delicious Horlick's Malted Milk Ice Cream, which has made the "Horlick Booth" so popular at conventions all over the country.

The
Mellin's Food
Method of
Milk
Modification

MELLIN'S FOOD COMPANY, Boston. Space 55. Physicians are cordially invited to make every inquiry regarding Mellin's Food and its use. Demonstrations will be made to show why there is a distinct advantage to the physician, to the mother and to the baby in the employment of the simple measures suggested in the plan upon which the Mellin's Food Method of Milk Modification is based.

MEAD JOHNSON & COMPANY, Jersey City, N. J. Space 49. An exhibit of their Dextri-Maltose (pure maltose and dextrin in about equal parts) will be made. It is a practical duplicate of the malt-sugar and dextrin preparations made in Germany, where they are largely used by pediatricists, especially those who employ the Finkelstein method of infant feeding.



ESKAYS
Antiseptized
FOOD

SMITH, KLINE & FRENCH Co., Philadelphia. Space 9. Will show how Eskay's Food modifies cow's milk. The cereals preventing the formation of hard cheesy curds, while the other ingredients in its composition make up the deficiencies of cow's milk so that it will simulate mother's milk.

WELCH GRAPE JUICE COMPANY, Westfield, N. Y. Spaces 45 and 46. This firm will have a large and handsome booth in the form of a grape arbor, completely covered with artificial grapes and vines, from which will glow hundreds of tiny electric lights. Here Welch's The National Drink will be dispensed to the Delegates and their friends. In addition to its food value, Welch Grape Juice is being used by physicians as an excellent menstruum in which to administer oily and other disagreeable medicines.



Pharmaceuticals and Biologic Products

ANTISEPTIC SUPPLY Co., Inc., New York City. Space 85. An interesting exhibit of Causticks, Stypsticks, etc., the new form of applying silver nitrate, copper sulphate, alum, etc. Their use avoids the necessity of applying the same applicator in the consecutive treatment of different patients. Samples and descriptive literature will be distributed to all physicians who visit this booth.

ARLINGTON CHEMICAL Co., Yonkers, N. Y. Space 54. Liquid Peptonoids and Dry Peptonoids Soluble will be exhibited together with Hemaboloids made by the associate of this firm, the Palisade Mfg. Co. A new reagent, Arlco-Urease (a urea-splitting ferment) will also be made a part of the exhibit of the former company. This firm will also conduct an accommodation bureau giving visiting physicians free service for writing letters. Competent stenographers will be in constant attendance.

ARMOUR AND COMPANY, Chicago. Space 74. Therapeutic products made from glands and membranes supplied from the abattoirs, such as Corpus Luteum, Standardized Thyroids, Parathyroids, Suprarenals, Thymus, Spleen and Pituitary substances in powder and tablets. Also Pituitary Liquid, a solution of the active principle of the posterior lobe of the pituitary body; Red Bone Marrow, Lecithol, an emulsion of lecithin; Pepsin and Pancreatin in various forms for the profession.



SCHERING & GLATZ, New York City. Space 105. An exhibit of the more recently introduced products of their extensive list of well-known synthetic chemical therapeutic agents. The firm will be glad to give information concerning all of these, as well as their organo-therapeutic and other preparations.

REINSCHILD CHEMICAL Co., New York City. Space 79. The special ferruginous preparations—formulated by Dieterich—will be exhibited. Also agar-agar combinations prepared for administration according to the formulas of Dr. Max Einhorn.

FAIRCHILD BROS. & FOSTER, New York City. Space 2. There will be exhibited Essence of Pepsin-Fairchild, the gastric gland extract; Holadin, the entire pancreas gland extract (powder) in enteric capsules; Holadin and Bile Salts; Panopepton, the food for the sick; Enemose, for colonic alimentation; the Fairchild Culture of the Bacillus Bulgaricus in sealed glass vials and in desiccated form in the Lactic Bacillary Tablets, and other Fairchild products.

H. K. MULFORD COMPANY, Philadelphia. Space 42. A scientific exhibit of bacterins, serums, sero-bacterins and vaccines. Showing methods of production with working bulletins compiled from the latest information on the special subjects treated. This is not only designed to be an interesting but an instructive scientific exhibit to aid every practitioner.



SCHIEFFELIN & Co., New York City. Space 6. An exhibit of the biologic products, including diphtheria antitoxin, tetanus antitoxin, antistreptococcic serum, vaccine virus and bacterial vaccines. The method employed in the production of these products will be shown in more or less detail, and will be explained by those in charge of the exhibit. The various containers of the products will also be exhibited.

E. R. SQUIBB & SONS, New York. Space 72. Will give demonstrations of the disintegrability of their tablets and also exhibit a representative collection of their high quality chemicals and pharmaceuticals, together with some of the impurities removed from the regular U. S. P. grade of products in the process of repurification necessary to bring the articles up to the Squibb standard.



HENRY K. WAMPOLE & Co., Inc., Philadelphia. Space 20. Pharmaceutical products will be displayed by this firm, including those prominently identified with U. S. P. and N. F. standards. Pulverous pills, fluidextracts, elixirs, syrups, solutions, tinctures, ointments, soft elastic and hard gelatin capsules, effervescent salts, lozenges, compressed and hypodermic tablets will be aptly displayed in illustration of the advanced achievements to-day of the manufacturing pharmacist.

THE ZEMMER COMPANY, Pittsburgh. Space 23. An exhibit of their line of pharmaceutical products, comprising tablets, lozenges, dry-filled capsules, ointments, eye ointments and hypodermic tablets. This display will be of practical interest.



Artificial Limbs, Orthopedic and Supportive Appliances



AMBULATORY PNEUMATIC SPLINT MANUFACTURING Co., Chicago. Space 10. Will demonstrate the advantages of Ambulatory Pneumatic Splint for reduction, bed and walking treatment of various fractures of lower limbs, also "Ambumatic" Washable Abdominal Supporters. Also a demonstration of "Ambumatic" Flaxall Pure Linen Mesh Underwear, and of latest artificial limb, non-visible extension shoes and non-visible orthopedic appliances.

BERGER BROTHERS Co., New Haven, Conn. Space 94. Spencer Abdominal and Spinal Supports will be exhibited. In addition to an interesting showing of supporting corsets and non-elastic belts, a limited number of copies of a new booklet on abdominal supports will be distributed gratis. The booklet analyzes, by means of pictures, the relative merits of various types of abdominal support.

VAN ORDEN CORSET Co., Newark, N. J. Space 36. An interesting exhibit in which the La Grecque Surgical Corset will be demonstrated and its actual results on a specific case, under the care of a physician of standing, is to be shown by radiographs.



up suitcases, satchels, etc.

SPIRELLA COMPANY, Inc., Meadville, Pa. Space 65. Will exhibit their line of physicians' appliances, asking particular attention to their binder over which measurements are taken; a new shoulder-brace and poise-correcting belt and corsets for the correction of splanchnoptosis and spinal curvature. The value of their exclusive stay in maintaining support without atrophy will be demonstrated.



DR. KATHERINE L. STORM, Philadelphia. Space 66. It has been observed that many physicians use this belt for one or two conditions, as for operations or ptosis, and fail to realize its many-sided usefulness. Fitters employed by the firm will be at this exhibit to explain the efficiency of the appliance as a support in hernias, pregnancy, obesity, sacro-iliac relaxations and other unusual requirements.

Mineral Waters

APOLLINARIS AGENCY COMPANY. Space 11. Apollinaris water, which is mildly alkaline and naturally effervescent, will be exhibited. It is bottled only at the Apollinaris spring, Neuenahr, Germany, and only with its own natural gas, as stated on the label. The same company will also exhibit "Apenta," the Hungarian natural aperient water, which is noted for its well proportioned content of magnesium sulphate and sodium sulphate.

MORRIS & SCHRADER, New York City. Space 61. An exhibit of Contrexville water, which will be dispensed *ad libitum*. A full description of the various varieties will accompany the exhibit.

Miscellaneous

DEIMEL LINEN-MESH SYSTEM Co., New York City. Space 34. This Underwear was invented by Dr. Henry L. Deimel, a California physician, some twenty years ago. The Seventeenth International Congress of Medicine held in London last August awarded this hygienic underwear a Gold Medal. There will be on exhibit different weights of cloth and the latest style garments.

INDIANA SPRINGS Co., Mudlavia, Kramer, Ind. Space 95. For the benefit of physicians who have not had an opportunity to visit Mudlavia, this company will maintain an exhibit showing in pictorial detail their special therapeutic agent, the Mudlavia Bath. Beginning with a view of the mud deposit in the natural state the various steps in the process to completion of the bath will be shown; likewise the buildings and grounds with their special equipment.

THE POMPEIAN Co., Washington, D. C. Space 88. Patients often refuse to take olive oil because the brand they purchase has a disagreeable taste. At this exhibit physicians will be given an opportunity to examine and taste Pompeian Olive Oil which is an absolutely pure product, pressed from the right kind of fruit, picked at the right time and clarified in the right manner—this care in preparation retains in the oil its agreeable fruity flavor, making Pompeian Olive Oil unsurpassed for medicinal uses.

RADIUM CHEMICAL COMPANY, Pittsburgh, Pa. Space 62. The exhibit will consist of a display of Radium salts of high purity. These Radium salts are prepared from carnotite ore mined in Colorado. The production of Radium in America in 1914 will amount to twice the old world's production. Demonstrations of the Radium rays will be given daily.



WEISSFELD BROS., New York City. Space 85. Hospital wearing apparel, physicians' coats, surgeons' gowns, duck suits, smoking jackets, bath robes, dressing gowns washable uniforms of every description, etc., will be displayed.

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THE CAUSES AND TREATMENT OF CHRONIC BACKACHE

WITH A CONSIDERATION OF THE DIAGNOSIS OF SACRO-ILIAC "RELAXATION"

ROBERT W. LOVETT, M.D.

BOSTON

That chronic backache, or chronic lameness in the back, is a frequent occurrence is a matter of common information to the medical profession, to the laity and to the manufacturers of patent medicines. The laity, as a rule, attributes such backache to "kidney disease" in men, and to that or to uterine disease in women. The writings of the medical profession on the subject have not led to a clearing up of the matter, and many confusing statements are to be found.

The more common of the various names given to this symptom-group are a sufficient comment on the situation. They are as follows: neurasthenic spine, hysteric or irritable or railroad spine, chronic lumbago, uterine backache, static backache, relaxation of the sacro-iliac joint, sacro-iliac strain, rheumatism of the spine, chronic back-strain, etc.

It seems permissible, therefore, to make an attempt to present what facts are obtainable bearing on the etiology and pathology of the symptom-group, although the results of any classification not based on post-mortem findings must always be unsatisfactory.

In this consideration tuberculosis of the spine, organic nervous disease and the results of spinal fracture are omitted.

SYMPTOMS

The routine symptoms of the affection will best identify it, and may therefore be presented in outline at this point. The most important are an insistent or intermittent dragging, or more or less acute pain most often in the lower part of the spine, sometimes unilateral, sometimes bilateral, generally aggravated by standing or walking, and often shooting down into the buttocks and the backs of the thighs. Lameness in bending may be present. Tenderness is generally to be found over the lower lumbar region, and particularly over the region of the sacro-iliac joints. When the patient lies or sits she prefers to have the small of the back supported by a cushion. The affection may have begun slowly, or sharply with a catch in the back. Coccygodynia is not an unusual symptom. It is more common in women than in men, and is most common in three types of figure: (1) the flat-backed, round-shouldered type (the gorilla type of Dickinson and Truslow¹), (2) the type with promi-

nent buttocks and a sharp lumbosacral forward curve (the overfeminine type of Reynolds² and the kangaroo type of Dickinson and Truslow) and (3) cases with slight lateral curvature. As a whole the resistance of these patients is less than the average; many of them are neurasthenic, and the affection is notoriously chronic. It may vary from a slight backache occurring after exertion, to a degree which makes the patient an invalid.

FUNDAMENTAL CONSIDERATIONS

Certain fundamental facts lying at the root of the problem under consideration are as follows:

1. We are studying the painful condition of an upright, jointed, weight-bearing column, supported in unstable equilibrium on the pelvis, to which it is attached by the sacro-iliac joints. This column bends more easily to the front and back than to the side, and the upright position is maintained by muscular effort. Since the upright position of the body is maintained in balance by muscular effort, and since in general muscles in their size are proportionate to the demand on them, one may obtain information as to the balance of the body by comparing the size of the muscles at the front and back of the body. The gastrocnemius is much larger than the anterior leg muscles, whereas in the thigh the anterior muscles are developed to hold the knees extended in standing, so that anterior and posterior muscles possess about the same diameter. At the level of the pelvis, however, the great gluteal muscles have practically no anterior antagonists, and the erector spinae muscles are much heavier than the anterior abdominal muscles. The body, therefore, is to be regarded as balanced against an anterior load, as the posterior muscles are much heavier than are the anterior. That the body of the cadaver falls forward if placed erect with the knees prevented from flexing is well known.

2. The sacro-iliac joints transmit the weight of the spine to the pelvis and thence to the legs. They are ear-shaped articular surfaces of irregular contour, in general vertical in direction, containing some synovial membrane and heavy ligamentous bands. That they permit some motion is well established, but this amount of motion is small. Klein³ found that 25 kg. of force applied to the symphysis with the sacrum fixed produced a rotation of the ilia on the sacrum, which on the average, measured by the excursion of the symphysis, was 3.9 mm. in man and 5.8 mm. in

1. Dickinson, R. L., and Truslow, Walter: Averages in Attitude and Trunk Development in Women and Their Relation to Pain, *THE JOURNAL A. M. A.*, Dec. 14, 1912, p. 2128.

2. Reynolds, Edward: The Etiology of the Ptooses and Their Relation to Neurasthenia, *THE JOURNAL A. M. A.*, Dec. 3, 1910, p. 1943.

3. Klein: *Ztschr. f. Geburt. u. Gynäk.*, 1891, xxi. Walcher: *Verhandl. d. deutsch. Gesellsch. f. Gynäk.*, Bonn, 1891. Strasser: *Lehrbuch der Muskel und Gelenk Mechanik*, Berlin, 1913. Dieulafoy and St. Martin, C. R.: *Assn. d. Anat.*, 14 Reunion Revues, 1912.

woman. Measured at the sacro-iliac joint this excursion was about one-sixth of this amount; that is, in man the average amount of motion in the sacro-iliac joint, measured at the posterior part of the joint, was about 0.6 mm. These joints are protected against much motion by intra- and extra-articular ligaments of the heaviest variety. In front of them lie the lumbosacral cord and sacral plexus.

3. The spinal column itself is an intricate structure of vertebrae in contact with each other by two intervertebral articular surfaces and by four articular surfaces on the transverse processes, with of course two additional articulating surfaces for ribs in each vertebra in the dorsal region. The ligaments connecting the vertebrae are heavy and stronger on the posterior than on the anterior aspect. Here then we have a structure with about one hundred articulations and with intricate and firmly attached ligaments.

VARIETIES

Having investigated these fundamental considerations, we come to the investigation of the causes of chronic backache. We can identify clinically three etiologic classes about which there is no reasonable doubt.

1. Disease or displacement of the pelvic organs is universally recognized as one cause. Whether this is due to a direct reflex influence, or because the patient is inclined to assume a forward bent position to ease tender pelvic organs² and thus incur muscular back-strain, is not certain, although the clinical evidence would seem to favor the latter. It is often the case that in cases clearly of pelvic origin a successful operation fails to relieve the pain in the back until treatment addressed to the static side of the case is subsequently added.

2. Traumatism to the back is frequently followed by chronic backache, and a traumatic class is generally accepted. The spine with its hundred joints and complex ligamentous support is as likely to be sprained as is any other joint, and from the difficulty of fixation of the spine such sprains are as a rule imperfectly treated, and a condition of chronic irritability is likely to arise similar to what we class as chronic sprain in the ankle and knee.

3. Finally, arthritis of the spine is a painful condition universally admitted. It may be the outcome of trauma or it may arise so far as we know spontaneously. It may exist in connection with arthritis elsewhere, or it may exist alone. It may be mild or severe and occurs most often at or after middle life.

But these classes, distinct as they may appear in a theoretical classification, are not always so clearly to be identified in practice, and many cases are seen which must be recognized as a mixture of these classes or as a mixture of one of these varieties with the group next to be taken up.

Having defined and set aside cases belonging to these three divisions we have still left unclassified what in private practice in the United States constitutes a fair proportion of the cases (forty-one out of eighty-three cases in the personal series to be presented). With regard to the cause of these cases there are two points of view: (1) that they are largely static in origin, that is, due to overstrain of the posterior musculature, and that the pain is due to irritation of muscles, ligaments and fasciae, and (2) that many of them at least are due to a specific strain or

relaxation of the sacro-iliac joint or joints. It is necessary therefore before proceeding further to examine the evidence for and against these theories, so far as may be done under the conditions.

THEORY OF STATIC ORIGIN

To consider first the theory of static origin: In a paper by Reynolds and Lovett⁴ the conclusion was reached that backache of this character was caused by a forward displacement of the center of gravity of the body, causing undue strain of the posterior musculature of the body, and that this muscular strain was expressed as pain in the muscles and ligaments of the back, so that this type of backache was to be regarded as a symptom-complex due to abnormal attitude induced by peculiarities of the skeleton, lack of proper muscular balance or abnormal conditions in the abdomen.

The pain in the buttocks and back of the thighs is to be explained by the fact that the posterior musculature of the body is more or less continuous, and that the posterior irritation may be expressed as pain below as well as above the pelvis. This is, moreover, the reason that in such cases it is generally painful when lying on the back to have the leg flexed with the knee straight, which immediately pulls on irritable and overstrained posterior muscles.

Such a condition of pain and irritability would *a priori* be expected to occur in persons of diminished resistance or peculiar figures from continued strain of the posterior ligaments, fasciae and muscles of the back, and pain and tenderness in the neighborhood of the sacro-iliac joints occur, because here the erector spinae muscles have their origin, and pain at muscular origins and insertions is not unusual under conditions of prolonged muscular strain, as in flat-foot.

SACRO-ILIAC STRAIN

Given the conditions of such struggle against an anterior load, the result of attitudinal strain, it is not unlikely that in some cases the sacro-iliac joints may share in the process and become the seat of an irritation properly to be spoken of as a strain, and the same is very likely true of the integral joints of the spine. But to assume that there is a specific entity to be classed as sacro-iliac strain seems hardly warranted by the evidence, because all the symptoms attributed to it are more reasonably to be explained by a general attitudinal strain in which tenderness over the sacro-iliac joint or joints may be due just as well to muscular and ligamentous irritation as to joint-strain, and secondly, because the treatment to be described—a treatment generally successful—is addressed to the correction of attitudinal strain and not to the relief of a specific sacro-iliac strain.

SACRO-ILIAC RELAXATION

The assumption of a real sacro-iliac relaxation or subluxation lays itself open to a more definite line of proof or disproof, and that such an assumption is seriously made is shown, for example, in an article by Meisenbach⁵ analyzing 84 cases of "sacro-iliac relaxation." A quotation from this article will represent the point of view:

It is now beginning to be recognized that almost all of the sciaticas are due to sacro-iliac relaxation. . . . The lumbar and sacral cords are closely related to the sacro-iliac

5. Surg., Gynec. and Obst., May, 1911, p. 411.

joint. . . . The symptoms produced by any irregularity of the sacro-iliac joints depend on the pressure of the nerves involved and their distribution.

It is self-evident that a displacement of this joint severe enough to press on the nerve-trunks lying loosely in front of it must be evident to roentgenoscopy, yet—I quote again from Meisenbach—"Heretofore to my knowledge no x-ray has been published showing a dislocated or strained sacro-iliac synchondrosis,"⁶ and one has only to compare the roentgenogram of the "open" sacro-iliac (Fig. 4) of the article with the normal one shown on the opposite page (Fig. 3) to see that no evidence has in that instance been offered. In a case of Meisenbach's (Case 40) "movable sacrum" was diagnosticated by him, the symptoms being occipital headache and pain in the shoulder, the neck symptoms being attributed to "referred muscular spasms radiating from the sacrum."

In an examination of the roentgenograms taken of the eighty-three cases in my series (to be reported later) in no one was there the slightest evidence of any disturbance of relation in the joint. Post-mortem and dissecting-room evidence that this condition exists, except in connection with pregnancy and very severe or crushing trauma is so far as I know wanting.⁷

In Case 84 of Meisenbach's series a pathologic examination was made, as the patient died later of tuberculosis. The symptoms had been pain in the dorsal spine and legs following childbirth. At necropsy "some motion, but not marked, was noted." The joints were then sawed through, and by moving the ilia on each other the joints were observed to move "slightly." These findings are practically identical with those obtained in ordinary dissecting-room specimens.

The symptoms ordinarily described as characteristic of sacro-iliac relaxation are so far as I know identical with those detailed earlier in this paper, except that "slipping" of the joint is said to be felt when the patient stands, for example, on one leg and flexes the other and the surgeon holds one hand on the joint and the other over the pubis, or by manipulating the crests of the ilia with one hand on each, or by forced hyper-extension of the thigh with the hand over the joint.

In my series of eighty-three cases, all examined carefully in this regard, I have failed to find any suggestion of such slipping or displacement or abnormal motion. It may be that my fingers are not sufficiently trained, but I have heard many of my colleagues confess to a similar disability. Again, in the one case seen by me in the last three years in which I believe that there did exist some slight degree of sacro-iliac displacement (Case 12), the symptoms were of a wholly different character from those described above, and were practically those of tuberculosis of the sacro-iliac joint, a peculiar sidling gait, great pain in walking and an inability to lift either leg properly in walking, with a feeling of instability.

The treatment afforded to cases of "sacro-iliac relaxation" not occurring in pregnancy, and the relief afforded by such treatment, as reported, is of itself the best evidence as to the incorrectness of the diagnosis. We have supposedly a relaxed or subluxated great joint, which bears at every step the whole weight of the body. The plane of this joint and the line of

thrust on it are practically the same, that is, every step tends to thrust one joint surface along the face of the other. No joint in the body once relaxed could be so unfavorably situated for recovery while the patient is going about. Yet I quote from another author⁸ to show the treatment generally in vogue and the mechanics on which it is based:

A wide belt made of webbing 9 inches wide, extending from the trochanters up to the crests of the ilia, and encircling the pelvis and buckling in front, gives great relief by immobilizing the joint.

Again:

In mild cases with a movable sacrum, high-heeled shoes may be all that is necessary (Meisenbach).

In the acute cases an adhesive plaster strapping is applied to the back to hold the joints together until a properly fitting belt can be made.⁹

Locally the entire principle of treatment concerns ways and means of holding these joints together. In the most severe it may be necessary to use a plaster spica or corset. Various other forms of retention apparatus are in use, and in some instances simply wearing a pair of closely fitting elastic silk trunks is sufficient. If it is desired simply to provide immobilization for a few days . . . one may strap the pelvic girdle firmly with adhesive plaster.¹⁰

Plaster jackets and braces of one kind and another to secure lumbar lordosis or pressure on the sacrum are also advocated.

The upshot of all this is that we are asked to believe that a pair of elastic silk trunks, strips of adhesive plaster on the skin, a webbing belt or even a plaster-of-Paris jacket will jam together sufficiently firmly to prevent their slipping by each other, these "relaxed" sacro-iliac joints. These joints, which must bear at each step a downward sliding thrust of from 75 to 125 pounds, are deeply embedded, so far as lateral pressure goes, in great masses of fat and muscle, and we are asked to believe that straps of adhesive plaster on the movable skin will "immobilize" them, that is, prevent them from slipping on each other. Here one must apply the simplest rudiments of physics and an elementary knowledge of anatomy and decide according to his individual habit of mind whether or not "slipping" of the sacro-iliac joint is likely to be prevented by these measures.

Contrasting the two theories then, we must recognize that the static cannot be proved or disproved by the Roentgen-ray or pathologic evidence; that sacro-iliac relaxation can be proved in this way, but that such proof is as yet lacking; that the symptoms described fit the static theory, and that the treatment advocated could easily afford relief in certain static cases by affording an annular ligament to the glutei muscles which hold the trunk erect on the legs, for the blacksmith straps up the muscles of his forearm before starting on heavy work; but it is not possible that the apparatus advocated can have the slightest effect in immobilizing a "slipping" sacro-iliac joint. That sacro-iliac strain may exist in connection with general attitudinal strain seems probable, but that sacro-iliac relaxation is a common cause of chronic backache is apparently still to be demonstrated.

The diagnosis of sacro-iliac "trouble" or "dislocation," "relaxation" or "displacement" is at present a very popular one, and eminently satisfactory to the

6. Meisenbach: Monatschr. f. Unfallheilk., 1909, No. 3 (giving an account of eight cases of traumatic luxations).

7. Grimbach: Deutsch. Ztschr. f. Chir., October, 1908.

8. Pitfield: Am. Jour. Med. Sc., June, 1911.

9. Morrill: Cleveland Med. Jour., October, 1910.

10. Swett: Yale Med. Jour., October, 1908.

patient, because it seems serious and unusual, and equally satisfactory to many general practitioners because it seems explanatory. Its adoption demands no etiologic study and only a routine treatment. The diagnosis of "static backache," on the other hand, means that the careful surgeon must look into the cause of it and try to remove this before proceeding to treatment. It is significant that the sacro-iliac diagnosis is but little heard of or discussed in Europe, and that foreign literature on the subject is practically lacking.

The etiology and classification of cases having thus been defined, it becomes important to consider how these theoretical considerations work out in practice, and especially in the treatment of the different groups.

I. BACKACHE OF PELVIC ORIGIN

Pelvic backache, so far as the back itself is concerned, possesses no definite characteristics to distinguish it from backache of static origin, and mixed forms are frequent. In general, pelvic backache is sacral, but may be dorsal, and is generally associated with a history of symptoms pointing to pelvic disturbance. This similarity of back symptoms in static and pelvic cases tends to support the theory that pelvic backaches are most often caused by the forward bent position mentioned above.¹¹

II. BACKACHE FOLLOWING TRAUMATISM

In the history of many cases of chronic backache a traumatism in former years of mild or severe nature is to be found. Many of these cases without this history would have to be classed as probably due to defective balance, but the history of a trauma or overstrain in the past makes it doubtful if they belong to that class. Cases of postoperative backache apparently belong in this class.

A very puzzling class of cases lies between the divisions of those associated with trauma and those clearly arthritic. In the acute stage even if they have a traumatic history they are not always to be distinguished from each other, but the recovery of motion under treatment in a few months, of cases apparently arthritic, leads to the belief that they could not have been due to arthritis of any degree, and it seems better to regard them as analogous to the stiff and painful feet resulting from trauma which are spoken of as "chronic sprains," and which also in their acute stage cannot be clearly differentiated from arthritis at the outset.

III. FORMS DUE TO ARTHRITIS

The recognized symptoms of arthritis of the spine are stiffness and lateral deviation of the spine, pain in the back and legs often classed as "sciatica," a loss of the lumbar curve, and in the severer cases localized disturbances of sensation in definite areas in the legs, and sometimes even some loss of motion in some muscles. The leg pains are to be attributed to nerve-root pressure, and the anatomic distribution of the pain and sensitiveness often shows nerve-root pressure rather than an involvement of the whole sciatic nerve. Pain is noticeable on movement, and a "catch" in making some slight movement frequently occurs at the onset, and often in the course of the affection. A history of recurrent "lumbago" is frequent.

Roentgenoscopy reveals in some cases the presence of osteophytes in the vertebrae, and "lipping" or overgrowth of the vertebral edges; but in other cases presenting exactly the same symptoms no such changes are to be found, yet their long-continued course and recovery with stiffness of part of the spine suggests that the latter are also arthritic.

IV. CASES DUE TO DEFECTIVE BALANCE

These may be classed as (1) those due to defective lateral balance, and as (2) those due to defective anteroposterior balance.

Lateral Defects in Balance.—If one leg is longer than the other, the pelvis must become oblique and the spine curved to one side in standing, and the muscles of one side (generally on the convex side of the curve) are under more strain than those of the other side. This is the simplest form of backache due to defective balance. The pain and discomfort will be most noticeable in standing and walking, and will in many cases be marked over the sacro-iliac region, oftenest on one side. In susceptible persons only a slight degree of lateral curve may be required to produce such backache.

CASE 7.—A clergyman, aged 40, consulted me in 1910. He had always been conscious of his back, even as a boy, having had pain in the lower part of the back and at the end of the spine. For the last two or three years the backache has been decidedly worse, and he now has great discomfort in the lumbar spine in standing and walking; there is no pain in the feet, legs or thighs. After preaching he becomes exhausted, and his nervous endurance is poor. Examination shows a marked lateral curve of the spine to the left, due to 1 inch shortening of the left leg from an unknown cause. This was corrected by a high sole on the left boot, and relief from the backache came in about three weeks, accompanied by very marked improvement in general health and endurance. Two months later he was practically well, and has remained so.

Defective Anteroposterior Balance.—The simplest type of this variety of backache is shown when the abdomen is so large as to cause a serious anterior load.

CASE 8.—A man of 55, in active business, vigorous and athletic, was referred to me in July, 1912, by Dr. S. J. Mixer of Boston, for a persistent lumbar backache of many years' duration, which came on in standing and walking but not in horseback riding. It was so severe that the patient had recently avoided all possible standing and walking. The back was flexible, but the back muscles were spasmodic and hard to the touch. The abdomen was very large and lax. A close-fitting corset was applied to support the lower abdomen, and immediately partial relief was felt. In two weeks the pain had disappeared, and a year later the abdomen was smaller and much less lax, and there was no pain whatever unless the corset became loose. At this time the patient was given exercises for the abdominal muscles.

That defective anteroposterior balance may be manifested by pain in other posterior muscles than those of the back is shown in the following case:

CASE 9.—Woman, aged 25, single, referred in June, 1909, by Dr. Ansel G. Cook of Hartford, who had at one time treated her, complained of great discomfort, especially at the back of the knees, aggravated by standing and somewhat by walking. The pain was attributed by the patient to varicose veins, and she had many cramps, especially in the right leg. The patient stood with an increased curve in the lumbar region, and there was a loss of dorsal flexion in both feet. The gastrocnemii were stretched, higher heels were put on the shoes, and a therapeutic corset was applied.

11. Cases illustrating backache of pelvic, traumatic and arthritic origin are omitted in this place for the sake of brevity. Complete reports of these cases will be given in the author's reprints.

The patient was dissatisfied with the opinion that varicose veins were not the cause of her trouble, and disappeared. In December, 1910, she returned to report that she had had complete relief of all her symptoms shortly after her first visits. When the therapeutic corset wore out and failed to give her support she had much trouble again in the legs, but on getting a satisfactory corset again the pains in the back of the legs disappeared.

In other instances, anteroposterior balance is disturbed by flat-foot and similar conditions, which, by affording an abnormal base of support, induce back-strain.

CASE 10.—A healthy and vigorous domestic servant, aged 30, consulted me in 1907 for a flexible flat-foot, which gave more trouble in the hips and back than in the feet. Flat-foot plates relieved the pain in the hips and legs, but the backache was so severe that a corset and shoulder-straps were applied, which finally relieved the pain in the back. The patient remained comfortable till 1912, when some friends induced her to discard the plates and wear a boot with a low heel and flexible shank. In two weeks the backache became intolerable, and she was unable to work for a day or two. She reapplied the plates, and her symptoms disappeared.

Backache due to relaxed and slumped attitude is perhaps the commonest type of static backache.

CASE 11.—July, 1908, a girl, aged 15, reported that for some years she had had pain in the hip and sacral backache, diagnosticated as sacro-iliac joint affection. The general attitude was bad, the spine being decidedly rounded in the dorsal region. The spine was tender to the touch, and the girl's endurance was poor, the patient having been out of school for a year and a half. She returned for treatment in September, 1908. She was given a therapeutic corset and started on exercises, which she did daily. Setting-up exercises of a very gentle character were at first given in the recumbent position, and were made more forcible and given in the erect position. After two weeks' treatment the patient was allowed to go home, with directions to lie down half an hour in the afternoon, to take half an hour of active exercise outdoors three times a week, to pursue the exercises, and to go to bed at 8 o'clock each night. The pain in the back gradually disappeared, and after a few months there was no further trace of it.

Finally, there are cases apparently due to defective balance in which the pelvic organs are normal, there is no history of trauma and no reason to suspect arthritis, and yet no gross malposition in the standing position is to be detected. It must be remembered with regard to these cases that we have as yet no reliable normal for the upright position to guide us, that individual variations are many, and that in a given person it cannot be said that he or she stands in such a way that back-strain is not to be considered.

FREQUENCY OF DIFFERENT FORMS

Having thus presented the types of backache with which I am familiar, I proceed to the analysis of 83 cases seen by me in 1912 in private practice either at my office or in consultation, in order to see what they show as to the relative frequency of the different forms. Of these cases 29 were males, and 54 females. In age, the patients ranged from 10 years to over 70, with a fairly even distribution by age periods, but rather more frequent between 15 and 20 and between 35 and 50 than at other ages. As to duration, only 6 were of less than six months, 14 were from six months to a year, four were from ten to fifteen years, and 9 were said to have lasted "many years."

As to the classification into the groups described I found as follows:

Lateral defect in balance, 10, (three of these occurring in bony lateral curvature).

Anteroposterior balance, 31. (Five were due to large abdomens, and in fifteen cases there was some static error in the feet which seemed to have an influence on the defective balance.)

Pelvic, 6.

Traumatic, 20. (Five of these were associated with obviously bad standing positions, but in the others the trauma seemed the only cause.)

Arthritis, 15, (in which must be included two cases of "recurrent lumbago" probably arthritic).

Acute lumbago, 1. (This case was too acute to determine the division to which it belonged.)

The case which was spoken of early in the paper, in which I believe that a lesion of the sacro-iliac joint occurred, was the following:

CASE 12.—A healthy woman of 40, of athletic habit, in the fall of 1911 was standing bent over her dog, which she was washing. Her trunk was horizontal, and with one hand she was holding the dog, when with the other arm she reached up and to the right to get a piece of soap. Something snapped in the right side of the back low down, and when she tried to stand erect it was done with difficulty and with much pain in the right sacro-iliac region. Walking was accomplished with much pain. She had to keep rather quiet, and was treated by an osteopath for a week without relief. When she sent for me I found marked tenderness over the joint, pain in movements of the right leg, especially in walking, and a sidling gait much like that seen in tuberculous disease of the sacro-iliac joint. The back was strapped with adhesive plaster, not with any idea of fixing the sacro-iliac joint, but for the same kind of support that one would give a sprained ankle by a sticking plaster or cloth bandage. Walking was forbidden, and a tight-fitting corset made and worn day and night. More exercise was gradually allowed, followed by massage and exercises for the back muscles, and in six weeks the patient was sufficiently well to resume fancy dancing, which was her means of exercise. There has been no return of the trouble.

DIFFERENTIATION

If a case is traumatic in origin and if the sacro-iliac joints are normal in the roentgenogram and to the touch, it is to be assumed that the muscles, ligaments or joints of the spine or of the spine and pelvis have been sprained, and that the condition is similar to that of the sprain of any other joint. If the case is not traumatic in origin, lateral and anteroposterior balance are to be investigated, and static errors in the feet must be remembered as one cause of defective balance. The round back and the overfeminine figure seem especially prone to static backache, but the diagnosis of this type must sometimes be made in the absence of gross malposition.

In all cases in women the possibility of a pelvic cause must be borne in mind, and an inquiry into symptoms indicating pelvic disorder may lead to a conclusion that a competent cause for the backache exists there. The case must be classed as probably arthritic when it is chronic and there are marked stiffness and pain in motion, with muscular spasm and secondary lateral curvature. Referred pains in the legs and disturbances of sensation are suggestive. A fair-minded surgeon, however, must sometimes confess that he cannot classify the case with certainty.

The coexistence of neurasthenia or psychasthenia does not invalidate the diagnosis, and the diagnosis of hysteric or neurasthenic spine is no diagnosis at all.

PROGNOSIS

Since I have investigated and attempted to classify my cases more closely, my results and prognosis have been much more satisfactory. In balance cases I give a favorable prognosis under proper treatment unless the patient is neurasthenic, in which case I am extremely guarded and doubtful in my own mind as to the outcome. Cases clearly pelvic in origin should not be treated by the orthopedic surgeon of course; cases clearly traumatic are favorable as to prognosis except in elderly persons and in those undertaking litigation. In arthritic cases seen fairly early I look for recovery from pain with a spine more or less stiff, and I expect them ultimately to give up support.

The results in the eighty-three cases seen by me in 1912 are tabulated from my records as follows: cured, 33; improved, 10; relieved, 24; failure to relieve, 4, and no final note, 12.

TREATMENT

The treatment of the pelvic variety belongs to the gynecologist, but it must be remembered that there are often border-land or mixed cases, and that treatment of the static element may be subsequently required, and in certain mixed cases in which either the static or pelvic element may be considered a competent cause, it may be desirable to try the mechanical treatment before proceeding to operation, provided the patient is aware of the situation.

The treatment of arthritis of the spine consists in fixation of the spine, and my personal experience has led me to regard the plaster-of-Paris jacket for this purpose as uncomfortable and on the whole unsatisfactory. A canvas corset, lacing in the back, reinforced by light steel straps, has proved much more efficient and adaptable. In the severest cases a leather corset or steel back-brace may be required.

The treatment of traumatic cases does not differ essentially from that of the arthritic cases just described in the severer cases, or in the lighter cases from that of the static cases to be discussed next.

In the treatment of static cases unilateral defects in balance should be carefully studied, and if present, as shown by a lateral curve of the spine (generally slight), should be corrected by elevating one heel. Static disturbances of the feet, as shown by pronated feet or by feet with short gastrocnemius muscles, should be corrected. The general condition must be inquired into, and so far as practicable, overstrain and faulty habits of life remedied. Recumbency for part of the day is desirable in most cases, and severe cases at first should be recumbent for most of the time.

The mechanical treatment of static cases here advocated is based on the experimental work of Reynolds and Lovett, and on clinical experience. This work showed that a properly fitted corset threw the center of gravity of the body back, and that this effect was reinforced by high-heeled shoes; consequently, in cases presumed to be due to a forward displacement of the center of gravity of the body, and to resulting posterior muscle-strain, the application of a properly fitted corset is the most important part of the treatment. Muscular training might be supposed to be the first requisite, but we are dealing with overused and irritable muscles which first demand rest and support, and as a rule the immediate use of gymnastics and back-massage is unsuccessful and irritating.

The requirements of a therapeutic corset are as follows: 1. It should be tightest around the bottom, and the circular pressure should diminish from the bottom to the top, where it should be loose. In this way abdominal support is afforded and the circular constriction around the glutei, already spoken of, is furnished. 2. It should be straight in front. 3. It should support the hollow of the back. 4. It should not press forward against the back at the top. A therapeutic corset does not require heavy steels to make it efficient, but its proper effect depends on the cut of the cloth and the lines of strain, and the manufacture of such a corset lies within the capacity of any good corset-maker. Ready-made corsets may in many instances be adapted to the proper requirements. For men, a heavier canvas corset, reinforced as may be needed by light steels, is preferable to the lighter woman's corset. The heels of the shoes should in most instances be raised an eighth or a quarter of an inch. As the back quiets down, gymnastic exercises and massage of the back are desirable, and such exercises should be aimed at teaching the patient to learn to assume and to hold a more normal standing position. The electric light is often of value.

CONCLUSIONS

This paper is a plea for a careful etiologic study of each case of chronic backache or lameness of the back, and an attempt to present a classification which is very crude, but which has worked out satisfactorily in practice. Cases have been cited to show the variety of symptoms and the way in which treatment has or has not been successful. The popular diagnosis of "sacro-iliac relaxation" has been commented on, and attention has been called to the fact that adhesive-plaster straps on the skin cannot possibly "immobilize" relaxed sacro-iliac joints which at every step must bear the weight of the trunk as a downward thrust, and that the fact that treatment of this sort often relieves symptoms is fair evidence that the diagnosis in such cases is incorrect.

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THE USE OF CHOLESTERIN ANTIGEN IN THE WASSERMANN REACTION

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A method of preparing a standard antigen for the Wassermann reaction is given in the Yale number of the *Archives of Internal Medicine*.¹ The advantage of the method is that at any time an antigen may be prepared that gives constant results in the reading of the reaction. This antigen is an alcoholic extract of guinea-pig heart half saturated with cholesterol; the reason for the addition of this substance is at present unknown, but it seems to stabilize the reaction.

Of late there have been a number of articles criticizing the addition of cholesterol to the syphilitic antigens, most of the authors asserting that it renders the antigen too sensitive. As a result of something more than five thousand routine tests² comparing the

1. Field, Cyrus W.: Method Developed for Obtaining a Standard Wassermann Reaction, *Arch. Int. Med.*, May, 1914, p. 790.
2. All patients over three days in the hospital are supposed to have a Wassermann test. From fifty to one hundred tests are performed each day, five days of the week.

acetone insoluble antigen with this cholesterolin antigen, it was found more constant and more reliable if certain fundamental conditions were observed in using it. Some workers recently have recommended the use of 1 or 1½ units of complement instead of the 2 units as used in the original Wassermann method, in order to render the test more delicate. The persons recommending this modification can have but slight knowledge of serum work, for they seem not to realize that Wassermann adopted the 2 units of complement for a very definite and, to all serologic workers, a well-known reason. The complement is thermolabile, and its exposure to a temperature of 37.5 C. (99.5 F.) for one hour decreases its activity. Therefore, if but 1 unit of complement is used, some is destroyed during the binding period and so a partial inhibition will occur without any reaction between antibody and antigen.

The cholesterolin antigen must be used with between 2 and 3 units of complement; even 4 units will reduce the reading only slightly. The presence of a native hemolysin may be ignored entirely, as it makes no difference if there be 2 or 10 units of amboceptor present, if the sheep-cells have been sensitized with hemolysin before they are added to the serum-complement-antigen mixture. These facts may be seen in Table 1. Again, with cholesterolin antigen it is

TABLE 1.—COMPARISON OF VARYING AMOUNTS OF COMPLEMENT AND AMBOCEPTOR ON A POSITIVE WASSERMANN

| A | B | C | D | E | O | Antigen Tubes | | | | | |
|-----|---|---|---|----|---|---------------|------|------|------|------|-------|
| | | | | | | 0.10 | 0.08 | 0.06 | 0.04 | 0.02 | 0.009 |
| 0.1 | 2 | 2 | 1 | 16 | 0 | 3 | 3 | 3 | 3 | 3 | 1 |
| 0.1 | 4 | 2 | 1 | 14 | 0 | 3 | 3 | 3 | 3 | 2 | 0 |
| 0.1 | 6 | 2 | 1 | 8 | 0 | 3 | 3 | 2 | 0 | 0 | 0 |
| 0.1 | 2 | 4 | 1 | 16 | 0 | 3 | 3 | 3 | 3 | 3 | 1 |
| 0.1 | 4 | 4 | 1 | 13 | 0 | 3 | 3 | 3 | 3 | 1 | 0 |
| 0.1 | 6 | 4 | 1 | 7 | 0 | 3 | 3 | 1 | 0 | 0 | 0 |
| 0.1 | 2 | 6 | 1 | 16 | 0 | 3 | 3 | 3 | 3 | 3 | 1 |
| 0.1 | 4 | 6 | 1 | 13 | 0 | 3 | 3 | 3 | 3 | 1 | 0 |
| 0.1 | 6 | 6 | 1 | 10 | 0 | 3 | 3 | 3 | 1 | 0 | 0 |
| | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

A = Amount of patient's serum in 1 c.c.
B = Units of complement.
C = Units of amboceptor.
D = Units of sheep red blood-cells.
E = Total number of units.
O = Control tube; no antigen.

unnecessary to make use of the ice-box incubation of the serum-complement-antigen system as the cholesterolin seems to increase the velocity of the reaction. The rule in this laboratory is to incubate the complement-serum-antigen mixture in a water-bath for not more than fifty minutes at from 35 to 36 C. (from 95 to 96.8 F.). As has been pointed out,¹ six different dilutions of the antigen are used for testing each serum. The greatest amount of antigen used is 0.1 mg., with 0.1 c.c. of the serum, plus from 2 to 3 units of complement. The second antigen tube contains 0.08 mg., the third 0.06, the fourth 0.04, the fifth 0.02 and the sixth 0.009 mg. In this way we have a series of tubes with a constant amount of serum and a decreasing amount of antigen, and if we let 0 represent complete hemolysis, 1 marked hemolysis, 2 slight hemolysis and 3 no hemolysis, we have a possible numerical series of from 0 to 18, depending on the amount of inhibition of hemolysis in this series of tubes; for complete inhibition in all six tubes would give $3 \times 6 = 18$.

In the series of over five thousand cases, only 0.5 per cent. have given complete inhibition in the 0.009-mg. tube. If too little serum is obtained to use in the six antigen tubes and one or two controls, we can reverse the procedure and vary the amount of

serum, keeping the antigen constant at 0.1 mg. in each tube. The results of such a procedure may be seen in Table 2, and it shows well the close agreement in

TABLE 2.—COMPARISON OF POSITIVE SERUMS WITH SERUM CONSTANT, ANTIGEN VARIABLE, AND ANTIGEN CONSTANT, SERUM VARIABLE

| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | T |
|----|---|---|---|---|---|---|---|---|----|
| | | 0 | 3 | 3 | 3 | 3 | 3 | 0 | 15 |
| 58 | B | 0 | 3 | 3 | 3 | 3 | 3 | 0 | 15 |
| 62 | A | 0 | 3 | 3 | 3 | 2 | 0 | 0 | 11 |
| | B | 0 | 3 | 3 | 3 | 1 | 0 | 0 | 10 |
| 66 | A | 0 | 3 | 3 | 3 | 3 | 3 | 0 | 15 |
| | B | 0 | 3 | 3 | 3 | 3 | 3 | 1 | 16 |
| 67 | A | 0 | 3 | 3 | 3 | 3 | 3 | 0 | 15 |
| | B | 0 | 3 | 3 | 3 | 3 | 3 | 1 | 16 |
| 70 | A | 0 | 3 | 3 | 3 | 3 | 3 | 0 | 15 |
| | B | 0 | 3 | 3 | 3 | 3 | 3 | 0 | 15 |
| 72 | A | 0 | 3 | 3 | 3 | 2 | 1 | 0 | 12 |
| | B | 0 | 3 | 3 | 3 | 3 | 2 | 0 | 14 |
| 73 | A | 0 | 3 | 3 | 3 | 2 | 0 | 0 | 11 |
| | B | 0 | 3 | 3 | 3 | 3 | 1 | 0 | 13 |
| 75 | A | 0 | 3 | 3 | 3 | 3 | 1 | 0 | 13 |
| | B | 0 | 3 | 3 | 3 | 3 | 3 | 0 | 15 |

A = Serum constant, 0.1 c.c. antigen variable; 1 = 0.1 mg.; 2 = 0.08 mg.; 3 = 0.06 mg.; 4 = 0.04 mg.; 5 = 0.02 mg.; 6 = 0.009 mg.
B = Antigen constant, 0.1 mg. serum variable; 1 = 0.1 c.c.; 2 = 0.08 c.c.; 3 = 0.06 c.c.; 4 = 0.04 c.c.; 5 = 0.02 c.c.; 6 = 0.009 c.c.
O = Control tube, 1 c.c. serum, no antigen.

the final readings of the two variations. The amount of antigen 0.1 mg. is one-fifth the anticomplementary dose with the complement diluted 1:8 and using 0.5 c.c. This may be seen in Table 3. We do not find

TABLE 3.—ANTICOMPLEMENTARY TITRATION

| A | Amounts of Antigen in Milligrams | | | | | | | | | |
|----------|----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|----|
| | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1. |
| 0.4 c.c. | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 3 |
| 0.5 c.c. | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 |
| 0.6 c.c. | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 2 |

After 1 hour at 37 C., 1 unit of sheep red cells sensitized with 2 units of amboceptor were added. Column A = amounts of 1:8 complement solution.
Complement titer with 2 units of amboceptor + 1 unit of non-sensitized sheep red cells. Amounts in cubic centimeters of 1:8 complement.
0.5 c.c. 0.4 c.c. 0.3 c.c. 0.2 c.c. 0.1 c.c.
0 0 0 0 1

anticomplementary substances in the serum if it be poured off the clot within twelve hours after collection and centrifuged free of red cells.

With this cholesterolin antigen the serum must be inactivated. The constancy of the unit readings was demonstrated in the previous paper,¹ and in Table 4 there are shown various readings on the same patient obtained at different times. A child was admitted to the hospital with amaurotic family idiocy. This child gave negative Wassermann reactions, but in its appearance suggested congenital lues. The blood from the father (B. S., a Hebrew, aged 28) was found to have 15 units. He did not accept this report and had his serum taken by a private physician, who sent it to the Board of Health; it was reported a very strong positive. Not satisfied with this, and unknown to ourselves, he came to our dispensary and his blood was again sent in to this laboratory, where it was reported again 15 units. He then went to a large private hospital in this city where he had his Wassermann taken again, and this time it was reported negative. For some unknown reason he was dissatisfied with this report and returned to our dispensary, where the blood was once more taken and sent to the laboratory and reported back 15 units. At the time these readings were made the previous reactions were unknown to us. He came to the laboratory a week after the last report, thinking that it was another institution, to have another test made. He maintained that he had never been sick and had never had a chance to contract the disease. On questioning him closely it was found that

he had not been in robust health for some years, that his wife had not been well since she had married him, and that the child with amaurotic family idiocy was the youngest, the elder one (aged 6) having always been a sickly and poorly nourished infant. He was requested to bring his wife and eldest child to the laboratory, which he did. Blood was obtained from all three and the result of the tests is shown in Table 4. The child presented the appearance of a case of mild congenital lues with slightly pegged teeth. The mother stated that she had had one miscarriage at six months and one birth of a dead child at full term; that she suffers continually from headaches and is ill nourished. The husband complained for the first time of his mouth being sore; his tongue showed several typical mucous patches. With the acetone-insoluble antigen the child showed a weak positive, and the mother was negative. In Table 4 the reactions are with the cholesterin antigen.

TABLE 4.—WASSERMANN REACTIONS WITH CHOLESTERIN ANTIGEN

| Patient | Date | Units |
|---------|---------|-------|
| B. S. | 1/28/13 | 15 |
| B. S. | 2/18/13 | 15 |
| B. S. | 3/11/13 | 15 |
| B. S. | 3/3 /13 | 15 |
| Wife | 3/ 3/13 | 2 |
| Child | 3/ 3/13 | 11 |

The clinical diagnosis of syphilis may be extremely difficult and we now know that there are many cases of latent or mild lues in which the disease is not suspected, and in many cases no so-called primary or secondary lesions are observed, and these patients may give negative Wassermanns and show no symptoms leading one to suspect a diseased condition clinically. The court of last resort as to the value of the Wassermann reaction must be the post-mortem examination. In this hospital the positive Wassermanns, even when only 1 or 2 units during life, have been constantly associated at post mortem with pathologic lesions which have been recognized for years as being syphilitic. On the other hand, there have been a certain number of cases showing syphilitic lesions which have given during life a negative Wassermann. Until there is obtained a series of one thousand or more necropsies with Wassermann reactions taken during life and correlated with the necropsy findings, it is merely guesswork to state the absolute value of this reaction. We must, it seems, revise a great many of our conceptions in regard to lues. The more we study it in the light of the Wassermann reaction, the more closely does it resemble tuberculosis in its protean manifestations. Also, we must bear in mind that there are, without doubt, variations in the virulence of different strains of spirochetes and that there are variations in the resistance of individuals to the spirochete. Not until a very large series of cases has been studied in the routine manner described shall we be able to follow this disease in all its manifestations.

In conclusion, we must remain in a neutral position in the face of weak positive reactions, and in justice to the patient we should give a provocative dose of salvarsan or neosalvarsan and see whether or not the reaction is increased. In this hospital we have in several cases found it necessary to give two or even three and four full doses before being able to obtain a positive reaction in known syphilitics. In view of the possibility of these cases developing syphilitic lesions of the parenchymatous type, we must be on

our guard and watch such patients very closely, since after the development of paresis there is little hope in specific therapy.

Under specific treatment the reaction slowly disappears and the serum from week to week shows a gradual drop in the number of reacting units. The reaction disappears with this cholesterin antigen much more slowly than with any of the other antigens. The statement made recently in the *British Medical Journal* that a positive reaction with this antigen means only that the patient has had syphilis and does not indicate a still active process is, in our opinion, unjustified by the facts and our observations.

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FATAL ATTACK OF FILARIAL LYMPHANGITIS SIMULATING BUBONIC PLAGUE

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Patient, R. P., aged 10, reported as a suspected case of bubonic plague, entered the Quarantine Hospital at noon, January 28. Two hours and a half later an examination was made by the director of sanitation and myself. From a careful observation of the symptoms, and exploration of the painful zones in the groins we concluded that the diagnosis of plague was probably incorrect; but we were convinced that the suspicions of Dr. Dobal, the attending physician, were justified; because painful glandular infarcts, suddenly appearing in the groin of persons living in tropical regions in which previous epidemics of bubonic plague have been registered, may and should be considered as suspicious, especially when accompanied by serious general symptoms, such as fever, delirium and stupor, provided that, as in this case, the patients are not affected with venereal diseases or ulcerative or inflammatory processes of the inferior extremities.

General Examination.—The child was seriously ill. He was lying in a dorsal decubitus with the right thigh flexed on the abdomen, unconscious and stuporous; the expression in the eyes was vague and irresolute, and in answer to questions only whispered incoherent phrases were elicited. The pulse was uncountable, the temperature exceeded 39.5 C. (103.1 F.), subsultus tendinum almost continuous and a quiet delirium gave evidence of the exhaustion of cerebral centers now thoroughly intoxicated. There was involuntary emission of much dark and fetid liquid fecal material. Locally we observed only two small glandular infarcts in the region of the right groin, which were excessively painful on palpation, and pressure no matter how light, awakened the patient from his stupor, and caused him to complain and sometimes to cry out. The patient was in fact overwhelmed by the fierce onset of some virulent toxin, and was quietly succumbing to the inevitable narcosis of death.

The manner of onset of the attack, with strong chill, hyperpyrexia, thirst, and later vomiting, all rapidly followed by delirium, stupor, and profuse diarrhea, clinically excluded the diagnosis of any ordinary form of bubonic plague in spite of the intense pain localized in the region of the right groin and the hardly perceptible infarct of the inguinal glands. To those accustomed to follow the course of plague, there was no possible confusion except with septicemic forms with poor reaction. But in such case, the experimental inoculations, etc., would openly resolve all doubts. On the contrary, the sudden attack, the suggestive history of its progress during the preceding twenty-four hours and the suspicious syndrome presented, impressed on our minds the belief that we were facing a case of pernicious filarial lymphangitis. I was informed afterward that the same suspicion had passed through the minds of Drs. Gutierrez Igaravidez and Zavala, who independently and on different occasions examined the case.

We felt obliged therefore to conduct our investigations with both possibilities in view, because the etiology and pathogenic problems had exceptional importance from the sanitary point of view as well as for that affecting the nosography of the country.

Urinary Examination.—A specimen of the patient's urine (100 c.c. obtained by catheter) was examined at the biological laboratory, Mr. J. Loubriel performing the chemical analysis, and I the microscopic examination of the sediment. In the dense and reddish urine, specific gravity 1.024, Loubriel discovered only traces of sero-albumin, but in the sediment I verified the presence of the following histologic elements: fairly numerous erythrocytes, a number of leukocytes in proportion to the frequency of red corpuscles, fairly numerous epithelial cell of the tubuli contorti, some of the renal pelvis, a moderate number of hyaline casts, a few finely granular casts, fairly numerous irregular crystals of uric acid, and a most unique and interesting find: lying near one of the edges of the preparation there appeared a beautiful specimen of Lewis and Manson *Microfilaria nocturna*, embryo of *Filaria bancrofti*, confirming the tentative clinical diagnosis which we had made. All the operations were accomplished with exquisite cleanliness from the moment of the catheterization up to and including the microscopic examination of the sediment.

Blood Examination.—The presence of the filarial infestation did not, however, exclude the possibility that the pernicious lymphangitis might be a local syndromic expression of septicemic plague. Specimens of fresh blood were therefore collected from the patient at 9 p. m., January 28, and examined at 8 a. m. next day. We succeeded in confirming the presence of numerous embryos of the *Filaria nocturna* in the fresh specimens of peripheral blood.

Meanwhile the patient had died at 3 a. m. the same morning, during the coma and subnormal temperature following a period of delirium, convulsions, and hyperpyrexia of the afternoon and evening before.

Necropsy.—This was begun at 9 a. m. by Dr. Hernandez and myself, and lasted three hours. Specimens taken for histologic study were preserved, part in 90 or 95 per cent. alcohol and part in Zenker's fluid.

The subject was a child well constituted, apparently aged 12, and without any sign of traumatism of the skin, or ulcerated lesions of the trunk, or extremities. The post-mortem rigidity was complete, and lividity had begun to appear in several places, but principally in the inguine-abdominal region of the right side. This zone during life was the only location wherein there were local manifestation of pain and inflammation which would give rise to a reasonable suspicion of Yersinian infection as maintained at first by Dr. Dobal. Furthermore, in this region Dr. Hernandez had punctured a gland in seeking the necessary material for a bacteriologic diagnosis.

When exposed by dissection the cluster of glands in Scarpa's triangle as well as the inguinal group appeared intensely red and congested, some of them larger than normal, all lightly enveloped in a gelatinous substance, and on section exuded a transparent lymph. The redness and congestion and the lymphatic flow continued under Poupart's ligament along the line of the iliac vessels into the abdominal cavity. The right and left ganglionic group were dissected out and preserved, half of each being placed in alcohol, and the other half in Zenker's solution.

The lungs, heart and pericardium appeared normal. The thymus was very large. The right lung was removed, and blood-smears obtained from the parenchyma, specimens of which, removed from the vicinity of the hilum and from the lobules, were also preserved for future histologic study. Cultures and smears were made of the heart's blood. The hypertrophied thymus was extracted whole, divided into small pieces, and preserved. The liver, pancreas and spleen presented a normal color, but the kidneys were congested and enlarged, the mesenteric gland enlarged, and the retroperitoneal glands red, infarcted, infiltrated, and covered with an edematous cellular tissue. After resecting the gall-bladder, previously ligating the cystic duct and tributary vessels, in

order to make cultures of its contents in the laboratory, we removed several fragments of the liver, which weighed 830 gm.

The spleen weighed 50 gm. Specimens of splenic pulp, obtained with aseptic precautions, were used to inoculate culture mediums. Another fragment was rubbed over the skin of the abdomen of two guinea-pigs, previously dry shaved and lightly scarified. Specimens of this organ and of the kidney and suprarenal capsules were also placed in the preserving fluid.

The dissection of the retroperitoneal glands was hastily done, owing to the advanced hour. Not being able to stop to make a minute and prolonged investigation, as would have been necessary in order to find and separate the harboring places of adult parasites, we limited ourselves to gathering the largest possible number of glands and their lymphatics, which we preserved in Zenker's fluid and alcohol. The same practice was adopted with reference to the mesenteric glands.

While Dr. Hernandez and I were advancing with our work of the necropsy, Dr. Gutierrez Igaravidez was rapidly examining a number of smears from the lung and heart, stained by the Romanowsky method, in all of which he found numerous microfilaria. While the slides from the lungs were literally crowded with embryos, those smeared with the blood of the heart exhibited a very considerable diminution in number.

The results of the bacterial and experimental investigation obtained with the specimens secured *intra vitam* and during the post-mortem examination were as follows:

1. The microscopic examination, made by Dr. Hernandez, demonstrated the absence of bipolar staining bacilli in the glandular substance, in the blood of the great vessels, and in the fluids of the viscera.
2. The incubation and the careful inspection, also attended to by Dr. Hernandez, of the special mediums inoculated for the purpose of bacteriologic diagnosis of the plague, were also absolutely negative.
3. The experimental inoculations of the guinea-pigs with the glandular fluids, *intra vitam*, and with the splenic pulp, taken post mortem, hypodermically in the former case, and by way of the skin in the latter, produced no alteration in the physical condition of the animals, and, therefore, after seven days must be considered negative.
4. The cultures made by us with the different culture mediums to ascertain if other micro-organisms were present in the blood of the heart, and in the contents of the gall-bladder, proved to be sterile after several days of incubation at 37 C.
5. The cultures of splenic pulp rapidly developed as typical colonies of *Bacillus coli communis*.

CONCLUSIONS

1. The patient died within a period of thirty-six hours from some pernicious paroxysm which was not of malarial origin.
2. The disease which caused this rapid death cannot be confounded, in spite of the painful adenitis of the right inguinal region, with one of the common forms of bubonic plague.
3. Such confusion could have been possible only with the septicemic form.
4. In case of a plague septicemic an early necropsy would have dispelled all doubts and thus fixed on the right diagnosis.
5. The clinical syndrome, and the unusual violence of the attack, inclined us to the theory of an endemic pernicious lymphangitis rather than of a plague septicemia.
6. My finding the embryos of *Filaria nocturna* in the urinary sediment of the patient was of value as confirming the theory.

7. The presence of a great number of microfilariae in the blood of the peripheral circulation, demonstrated in blood collected during the night, and confirming the findings in the analysis of the urine, proved without doubt the diagnosis of a filarian infestation.

8. The presence of a filariasis, however, did not exclude concomitant plague septicemia.

9. On this supposition the necropsy was the only means of resolving the doubt.

10. The lack of any visible pathologic alterations in the viscera, and especially in the spleen, liver, and lungs, dissipated all ideas of it being any form of bubonic plague.

11. The absence of Yersin's bacillus in the microscopic preparations obtained from the glandular fluids, *intra vitam*, and of the visceral pulp, post mortem, excluded definitely the probability of its being plague.

12. The entirely negative results of the experimental inoculating of guinea-pigs *intra vitam*, with the glandular fluids, and post mortem with the splenic pulp, and the failure of microbial colonies to develop in the mediums especially prepared from both, also definitely excluded the diagnosis of plague.

13. The absence of streptococci or staphylococci, and of all bacillary forms in the blood of the general circulation taken from the heart, excludes furthermore any such bacteriemia caused by aerobic microbes.

14. The presence of colon bacilli in the splenic pulp lacks importance and has no pathologic significance in this case, because it is a microbe which normally invades the organs, and especially the spleen a few hours after death. It must be taken into account, furthermore, that the necropsy was commenced six hours after death, and if this micro-organism had been in movement it would also have been found in the blood of the heart, and in the contents of the bile bladder.

15. Logically, therefore, according to the findings in the anatomico-pathologic examination, and the result of the bacteriologic investigation, the only real cause of the death of the child that can be accepted is endemic pernicious lymphangitis of filarial origin.

16. This fact has exceptional importance for the nosography of the country, because contrary to the general opinion of many investigators it proves (providing no other cause for the death can be found) that certain forms of filarial lymphangitis, without the assistance of other complicating micro-organisms, may *per se* rapidly kill their host.

17. It is also important because it shows the occurrence in Porto Rico of those grave and pernicious forms of tropical lymphangitis of filarial origin described by the Brazilian authors under the name of endemic lymphangitis, and by Mazaé-Azema, of the Ile de la Réunion, by the name of generalized intra-ganglionic lymphangitis.

Still more important is the fact that our diagnosis may be sustained without objection. If it is true, as the Brazilian authors and the physician of the Ile de la Réunion have it, that endemic plague exists in both countries, the lack of bacteriologic diagnosis would inevitably cause confusion between a typical form of plague and serious cases of elephantoid fever, whereas, in our case, this argument may be thrown aside, because the complete study, both microscopically and bacteriologically, ante mortem and post mortem, accomplished by competent and experienced physicians, and following procedures established in the laboratory for the diagnosis of bubonic plague, is the base on which I support my contention.

DISEASES CONNECTED WITH MECKEL'S DIVERTICULUM

WITH ESPECIAL REFERENCE TO DIVERTICULITIS *

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There occurred in my practice not long ago a case in which the combination of clinical manifestations and pathologic lesions was so unusual, so unexpected, and so misleading that it seems worthy of being recorded. It belongs in the category of diverticulitis, but seems almost unique in some respects. At least I have failed to find any case on record giving just the same symptom-complex.

Joseph C., aged 19 months when first seen by me, March 15, 1912, had been in good health and well nourished until in the preceding summer, when he suffered from a condition which his physician called "auto-intoxication," although he later spoke of "scurvy." Possibly both disorders had been experienced. He recovered and remained well until November, 1911, when he had a fall down stairs, but apparently without discoverable serious injury. A week later he began to suffer from slight attacks of indigestion. Early in January, 1912, the mother was alarmed to find on one occasion that the formed stool which the baby had passed was of a partly reddish color, and that when put into water it stained it a deep red. Previously to this there had been some constipation. The bowels now remained normal and without constipation for two weeks, when another reddish stool was passed similar to the one described. The child suffered also from attacks of abdominal pain which were supposed to depend on indigestion. February 16, he had an attack of complete suppression of urine lasting for over twenty-four hours. Catheterization showed the bladder to be empty. He then urinated very little for almost a week. There had been some slight drowsiness before the attack. There was no edema or nervous symptoms of any sort. At this time the mother noticed the change in the child's appearance, the former healthy tint having been replaced by a waxy whiteness which never afterward improved. After recovery from the suppression and oliguria, the attacks of paroxysmal abdominal pain continued to occur with greater frequency and constantly increasing severity, the child, when suffering most, often lying on the abdomen with the knees drawn up under him. Occasionally there was vomiting of thickly curdled milk. Constipation became troublesome, and bowel movements were obtained only by the use of purgatives, the expulsion of feces being accompanied by much flatus. A Philadelphia pediatricist was called in consultation, and made the diagnosis of anemia, which a blood examination showed to be apparently of a secondary nature. Nothing was said to the parents of the importance of the blood-colored stools. Probably the existence of such stool had not been mentioned by them. Repeatedly since the attack of suppression the feces had been of a liver-color or a reddish brown. Nosebleed had occurred once a few days before I saw him.

At the time of my first visit the baby was in a dull mental state, looked very ill and was strikingly pale, but was without edema or evident wasting. Abdominal pain was severe and the abdomen moderately tympanitic and tender. Just before the visit there had been passed by rectum a small dark-red blood-clot the size of a pigeon's egg, and the child had also vomited. The great weakness of the patient prohibited satisfactory examination, and the only diagnosis possible seemed to be that of secondary anemia dependent on repeated, or, perhaps, almost continuous, intestinal hemorrhage, generally of small amount at any one time. The cause of the hemorrhage was not certain, but ulceration of some portion of the intestinal tract seemed probable. The pain appeared to depend possibly on the tympanites, although the

* Read before the American Pediatric Society, May, 1914.

explanation was not entirely satisfactory. The significance of the attack of urinary suppression was not at all clear.

March 16: There had been three or four intestinal hemorrhages of considerable size during the preceding night accompanied by much abdominal pain. The child was seen with me on this day by Dr. J. H. Jopson, attending surgeon to the Children's Hospital of Philadelphia, who could discover no rectal disease or anything abnormal in the abdominal cavity, although the tympanites prevented to some extent a satisfactory investigation. The question of exploratory laparotomy was discussed, but the uncertainty of the diagnosis and the extremely weak condition of the patient made this seem inadvisable. A 10 per cent. gelatin solution was given freely by the mouth, albumin-water prescribed as the diet, and laudanum in 2-drop doses ordered as demanded by the pain. A hypodermic injection of 2 c.c. of horse-serum was administered by Dr. John Speese, in the effort to control the hemorrhage.

March 17: An examination of the blood made on this date by Dr. John Diven showed very rapid coagulation on puncture, a hemoglobin percentage of 22, red blood-cells 1,590,000, and leukocytes 7,840. The differential count (300 cells) gave polymorphonuclears 76 per cent., small lymphocytes 14 per cent., large mononuclears 5 per cent., transitionals 3 per cent., eosinophils 1 per cent., and basophils 1 per cent. There was poikilocytosis, but no nucleated red cells were found. The examination of the urine made by Dr. C. A. Fife showed a specific gravity of 1.016; acid reaction; no albumin or urobilin; trace of indican; uric acid and phosphate crystals, no casts or red or white blood-cells.

March 20: There had been no return of hemorrhage, and the pain was better, without need for the laudanum. The general condition, likewise, had improved. The bowels had been opened daily by saline douches.

March 22: The child was very much better, and was sitting up out of bed.

March 27: Two days previously there had commenced a serious relapse in the condition of the patient, and the pain had been extremely severe; more than could in any way be accounted for by the tympanites. Some slight evidence of blood had appeared in the stools. Castor oil was administered on the day previous, and a very large mass of cheese-like consistency was passed, of a most offensive odor but apparently not containing blood. The child died exhausted on the 27th. During the attack there had been a moderate irregular febrile reaction.

The final clinical diagnosis was that of secondary hemorrhage depending on ulceration somewhere in the intestinal tract. The cause of the severe pain was not clear. A necropsy was made by Dr. Howard C. Carpenter, whose report reads as follows:

"On opening the abdomen a localized peritonitis was seen just below the umbilicus. This localized peritonitis could have been placed in a circle having a diameter of 8 cm. In this area four coils of intestine were firmly matted together, and the serous coat of the bowel showed a fibrinous peritonitis. When the coils were forcibly separated an abscess was discovered which contained a little more than 2 drams of pus. Further dissection allowed the pus to escape and revealed a Meckel's diverticulum in the center of the abscess-cavity. The diverticulum measured 3 cm. in length, and its walls were quite thick, averaging about 8 mm., but thinner at the tip. It was firm on palpation, giving the sensation characteristic of a chronic inflammatory process. The mucosa of the diverticulum was swollen and eroded, and at the tip of the organ there was found an ulcer 8 mm. in diameter. The opening between the ileum and the diverticulum was small but patulous. The distal extremity of the diverticulum was free. There was a purulent exudate at its tip on the serous surface, corresponding in location to the ulcer on the mucous surface. The remainder of the intestine, including the appendix vermiformis appeared normal. The mesenteric glands were somewhat enlarged but without evidence of suppuration. The liver was normal in size but yellowish in color, showing a fatty infiltration. There were no metastatic abscesses dis-

covered. The spleen was normal. The kidneys showed an acute diffuse nephritis. They were moderately enlarged and red in color; with a wide cortex containing reddish streaks."

We have here, then, probably primarily an ulcerative inflammation of Meckel's diverticulum which was the cause of the persistent leaking of blood from the bowel, and of the severe anemia. As time elapsed, this inflammation extended to the serous layer of the diverticulum, producing a secondary, purulent peritonitis, localized by the matting of the coils of the ileum around the seat of suppuration. The severe abdominal pain was due to this peritonitis, and in part, perhaps, to the kinking of the intestine, making evacuation of the bowel difficult, and accounting for the constipation. The origin and bearing of the nephritis was uncertain. It appeared to have had little part in the final complex of symptoms and the fatal termination.

Meckel's diverticulum, the remains of the omphalo-mesenteric duct, although bearing the name of this investigator, was in reality, according to Fitz,¹ known earlier, being illustrated by Ruysch² in 1701. The organ may cause disease in various ways. The subject has been studied in its various aspects by numerous writers, among whom I may mention Rayer,³ Fitz,¹ Kelynack,⁴ Payr,⁵ Hilgenreiner,⁶ Porter,⁷ Bunts,⁸ Turner,⁹ Clogg,¹⁰ Forgue and Riche,¹¹ Gray,¹² Carnett,¹³ Drummond,¹⁴ Hertzler and Gibson,¹⁵ and Wellington.¹⁶ I shall, therefore, make no attempt at any exhaustive reference to the literature of the subject with details of reported cases.

None of the affections of Meckel's diverticulum appear to be of common occurrence, although a persistence of the organ in some form is found in from 1 to 2 per cent. of all persons. Thus Kelynack⁴ found the diverticulum present in 13 out of 1,248 subjects examined (about 1 per cent.); the committee of the Anatomical Society of Great Britain and Ireland¹⁷ 16 times in 769 bodies (a little over 2 per cent.); and Mitchell¹⁸ 39 times in 1,635 bodies. Hilgenreiner⁶ gives statistics on 4,848 necropsies, reported by a number of investigators, with 90 having diverticula, about 1 in every 54 persons; and Bienvenue¹⁹ in a similar manner analyzed a series of necropsy-statistics and found 126 instances of the persistence of Meckel's diverticulum in 9,672 necropsies, or 1.7 per cent. The organ is present much more frequently in males. Of Mitchell's¹⁸ 39 cases, 34 were in males. In Turner's⁹ 145 cases in which the diverticulum was merely a post-mortem finding, without pathologic alteration, the distal extremity was attached to some region in only 9 instances. On the other hand, in 161 cases with pathologic changes it was attached in 110.

1. Fitz: *Am. Jour. Med. Sc.*, 1884, lxxxviii, 30.

2. Ruysch: *Thesaurus Anatomicus*, 1701, vii, Fig. 283 (quoted by Fitz).

3. Rayer: *Arch. gén. de méd.*, 1824, v, 80.

4. Kelynack: *Manch. Med. Chron.*, August, 1896, p. 338.

5. Payr: *Verhandl. d. deutsch. Gesellsch. f. Chir.*, 1902, xxxi, 347.

6. Hilgenreiner: *Beitr. z. klin. Chir.*, 1902, xxxiii, 702; 1903, xl, 99.

7. Porter, Miles F.: *Abdominal Crises by Meckel's Diverticulum*, *THE JOURNAL A. M. A.*, Sept. 23, 1905, p. 883.

8. Bunts: *Ann. Surg.*, 1904, xl, 536.

9. Turner: *Guy's Hosp. Rep.*, 1906, lx, 279.

10. Clogg: *Brit. Jour. Child. Dis.*, 1906, iii, 41; 1911, viii, 405.

11. Forgue and Riche: *Le diverticule de Meckel*, 1907.

12. Gray: *Brit. Med. Jour.*, 1907, ii, 823; 1908, ii, 909.

13. Carnett: *Therap. Gaz.*, 1910, xxxiv, 77.

14. Drummond: *Surg., Gynec. and Obst.*, 1913, xvi, 656.

15. Hertzler and Gibson: *Am. Jour. Med. Sc.*, 1913, cxlvi, 364.

16. Wellington: *Surg., Gynec. and Obst.*, 1913, xvi, 74.

17. Committee of the Anatomical Society of Great Britain and Ireland: *Jour. Anat. and Phys.*, 1891-1892, xxvi, 91.

18. Mitchell: *Jour. Anat. and Phys.*, 1897-1898, xxxii, 675.

19. Bienvenue: *Thèse de Paris*, 1912.

As a rule, the presence of Meckel's diverticulum gives rise to no symptoms whatever, and this is particularly true, as just pointed out, when it lies distally free in the abdominal cavity. A number of series of cases have been published, however, in which the organ occasioned symptoms of disease. Thus Porter⁷ details 184 collected reports of cases of disease of the diverticulum, although he found others on record with too meager a description to render them of value for study. Forgue and Riche¹¹ collected 287 cases of intestinal obstruction by Meckel's diverticulum, and Wellington¹⁶ 326 cases of disease of the organ. The largest series of reported cases of pathologic conditions of the diverticulum appears to be that by Rostowzew²⁰ of 634 cases. I have not had access to his original publications.

Lesions due to Meckel's diverticulum seem oftenest to produce symptoms in adult life, the average age of Porter's⁷ patients being 21 years and 9 months. Bienvenue,¹⁹ however, thinks that the greatest number of pathologic changes occur in childhood. Males are more frequently affected than females; in 265 of Wellington's¹⁶ cases in which the sex was mentioned, there were 201 males and 64 females.

1. The most frequent lesion found is *strangulation of the intestine by the diverticulum or its remains*, usually attached to the umbilicus or to some part of the intestine, mesentery or other region. In cases of obstruction by Meckel's diverticulum, Hilgenreiner⁶ found the organ attached distally in the proportion of about 4 attached to 1 free, with the attachment most frequently to the mesentery. The diverticulum may either be in the form of a fibrous, cord-like remainder of the organ, or have its lumen still present, through all or a part of its extent. In either case the ileum becomes ensnared in various ways, causing constriction and strangulation. Although a considerable number of such cases are reported in medical literature, the lesion is yet uncommon enough to produce probably a sensation of surprise in any physician discovering it. My own experience is limited to a single case made certain by necropsy. Of Porter's⁷ 184 cases of obstruction by Meckel's diverticulum, 101 were due to the presence of a constricting band; and this was true, likewise, in 144 of Wellington's¹⁶ 326 cases, not including intussusception of the diverticulum or volvulus.

The symptoms are those characteristic of most varieties of intestinal obstruction, with the exception of ordinary ileocecal intussusception, and it is only by operative interference or at necropsy that the diagnosis can be made with certainty. Intestinal obstruction due to this cause may occur in early life or later. There has been a division of opinion as to which period is more common. Forgue and Riche¹¹ and Hilgenreiner⁶ agree that the most frequent age is from 15 to 25 years, and the weight of opinion seems to be in favor of this view. It is estimated by Halstead,²¹ on the basis of 991 collected cases of strangulation of the intestine from different causes, that 6 per cent. are dependent on Meckel's diverticulum. On the other hand, of the 669 cases of obstruction by bands occurring in the London Hospital during 13 years (Barnard²²) but 21 (3.14 per cent.) were due to the diverticulum.

It is to be remembered that strangulation of the ileum by a Meckel diverticulum is in a way retroactive, and the diverticulum in its turn, if it has retained its original character, may become strangulated by the ileum.

2. Another condition, properly a malformation, and naturally always congenital, is the persistence of Meckel's diverticulum with an *opening at the umbilicus*. This is unusual, and the subjects are nearly always males. Wellington¹⁶ found but 21 instances in his 326 cases of disease of the diverticulum. Strasser's²³ statistics included a larger number, 63 in all. The lesion results in a fecal fistula through which feces may be discharged, or even, as in some reported cases, intestinal worms. The mucous membrane of the diverticulum protrudes at the umbilicus, forming a tumor, generally small, sometimes of larger size. The fistula is single and centrally situated, or sometimes, if the tumor is very large, there are two lateral openings. Occasionally, the intestine may protrude and become strangulated. Sometimes a persistent Meckel's diverticulum is obliterated near the intestine, and in this event mucus, but no feces, is discharged from the fistulous umbilical opening.

3. Among other unusual conditions sometimes found is the *formation of a cystic tumor*, the diverticulum being obliterated at both ends, as in the cases reported by Fox²⁴ and by Cawardiné.²⁵ In the latter there was a cystic dilatation of the diverticulum in a new-born infant, filled with meconium.

4. *Concretions* of smaller or larger size may be present in the diverticulum. This was well illustrated in the case of Beach²⁶ in which there was a fecal concretion the size of a pigeon's egg, with communication through the diverticulum between the intestine and the bladder. In a necropsy reported by Sherren,²⁷ many small black calculi were found in the diverticulum. Similarly, as in the case of the appendix, foreign bodies of various sorts have been reported present.

5. A very unusual condition is described by Bland Sutton²⁸ in which there is a *superinvolution of the diverticulum*, as a result of which narrowing of the intestine is produced, the oblitative process in the diverticulum having passed beyond this region to the ileum.

6. In other cases a stenosis of the ileum may be caused by *traction* of a short diverticulum attached at its distal extremity or elsewhere.

A Meckel diverticulum persisting as a short, free organ may give rise to trouble in various ways:

7. Here is to be mentioned the rare *invagination of the diverticulum*, which is very liable to be followed by an ileocecal intussusception. Cheyne²⁹ collected reports of 16 cases of such intussusception. Twenty of Porter's⁷ 184 cases were intussusception, and 59 of Wellington's¹⁶ 326. Hertzler and Gibson¹⁵ have recently published a careful review of the subject with the details in abstract of 41 collected cases, omitting others not sufficiently well-reported to permit of study. The average age was 13 years, in sharp contrast to the early age at which simple intussusception of the bowels usually occurs. Inasmuch as the invagination of the diverticulum takes place on the lateral aspect of the

20. Rostowzew: Roussky Arch. Path., April, 1902 (quoted by Bienvenue); Beilage zur Praktitschewskaja Medicina, 1907 (quoted by Meyer).

21. Halstead: Ann. Surg., 1902, xxxv, 471.

22. Barnard: Allbutt and Rolleston's System of Medicine, 1907, iii, 770.

23. Strasser: Med. Rec., New York, 1903, lxiv, 933.

24. Fox: Lancet, London, 1898, i, 227.

25. Cawardiné: Brit. Med. Jour., 1897, ii, 1637.

26. Beach: Ann. Surg., 1896, xxiv, 484.

27. Sherren: Roy. Soc. Med., 1909-1910, iii, 1; Clinical Section, p. 1.

28. Sutton: Brit. Med. Jour., 1891, i, 343.

29. Cheyne: Ann. Surg., 1904, xi, 796.

ileum, it may not occasion complete obstruction, but merely project into the lumen of the bowel and cause hemorrhage. This hemorrhage is usually slight, and there are none of the symptoms of diverticulitis pointing to this disorder. In other cases intussusception of the bowel promptly follows that of the diverticulum.

8. Still less common than intussusception is *volvulus of the diverticulum, or of the ileum*, depending on the presence of this organ. But 8 of Porter's⁷ 184 cases were of this nature. Wellington¹⁶ gives in 326 cases 9 of volvulus of the intestine dependent on Meckel's diverticulum. Very rarely there may be volvulus of the diverticulum without twisting of the bowel. This was seen, for instance, in a case reported by Fox,²⁴ and in one by Taylor.³⁰ Cawardine's²⁵ case of cystic dilatation already mentioned was produced by a volvulus of the base of the diverticulum occurring during fetal life. Volvulus of the diverticulum or of the ileum is more liable to take place if the distal extremity of the diverticulum is attached.

9. *Hernia of the diverticulum* is occasionally seen. This has been studied by Ekehorn,³¹ who collected 22 cases, and later by Gray,¹² who has a list from literature of 42 cases. There were others found by Gray, making the number 60 in all, but too briefly reported to be of value for study. Thirty of his cases were inguinal and 12 femoral. The average age was 37 years.

10. *Inflammation of Meckel's Diverticulum*—the subject under special consideration in this contribution—appears to have first been named "diverticulitis" by Blanc³² in recognition of the analogy which it bears to appendicitis. The first case on record, according to Bienvenue,¹⁹ appears to have been reported by Littré³³ in 1700. The subject has secured meager consideration or none at all in such text-books on medicine or pediatrics as I have consulted. A number of special contributions, however, have appeared in periodical literature or in theses treating solely or largely of this condition. I may refer especially to the theses of H. Blanc,³² Bienvenue¹⁹ and Ketteler,³⁴ the volume of Forgue and Riche,¹¹ and the periodical contributions of Clogg,¹⁰ Rebentisch,³⁵ Hilgenreiner,⁶ Denecke,³⁶ Meyer,³⁷ Cahier³⁸ and Hübschmann.³⁹ Some of the other writers already mentioned have discussed it to a limited extent.

The condition is one of the more infrequent abdominal diseases depending on Meckel's diverticulum. Ketteler³⁴ (1900) found 5 cases of diverticulitis; Denecke³⁶ (1902), 9; Rostowzew²⁰ (1902), 45; Porter⁷ (1905), 17; Cahier³⁸ (1906), 39; Forgue and Riche¹¹ (1907), 59; Bienvenue¹⁹ (1912), 40, and Wellington¹⁶ (1913), 50. The variation in the reports depends in part on the date of publication, and in part on the limitations placed by the authors. It is interesting to note the relative tendencies, respectively, of the appendix to exhibit inflammation, and of the diverticulum to produce obstruction. Thus Leichtenstern⁴⁰ could collect but 36 cases of occlusion of the intestine

by the appendix, while he found 70 cases of occlusion by the more rare Meckel's diverticulum. Inflammation of the appendix, on the other hand, is one of the most common disorders, while that of the diverticulum is of very exceptional occurrence.

The distinction is to be made at the outset between primary and secondary diverticulitis. In the latter some other lesion develops first, as when the diverticulum constricts the ileum and is in turn constricted by it, with consequent inflammation, or as when the diverticulum is strangulated in a hernial sac. In the matter of primary diverticulitis a further distinction is to be made between acute and chronic or recurring cases, and the relationship of diverticulitis to obstruction of the bowel is to be studied. Bienvenue,¹⁹ the author of one of the latest and, perhaps, of the most extensive discussion of diverticulitis, gives as instances of chronic inflammation of the diverticulum those cases in which adhesion of the distal end of the diverticulum elsewhere than the umbilicus has at some previous time formed, as a result, he believes, of an earlier localized inflammation. On this basis he considers that the majority of instances of intestinal obstruction by the diverticulum acting as a constricting band are to be viewed as secondary to diverticulitis. Others, however, among them Forgue and Riche,¹¹ do not consider that these abnormal adhesions are necessarily or even usually the result of an earlier inflammation. However this may be, the chronic and the acute diverticulitis as now under consideration are quite different from this condition and are rarely the cause of a complete intestinal occlusion.

The *causes* of diverticulitis are obscure. Infection, of course, lies at the basis of the lesion. Previous digestive disturbances appear to have some bearing, and trauma, too, has seemed to have been causative in several instances, as in those of Hübschmann,³⁹ Kramer⁴¹ and a few others. It should be remarked, however, that Hübschmann does not consider his case an instance of primary inflammation of Meckel's diverticulum, but of the formation of a peptic ulcer in it, following a fissure produced by the trauma, with subsequent perforative peritonitis. The influence of foreign bodies is uncertain. They have been found in a number of instances; but, as with appendicitis, they are not necessarily the cause of the inflammation. This is true also of the occasional discovery of intestinal worms in the diverticulum in cases of inflammation. Cahier³⁸ found foreign bodies present in 9 of 29 collected cases. Although the disease can occur at any age, the larger number appear to have developed after childhood is passed. Meyer³⁷ places the age of the majority of patients at from 35 to 70 years, and of Cahier's³⁸ 36 patients, 16 were from 20 to 54 years of age, one-third of the number being children.

From the point of view of *pathology*, diverticulitis is analogous to appendicitis, and no detailed description of the lesion is necessary. As in appendicitis, all grades of inflammation exist, extending from a mere catarrhal process to gangrene and perforation with localized or general peritonitis. There may be perforation from ulceration without gangrene. This is oftenest the result of typhoid fever. Wellington¹⁶ collected 6 instances of this occurrence, and 2 from trauma. Makins⁴² found a diverticulum with 13 perforations. Ulceration from any source is uncommon.

30. Taylor: Johns Hopkins Hosp. Bull., 1901, xii, 326.

31. Ekehorn: Arch. f. klin. Chir., 1901, lxiv, 115.

32. Blanc, H.: Thèse de Paris, 1899.

33. Littré: Mém. Acad. Roy. des sc., Paris, 1719, p. 300 (quoted by Bienvenue).

34. Ketteler: Inaug. Diss., Göttingen, 1900 (quoted by Meyer).

35. Rebentisch: Arch. f. klin. Chir., 1903, lxx, 1015.

36. Denecke: Deutsch. Ztschr. f. Chir., 1902, lxii, 523.

37. Meyer: Deutsch. Ztschr. f. Chir., 1912, cxiii, 346.

38. Cahier: Rev. de Chir., 1906, xxxiv, 338, 550.

39. Hübschmann: München. med. Wehnschr., 1913, lx, 2051.

40. Leichtenstern: Ziemssen's Handbuch der speziellen Pathologie und Therapie, 1876, vii, ii, 426, 427.

41. Kramer: Zentralbl. f. Chir., 1898, xxv, 521.

42. Makins: Tr. Path. Soc. London, 1893, xlv, 90.

The *symptoms* vary to a certain extent within wide limits. Cahier³⁸ found 10 chronic cases with acute recurrence out of 37 instances of diverticulitis. In these more subacute or chronic or recurring cases there exist before the final crisis evidences of gastric disturbances, constipation and recurrent painful attacks oftenest in the region to the right of the umbilicus or in the right iliac fossa. In the primarily acute cases, or in those with an acute development consecutive to the more chronic condition, the symptoms so closely simulate those of acute appendicitis that the diagnosis of the latter condition is generally made. The earliest stages of the disease may be entirely without clinical manifestations. In well-developed cases the symptoms consist in severe abdominal pain, which is liable to be higher and nearer the umbilicus than in appendicitis; abdominal tenderness and resistance, and finally, dullness on percussion in this region; nausea and vomiting; fever and leukocytosis. Constipation is a frequent symptom, but diarrhea is as often seen. In a few cases of a subacute or chronic nature, such as those of Hilgenreiner, Hübschmann,³⁹ Meyer,³⁷ and my own, passage of blood from the bowel took place. My own case was most unusual in that the intestinal hemorrhage was for a time the most marked symptom, and was certainly one of the decided causes of the fatal ending. Finally, in diverticulitis there may develop the symptoms of a general peritonitis, as in cases of appendicitis. This is more liable to occur than in the latter affection. The question of intestinal obstruction as a symptom of diverticulitis has already been referred to. It is possible that obstruction may become complete from the compression of the intestine, if the diverticulum is distally adherent, or from inflammatory adhesions or kinking, or in other ways. This is, however, exceptional. More or less difficulty in the evacuation of the bowels is liable to occur in any case of diverticulitis, either from the mere kinking of the coils of the intestine involved in a localized peritonitis, or as a result of paralysis of peristalsis, as seen sometimes in appendicitis. How important a factor the latter may be is uncertain. Cahier,³⁸ for instance, believes thoroughly in its existence, while Meyer³⁷ thinks that it plays little part. In cases of secondary diverticulitis, complete obstruction may first take place, and later evidences of diverticulitis may develop, finally with localized or general peritonitis.

The question of the *diagnosis* of diverticulitis is of great interest. Is such a diagnosis possible? It is to be noted that the lesion has never been correctly diagnosed during life, although in a case reported by Karajan⁴⁵ it would seem that this might have been made. In this instance there were the symptoms suggesting appendicitis, but occurring in a man who had had in infancy up to the age of 3 years a fistulous opening of Meckel's diverticulum at the umbilicus. In general, the study of diagnosis leads mostly to discouragement. Certainly, at least, the effort to come to a correct conclusion should be made. The fact that the localized inflammation of a diverticulitis is situated most frequently in the lower part of the abdomen and toward the right makes the diagnosis of appendicitis more probable; and, as a matter of fact, most cases of diverticulitis have been thus diagnosed, and the true condition discovered only at operation. In a case

reported by Hilgenreiner⁶ both diverticulitis and appendicitis were present. The origin of the diverticulum, oftenest at from 1 to 3 feet above the cecum, and its attachment to a freely movable portion of the intestine, make its position in the abdominal cavity a very variable one, and the localization of symptoms is consequently subject to no fixed rule. In the cases of secondary diverticulitis in which complete intestinal obstruction has already occurred, the development of inflammatory symptoms is suggestive but not conclusive, since any form of intestinal obstruction may be followed by signs of peritoneal inflammation. The presence of blood in the stools, although of rare occurrence, is when present, suggestive of diverticulitis; yet this, too, is not conclusive, inasmuch as the symptom is in no way pathognomonic. The diagnostic features as based on the cases reported by different writers may be summarized as follows:

1. Localization of the pain and tenderness not so often at McBurney's point as somewhat higher and to the right of the umbilicus, or even about it, or in some entirely different region.
2. An area of puffiness or of firm resistance in this region.
3. Absence or slight degree of meteorism, at least early in the attack.
4. The presence of blood in the stools and in the vomited matter.
5. The earlier existence of an umbilical fistula, or of some malformation elsewhere in the body.

As regards the *prognosis*, it is impossible to reach accurate conclusions, owing to the fact that catarrhal diverticulitis, recovering, has never been recognized during life; and it is impossible to determine how often such a condition has existed. That a diverticulitis of this sort with recovery does actually occur is shown by operations and necropsies in which evidence of former inflammation has been found. The prognosis of acute severer cases is unfavorable. Cahier⁴⁰ found a mortality of 65 per cent. in 35 cases, all those patients recovering having been operated on. In 50 cases of Forgue and Riche's¹¹ list the mortality was 53 per cent. Wellington¹⁶ estimated the mortality at 40 per cent.

Little need be said of treatment. The only legitimate one is operative. Inasmuch as even a healthy diverticulum is a much greater and more constant menace to life than an appendix in a similar condition, a Meckel diverticulum found in the course of an abdominal operation should be removed.

1810 Spruce Street.

Vaccination in New York—In order to form an idea as to how well the population of New York has been vaccinated surveys were made of various groups in different sections. Information thus obtained regarding 12,437 persons shows that 12,096, or 96 per cent., had been vaccinated. The average time which had elapsed since the last vaccination was eleven years. Fifty persons, or .04 per cent., had had small-pox and 378, or 3 per cent., had never been vaccinated. Schoolchildren are well protected by vaccination which is required by law. Children under school age, however, constitute a large proportion of the unvaccinated. Of a total of 1,580 children inquired about, 291, or 18 per cent., had never been vaccinated. In a negro tenement block 35 per cent. of the children under school age had not been vaccinated. A campaign has been set on foot to secure more complete vaccination of the entire population.

45. Karajan: Wien. klin. Wchnschr., 1901, xiv, 714.

SUPRACLAVICULAR ANESTHETIZATION
OF THE BRACHIAL PLEXUS

A CASE OF COLLAPSE FOLLOWING ITS ADMINISTRATION *

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NEW YORK

About three years ago Kulenkampff¹ described a method of anesthetizing the upper extremity by injecting novocain solutions around the brachial plexus in the supraclavicular fossa. In a series of more than 150 cases² he found the method very valuable and safe in addition to those employed for inducing anesthesia for operations on the upper extremities. Other observers³ have also reported favorably on the method, most of them being exceedingly enthusiastic about its possibilities. American publications on the subject have not been seen and it may therefore be permissible to describe the technic of Kulenkampff's method, some modifications, and the results obtained, before detailing a case of collapse following its administration.

The area for the injection of the brachial plexus is the space bounded internally by the subclavian artery, externally and below by the clavicle, in the depths by the upper surface of the first rib. Several guides for the point of introduction of the needle have been described. According to Kulenkampff, the continuation of the line of the external jugular vein, at a point immediately above the clavicle, is the site of election, because the subclavian artery lies internal to this line. Braun⁴ finds that the midpoint of the clavicle accurately locates the brachial plexus. There can be no doubt, however, that the subclavian artery should be the sole guide for the introduction of the needle. This is especially emphasized because there may be considerable variation in the position of the subclavian artery, and the use of the other guides may then be disastrous.

If possible, the patient is placed in a semireclining posture. His head is slightly turned away from the side to be injected. According to most observers, the skin at the site of introduction of the needle should be anesthetized. This appears undesirable to me, because the definition of the landmarks may be obscured. A fine needle, about 6 cm. long, detached from the syringe, is employed. The position of the subclavian artery having been unquestionably determined, the needle is introduced immediately external to the vessel at a point directly above the clavicle. The needle is introduced slowly, and directed downward, forward and inward.

The best guide for the path of the needle is the spinous process of the second dorsal vertebra. The latter should be marked on the skin and the needle should be pointed directly toward the mark. In the great majority of instances the brachial plexus is reached at a depth of from 1.5 to 3 cm. There is one unmistakable indication that the needle is at the plexus: paresthesias of varying intensity appear in the hand and arm. They may be in the territory of the median or of the radial nerve distribution, or in

both. Under no circumstances should fluid be injected until paresthesias have definitely appeared. Various concentrations of novocain solutions have been advised, the most generally employed being a 2 per cent. solution combined with epinephrin;⁵ 20 c.c. are usually injected. If the paresthesias appear in the median nerve distribution alone, the needle should be introduced a few millimeters deeper for the injection of the second half of the fluid. The reason for this is the relatively superficial position of the median nerve in the plexus, at the site of injection.

The first rib lies in the path of the needle at a depth of from 1 to 5 cm. If the needle misses the brachial plexus it should reach the first rib. Under these circumstances the needle must be withdrawn slightly and moved about a little in the effort to incite the typical paresthesias. The latter failing, the needle should be removed for, in avoiding the subclavian artery, it has probably been inserted too far out. There are no recorded cases of injury to the artery, and there is no likelihood of such an injury if the technic described above is closely followed.

The anesthesia of the upper extremity from injection of the brachial plexus is complete in most instances. It begins a few minutes after the injection,

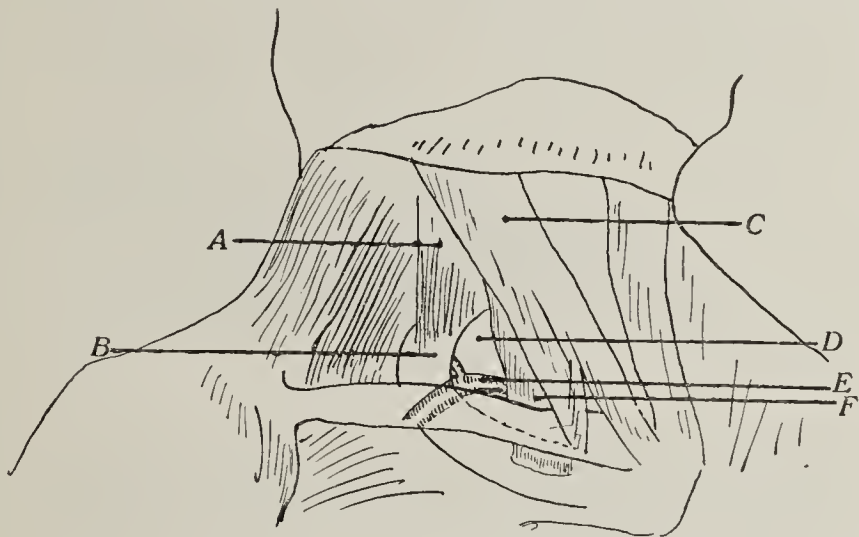


Fig. 1.—Diagram to show the relation of the first rib and the subclavian artery to the clavicle (modified from Kulenkampff): A, scalenus medius; B, first rib; C, sternomastoid; D, position of apex of lung; E, subclavian artery with transversalis colli; F, scalenus anticus.

with tingling and a sense of heaviness of the arm. The anesthesia generally develops in scattered patches but is complete in from five to thirty minutes. It is accompanied by a paresis of the extremity that is generally in direct proportion to the anesthesia. The loss of sensation involves the upper extremity to within 2 inches of the acromion, but sensation in a small patch along the inner aspect of the upper arm (intercostohumeral distribution) generally remains more or less intact. The anesthesia is of one and one-half to three hours' duration. No sensory disturbances, either local or in the distribution of the plexus, have been observed.

When the anesthesia is complete, any of the operations on the upper extremity can be done. It is unnecessary to enumerate the various procedures carried out by others and by myself; suffice it to state that all of the major operations have been successfully performed. It is of interest to note that fractures can be reduced and operated on without pain under this anesthesia. Kulenkampff's method would not appear applicable to operation on the shoulder-joint, never-

5. The Braun formula for the combination is 1 c.c. epinephrin 1:1,000, to 50 c.c. 2 per cent. novocain solution.

* From the Surgical Department of the Mount Sinai Hospital Dispensary.

1. Kulenkampff: Zentralbl. f. Chir., 1911, No. 40.

2. Kulenkampff: Beitr. z. klin. Chir., 1912, lxxix, 550.

3. Eberle: Arch. f. klin. Chir., 1912, xcix, 1020. Babitzki: Deutsch. med. Wchnschr., April 3, xxxix, No. 14, p. 652. Neil and Crooks: Brit. Med. Jour., Feb. 22, 1913. Braun: Die Lokalanaesthetie, Ed. 3, Barth, Leipzig, 1913.

4. Braun: Die Lokalanaesthetie, Ed. 3, 1913.

theless several dislocations of the shoulder have been painlessly reduced under brachial plexus anesthesia. Braun⁴ reports an exarticulation of the shoulder-joint performed under it, local anesthesia of the skin in the line of the incision being added.

The anesthesia sometimes proves incomplete (in about 15 per cent. of the cases on record) and has even failed completely in a few instances. Nearly all observers agree that the proportion of unsatisfactory results steadily diminishes with increased experience.

Supraclavicular anesthetization of the brachial plexus has not been employed long enough, and the statistics are not sufficiently extensive (about 250 cases are on record) to state its advantages categorically. It appears indicated in all operations and all manipulations on the upper extremity for which local anesthesia, though indicated, cannot be readily and simply administered. Anesthesia of the brachial plexus has an unquestionably beneficial influence on shock. The following will serve as an illustration:

CASE 1.—A patient came under observation profoundly shocked from severely crushed wounds of the hand. Almost simultaneously with the appearance of anesthesia from the supraclavicular injection the signs and symptoms of shock began to lessen and soon were well-nigh gone. The exten-



Fig. 2.—Diagram to show the relation of the brachial plexus to the clavicle and the subclavian artery (modified from Kulenkampff): A, brachial plexus; B, omohyoid; C, sternomastoid; D, scalenus anticus; E, subclavian artery.

sive operative procedures carried out on the hand did not effect any change in the greatly improved condition of the patient.

Furthermore, several observers believe that shock from operations under brachial plexus anesthesia is much less marked than that from such operations performed under general or local anesthesia; more studies must be made, however, before this can be established definitely.

Except for the statement that supraclavicular anesthesia may be incomplete, nothing has as yet been said of its disadvantages. Temporary paralysis of half of the diaphragm from involvement of the phrenic nerve has been reported several times.⁶ In one of these instances the paralysis persisted for more than a month and was accompanied by considerable difficulty in breathing. It appears impossible to determine the type of case in which paralysis of the diaphragm may occur, and I therefore believe that Kulenkampff's method is contra-indicated for patients suffering from pronounced intrathoracic disease. The only other reported complication referable to supraclavicular anesthetization is a single instance of musculospiral paralysis following its administration.⁷ An Esmarch

band was employed for the very prolonged operation, and Borchers found it impossible to determine if the paralysis was the result of the anesthetization or of the pressure of the band. No instance of collapse following Kulenkampff's method has been reported and it is therefore thought advisable to present the following case:

CASE 2.—Mrs. F., aged 40, came under observation in the morning surgical clinic of Mount Sinai Hospital Dispensary April 8, 1913. She had been well except for a stiff and painful shoulder of six months' duration. The thoracic examination being negative, Kulenkampff's anesthesia was planned for the operation. One per cent. novocain with epinephrin after the Braun formula (q. s.) was employed, the solution having been prepared under careful aseptic precautions. The needle was introduced into the right supraclavicular fossa in the typical way and its presence in the plexus determined by the very definite paresthesias complained of by the patient. The brachial plexus was found easily; indeed, at no stage were there any technical difficulties. Ten c.c. of the solution were then slowly injected. Within one minute the patient began to complain of a sense of oppression and wished to lie down. Her color became progressively more pallid and the mucous membranes pale. She went rapidly into a state of profound collapse. The pulse became very irregular, rapid, and poor in quality; at times it was almost imperceptible. The respirations were very labored. The patient vomited several times, coughed occasionally, and expectorated some blood-tinged sputum. She was very restless, and repeatedly expressed a fear that death was impending. Vigorous hypodermic stimulation was resorted to, but this appeared to have very little effect on the collapsed state of the patient. She was therefore transferred to the reception ward of the hospital. Here the foot of the bed was elevated, rectal saline infusion administered, and hypodermic stimulation given each time the heart action became alarmingly weak. About four hours after the supraclavicular injection the general condition began to improve slowly. The patient was then admitted to Dr. Nathan E. Brill's service (the First Medical Division) and I am indebted to him for permission to abstract the following hospital notes of the case: In the night codein was given for restlessness. Twenty-four hours later the condition of the patient approximated the normal. The examination of the heart and lungs was negative. The motor paresis and the cutaneous anesthesia of the right upper extremity had disappeared. There were a few hyalogram casts, but no albumin in the urine. The patient complained of headache and nausea. April 10 (two days after admission), a slight rise in temperature (100.4) appeared, but was not accompanied by other manifestations. The patient was discharged, free from any after-effects of the collapse, April 12.

The collapse occurring in Case 2 can be ascribed to acute novocain poisoning or to trauma of the brachial plexus. It is generally held that the toxicity of novocain is very low. Braun,⁴ in a large experience, has neither seen records nor encountered toxic effects from dilute (from 0.5 to 2 per cent.) solutions of the drug when injected subcutaneously, even when large amounts have been employed.

Symptoms of poisoning have been described, however, from the injection of from 20 to 25 c.c. of 2 per cent. novocain solution into the sacral canal (Laewen, Braun⁹). They consisted mainly in nausea and sweating, pronounced pallor, a small and rapid pulse, accelerated respiration, repeated vomiting and a sense of oppression. These symptoms are paralleled by those of the patient in Case 2 which I have reported. In this connection it is of interest to note that von Gaz and Laewen have used large amounts of dilute (from 0.5 to 4 per cent.) novocain solution for blocking the

6. Sievers: Zentralbl. f. Chir., 1913, xxxvii, No. 10. Klausner and Stein: Ibid., 1913, xl, No. 16. Brunner: Ibid., 1913, xl, No. 28.

7. Borchers: Zentralbl. f. Chir., 1912, xxxix, No. 26.

8. Laewen: Deutsch. Ztschr. f. Chir., 1905, lxxx, 180.

9. Braun: Deutsch. med. Wchnschr., 1905, No. 42.

nerves of the lower extremity. They found that the tolerance was greatly increased by injecting the fluid slowly (over a period of from ten to fifteen minutes). Nevertheless, toxic symptoms appeared in a few of their cases. It was stated in the preceding paragraph that trauma to the brachial plexus may have caused the collapse of the patient. There can be little doubt of a certain amount of injury from injecting from 10 to 20 c.c. of fluid into a close-meshed plexus of nerves. It is well known that external violence applied to the brachial plexus sometimes results in a symptom-complex similar to that of my case. Despite these suggestions for the traumatic origin of the symptoms, it does not appear at all probable that injury was the cause of the manifestations. Were it so, collapse symptoms would be frequently observed. Besides, it is difficult to conceive the trauma profound enough to result in the symptoms in question. If all the fluid were injected into a single nerve-trunk, the trauma would possibly have been sufficient; the complete anesthesia of the arm, however, indicated that fluid was injected about several of the nerves. I must therefore conclude that the collapse of the reported patient was most probably due to acute novocain-poisoning, although trauma cannot be absolutely excluded as the cause.

From the experience of others and my own limited trial of the method it may fairly be stated that supra-clavicular anesthetization of the brachial plexus will prove an exceedingly valuable addition to the methods of regional anesthesia when serious complications from its administration can be eliminated.

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BEST METHODS OF DISCOURAGING THE ACTIVITY OF INOPERABLE CANCER

A STUDY OF HEAT IN CANCER *

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Among the earliest of the various procedures used in the treatment of malignant growths is the Chian turpentine advocated by Clay of Birmingham; there has been developed since then the molasses treatment; soap solution and ox-gall; cancroin, a poisonous product of cancer-tissue; thyroid extract; trypsin and amylopsin as strongly recommended by Beard; atoxyl by Skene Keith; Reicher's injection of epinephrin into the tissues about carcinomatous growth; Spiess' "337," an anesthetic not on the market, similar in chemical structure to novocain, by which Spiess obtained brilliant results in the carcinomas of mice, and Uhlenhuth's injection of pyocyanase. And now, among the most promising, at least from the laboratory point of view, are the selenium and tellurium compounds of eosin introduced by Wassermann and based on the fundamental work of Ehrlich. With these can also be considered the use of the colloids of certain metals, especially silver, copper and gold, as described by Caspari, Neuberg and Loeb. Under this general subdivision may also be placed serotherapy, namely, the fetal autolysates of Fischera and emulsions of Levin and Babcock; organ extracts treated by the Roentgen

ray and autoserotherapy as described by Hodenpyl and Ill. These methods have excited great interest from the point of view of the experimental laboratory. This has been especially true of the fetal autolysates of Fischera, which, from the scientific point of view at least, have much to commend them.

Among the rest may be mentioned the serum of animals treated with cancer by Jensen; autolysated sarcoma by Blumenthal; epinephrin and antivenin horse-serum of Greenbaum, and defibrinated blood by H. C. Ross and Bier. I purposely omit a bibliography as not being germane to the subject-matter, and would refer the reader to the status of carcinoma therapy as given in the *Reports of the American Association for the Study of Cancer*, 1913.

In spite of our wishes and hopes, all of these methods have proved to be inconstant in their effects, and therefore unreliable and disappointing. From the general agents used in attempts to destroy carcinoma, such as these just mentioned, we can pass to those employed locally. Among the first is probably arsenic, and its history is neither unimportant nor disappointing, although it has been badly used in many instances. With the arsenic, zinc chlorid, calcium carbide and acetone have also been employed.

The Roentgen ray has played an important part in the local treatment of cancer, and it is probable that it is destined to play a greater rôle if the work of Baum of Berlin and that of Kroenig and Gauss of Freiburg holds up its early promise. That the Roentgen ray will inhibit and destroy the carcinoma cell, or germ, under favorable conditions, there can be no reasonable doubt. There remains for the physicist only the problem of making the rays reach in an effective way the most inaccessible regions of the body, the habitat of cancer.¹

Radium also comes in this category. In reference to this agent, all that can be said at present is to express the hope that at least half the enthusiasm shown by the few who have had the rare opportunity of using it in large quantities will prove to be justified by subsequent results. Various modifications of the electric current also deserve recognition in the local treatment of cancer. With these, as with the Roentgen ray, the problem is also one of sufficient penetration to destroy the pathologic tissue, and leave, with the least amount of damage, the uninvolved tissue-cells. There are many of these methods. The most attractive, and, perhaps, the most promising, is the so-called fulguration method of de Keating-Hart, and also his thermoradiotherapy method. The diathermy system of Nagelschmidt and the electrocoagulation developed by Doyen of France belong to this same type. That these are scientific and based on good theoretical, as well as experimental data, there can be no question.

Finally, we have, as a last hope in the management of inoperable carcinoma, the operative treatment so well set forth by Mr. Cecil Rowntree.² The essence

1. Recently my attention has been called to a new and powerful Roentgen-ray tube devised by W. D. Coolidge, and described in the *American Journal of Roentgenology*, January, 1914, p. 115. In the same journal, p. 125, Dr. Lewis Gregory Cole gives "A Preliminary Report on the Diagnostic and Therapeutic Application of the Coolidge Tube." He closes his report with the following: "With these forces under control, there is no limitation to the amount of ray at our command, and with the cross-fire method of application and the screen materially increased, there is every reason to hope that we may be able to apply to internal cancers the same amount of x-ray which, when applied to superficial cancers, has caused their immediate disappearance." This statement of Professor Cole leads one to believe that the physicist had already made it possible for "the rays to reach in an effective way the most inaccessible regions of the body."

2. Rowntree, Cecil: *Brit. Med. Jour.*, Sept. 27, 1913.

* Read before the Western Surgical Association, Dec. 19-20, 1913.

of this author's paper is the relief of suffering by the excision of the growth as far as possible, without too greatly endangering the life of the patient. Added to this is the expectation that death by metastasis will be more merciful than ulceration and septic absorption.

As already stated above, under the head of general methods, these various procedures, although of the highest scientific interest, are too indirect for consideration in a practical way at this time. In an effort to determine an agent, aside from surgical means, to eradicate carcinoma, numerous observations have been made on the vulnerability of cancer-cells to various physical and chemical agents. In 1905, Haaland,³ in attempting to obtain artificial purification of mixed tumors, following the suggestion of P. Ehrlich, showed the susceptibility of inoculable material to heat of 44 C. (111.2 F.) for half an hour. Ehrlich suggests that with higher temperatures, fewer and fewer cells survive. Haaland likewise showed that carcinoma-cells succumb before sarcoma. Clowes⁴ demonstrated the death of all tumor-cells exposed to a temperature of 45 C. (113 F.) *in vitro*, and called attention to the fact that weak strains of tumors increase in virulence when incubated at from 38.5 to 41 C. (from 101.3 to 105.8 F.), while the opposite is true of strong strains.

Jensen⁵ has placed the vulnerability of cancer cells at 47 C. (116.6 F.) for five minutes; Loeb for sarcoma 45 C. for thirty minutes; Clowes and Baeslack 44 C. for thirty minutes.

Lambert⁶ has recently pointed out that temperatures above 42 C. (107.6 F.) were distinctly harmful, and that the degree of injury to both normal and cancer-tissue depends on the degree of temperature and length of exposure. He further states that sarcoma-cells are destroyed by exposure to 42.5 C. (108.5 F.) for from twenty-four to forty-eight hours, 43 C. (109.4 F.) for six hours, 44 C. (111.2 F.) for fifty minutes and 46 C. (114.8 F.) for twenty minutes; while normal connective-tissue cells survive these various exposures.

M. Doyen, in proposing the *Micrococcus neoformans* as the cause of carcinoma, showed that the death-point of cancer-cells is from 55 to 56 C. (131 to 132.8 F.), identical with that of the *Micrococcus neoformans*.

E. Vidal⁷ noted the arrested evolution of tumors in four patients with a temperature above 40 C. (104 F.). In order to be sure that there was not a quadruple coincidence, he daily exposed tumor-bearing mice to temperatures above normal, and found that they lived longer and that the tumors were the seat of degenerative changes. In a bitch having a spontaneous lymphosarcoma, the zone of Richet was punctured, the temperature rose to 40.8 C. (105.3 F.) and the tumor diminished in size rapidly and finally disappeared some time after this procedure. In this connection Vidal makes the startling and original observation that the methods of treating carcinoma by vaccines and toxins, such as the nectrianin of Bra, Doyen's *Micrococcus neoformans* vaccine, toxins of Coley, vaccine of Otto Schmidt, etc., are all attended by a

reaction, the principal symptom of which is an increase of temperature, and when such reaction is absent, the several authors state that there is no salutary influence on the carcinoma. He therefore concludes that these various methods owe their success largely to their fever-producing qualities. It may here be mentioned that Bier⁸ has shown that the injection of a foreign defibrinated blood is attended by fever, and it is well known that the intravenous injections of colloidal metals show the same reaction. The various reports of diminution of malignant tumors following infections, such as erysipelas, assume a new significance.

Based on the foregoing experimental data, it is logical that we hope for the eradication of cancerous growths by attacking these morbid processes through their vulnerability to heat. It is immediately apparent that methods tending to raise the general temperature of the body above 104 F. (40 C.) are at times dangerous, always uncertain and beyond the power of regulation. It, therefore, remains to develop a method of applying heat to the tumor mass to a degree of efficiency that will permit of the greatest destruction of carcinoma-cells with a maximum conservation of normal tissue-cells. The methods which may be enumerated to obtain these results are hot air, hot water, electrocoagulation, fulguration and actual cautery. The first two may be readily dismissed, because the penetration of hot water, as shown by Doyen,⁹ is from but 4 to 5 mm., and that of hot air is probably much less. Electrocoagulation will produce a coagulation of tissues from 5 to 8 cm. in two minutes, when the electrode is in immediate contact with the tissues. The rapidity of this action, the inability to direct and control the electrode within the cavities, aside from the costly and complicated apparatus required, together with the refinement of technic and specialized judgment of the operator, make this method impracticable in the treatment of the cavity carcinoma.

In considering the de Keating-Hart method of fulguration, a method applicable to superficial growths after their surgical removal, it is not amiss to call attention to the work of Durig and Grau,¹⁰ who show that the effects of the application of high-frequency currents is due to heat alone, and not to any specific action on the tissue-cells. In comparison with the difficulties of the application of the foregoing methods. I have devised a practical method for the application of heat in the treatment of carcinoma that has none of the objections that the various methods already enumerated have. The penetration of the heat by the method to be outlined can be definitely determined and regulated. Its applicability has almost no limitations, when the malignant process is at all accessible; the required apparatus is not expensive, and it is easily portable. The method to which I refer is the application of heat from an electrocautery, accurately controlled by a rheostat, and applied to the affected tissues.

In an effort to determine the degree of heat resulting from the application of the heating-irons for varying periods of time, the following experiments were performed:

3. Haaland, M.: Imperial Cancer Research Fund, Third Report, 1908.

4. Clowes, G. H. A.: Brit. Med. Jour., December, 1906.

5. Jensen, Loeb, Clowes, Baeslack: Quoted by Clowes: Annual Report of New York State Cancer Laboratory, 1910.

6. Lambert, Robert A.: Demonstration of the Greater Susceptibility to Heat of Sarcoma Cells as Compared with Actively Proliferating Connective-Tissue Cells, THE JOURNAL A. M. A., Dec. 14, 1912, p. 2147.

7. Vidal, E.: Travaux de la Deuxieme Conference Internationale pour L'Etude du Cancer, Paris, 1911, p. 160.

8. Bier: Deutsch. med. Wchnschr., July 18, 1907, No. 29.

9. Doyen: Quoted by Bainbridge, William Seaman: International Clinics, 1913, iii, 280, S. 23.

10. Durig, A., and Grau, A.: Der Energieumsatz bei der Diathermie, Biochem. Ztschr., 1913, xlviii, 480. Quoted in The Effects of High-Frequency Currents, editorial, THE JOURNAL A. M. A., May 31, 1913, p. 1907.

EXPERIMENT 1.—Into a mass of fresh, tightly bound beef 7 inches in diameter and 6 inches thick, the largest electric cautery was allowed to burn its way under pressure. Two thermometers were forced into the mass at 1 and 2 inches' distance from the cautery, respectively, and the cautery was allowed to act continuously at constant heat for seventy-five minutes. Cross-section of the mass following the experiment showed just outside the area of actually destroyed tissue (charcoal) an area of coagulated tissue $\frac{3}{4}$ inch thick, and to the outer side of this, an intermediate pale grayish-pink zone $\frac{1}{2}$ inch thick. In every instance the latter area was found to be to the inner side of the thermometer, which registered 55 C. (131 F.).

EXPERIMENT 2.—A similar cautery was forced into a mass of tightly bound beef-muscle measuring $3\frac{1}{2}$ by $3\frac{1}{2}$ by 3 inches, and allowed to act continuously at constant heat for sixty minutes, and with a thermometer placed in the mass at a distance of $1\frac{1}{2}$ inches from the cautery. Cross-section of the mass then showed a coagulated zone $\frac{3}{8}$ inch thick, and an intermediate zone $\frac{1}{4}$ inch thick. Thus there is seen the actual destruction of a mass of tissue measuring $2\frac{3}{8}$ by $2\frac{3}{8}$ by 3 inches.

In both of these experiments, frequent thermometer readings showed an almost constant rise of 0.5 degree C. per minute in the tissue within from 1 to 2 inches of the cautery.

EXPERIMENT 3.—The cautery, heated to a bright cherry red, was allowed to act for ten minutes within a mass of tightly bound beef-muscle. At the end of this time, cross-section showed a coagulated zone $\frac{1}{4}$ inch wide, and an intermediate zone $\frac{1}{8}$ inch wide. This experiment illustrates most graphically the inhibition by the charcoal core of the dissemination of heat. High degrees of heat in the cautery head thus defeat the purpose of this technic, through the formation of an almost impenetrable carbon barrier. It is well to emphasize here the importance of Experiment 5, in which the tissues were not carbonized by high degrees of heat, with a resulting coagulation of the tissues throughout a far greater area.

EXPERIMENT 4.—This was the same as Experiment 3, with the cautery acting for thirty minutes. Cross-section then showed a coagulated zone of $\frac{1}{4}$ inch, and an intermediate zone of $\frac{1}{4}$ inch.

In all of the foregoing investigations, it is to be emphasized that the cautery was inserted hot, and allowed to act under high heat.

EXPERIMENT 5.—From the center of a mass of tightly bound beef-muscle $2\frac{1}{2}$ inches in diameter and 3 inches thick, a core $\frac{1}{2}$ inch in diameter was bored out. Into this the cold cautery was inserted and allowed to remain at a heat too low to cause charring of the tissue, for sixty minutes. At the end of this time, the entire mass was hot, and cross-section showed complete coagulation throughout the mass.

EXPERIMENT 6.—In this experiment, a mass of beef 3 by 3 by 4 inches was used, the object being to determine the time necessary entirely to destroy this mass by the cautery heat, combined with external pressure by forcing the tissue on the cautery, in this way stimulating the actual operation in my technic of applying heat to a carcinomatous uterus. The mass was held in the hands of an assistant, who exerted constant pressure toward the cautery acting at high heat within the mass. At the end of twenty-eight minutes, the entire lump was too hot to be held in the hands, and section showed nothing left but a charcoal shell surrounded by a rim of well-cooked coagulated tissue $\frac{3}{8}$ inch in thickness.

EXPERIMENT 7.—From a large mass of beef-muscle, a core $\frac{3}{4}$ inch in diameter was bored and lined with a rubber glove. The opening of this cavity was then closed by a cork containing an inlet and a smaller outlet. To the inlet was connected an irrigator containing cold water, which was allowed to flow through the cavity in the meat. The heated cautery was then plunged into the mass at a distance of $\frac{1}{2}$ inch from the cavity in which the cold water was flowing, and allowed to act for thirty minutes.

The object of this investigation was to determine the effect of cold water within a cavity in protecting directly contiguous tissue from coagulation by the heat from the cautery. Cross-section of the mass showed complete coagulation of all the tissue between the cautery and the cork inserted into the cavity, but a zone of unharmed tissue $\frac{1}{8}$ inch wide along the edge of the water-cooled cavity.

From the foregoing experiments several important facts may be deduced. The temperature within the mass of tissue, measured at a distance of from 1 to 2 inches from the outside of the heating-iron, rose 0.5 degree C. per minute, the rheostat reading high. This fact affords a method for the relative measurement of heat during the cautery operation. The time of exposure and reading of the rheostat being the factors considered in the calculation. It will be seen that a considerable area of tissue, far beyond the zone of coagulation, was heated to a degree sufficient to kill carcinoma-cells.

The penetration of heat into a mass is dependent on the following factors: (1) the density of the mass; (2) the compression of the mass on the cautery; (3) the degree of heat developed and length of exposure, and (4) the type of entrance made for the cautery.

Experiment 5 shows in a startling manner that if a charcoal core is avoided, the area of coagulation far exceeds in size that ensuing from the application of greater heat for a longer period of time. In this experiment the cross-section shows that without carbonization, coagulation is produced $2\frac{1}{2}$ inches in all directions from the surface of the heating-iron, the heat being applied for sixty minutes. When the iron was heated to a degree at which carbonization was produced, as in Experiment 2, again for sixty minutes, coagulation was produced for only $\frac{3}{8}$ inch, and an intermediate zone of $\frac{1}{4}$ inch, making a total penetration of the heat into the beef mass of only $\frac{5}{8}$ inch, in contrast to Experiment 5, with a much lower degree of heat, of $2\frac{1}{2}$ inches from each side of the heating surface.

This emphasizes the caution which I have advanced on former occasions, not to produce too great a heat in the heating-iron; it is far better to develop a heat below the degree of carbonization, and allow it to act for a long time. As can readily be seen from these experiments, there are two methods by which a carcinomatous mass may be destroyed: first, that illustrated in Experiment 6, in which, with the heating-iron at high temperature, the mass is burned up, every angle being pressed on the cautery head by an assistant, and second, that illustrated by Experiment 5, in which the tissue is not burned up, but destroyed by the production of heat below the point of carbonization. Both procedures have a place in the operation. When a small, circumscribed and well-defined growth, unattended by pelvic metastasis, is present, the first method may well be used, particularly as a preliminary measure. When, however, the pelvis is filled with the cancer growth, the first method should not be employed, because the primary carbonization, I repeat, prevents in a remarkable way the dissemination of heat necessary to effective treatment of the cancer mass. In other words, the successful treatment of cancer depends more and more on the question of heat, and less and less on the effects of cauterization. There is another important consideration, which

should guide us in reference to the prevention of the formation of the charcoal core at the point of contact with the cautery, namely, drainage. The charcoal not only prevents the scattering of the heat, but also interferes with subsequent drainage, which is a most important factor in the successful management of these cases. When the drainage is not adequate, the patient is in danger from absorption of the products of large quantities of killed cancer-cells. Wassermann has already called attention to this in the destroyed tumors of mice. He has shown that if the destroyed tumor in these animals was as large as, or larger than, a hazelnut, the animal died from intoxication from the lytic cancer-cells. If, however, the tumor was the size of a large pea, this result did not follow when it was destroyed. In two of my cases, I have observed intoxication of this character. In both of these cases the pelvis was full of secondary carcinoma following panhysterectomies. The heat was applied through the vagina, and in both instances there was a perfect primary recovery. After four days, however, each of these patients showed signs of failure, which was expressed by extreme weakness, which could not be explained by any local findings. There was also a rapid and weak heart-action, associated with syncopal attacks, vomiting, marked stupor and finally an acidosis. The second method is much more effective, carried out for a period of time varying with the size of the mass; the heat radiates from the heating-iron in a circumferential manner and penetrates the tissues as outlined in the foregoing experiments.

The scope of this paper and the tenor of its contents does not permit of a description of the various steps of my operation, the indications, contra-indications and the immediate, together with the final results. Permit me to refer to my two previous articles on this subject for this data.¹¹

CONCLUSION

It has been my purpose to try to point out, through the medium of this paper, the widening of the field of investigation regarding the vulnerability of the cancer-cell to the effects of heat. It will be of particular interest to make further observations as to the relation of the reaction, producing heat in the body, following the injection of toxins, serums and vaccines in the destruction of carcinoma. If the primary gross mass of cancer which is usually accessible can be rendered innocuous by raising the temperature through the medium of an electric heating-iron, and the remaining small amount of lymphatic involvement be reached by thermic-raising, artificially produced toxins, serums or vaccines, as is emphasized by Vidal, then the dream of the ages, on the part of the physician, of doing something with cancer, will be on the road of realization.

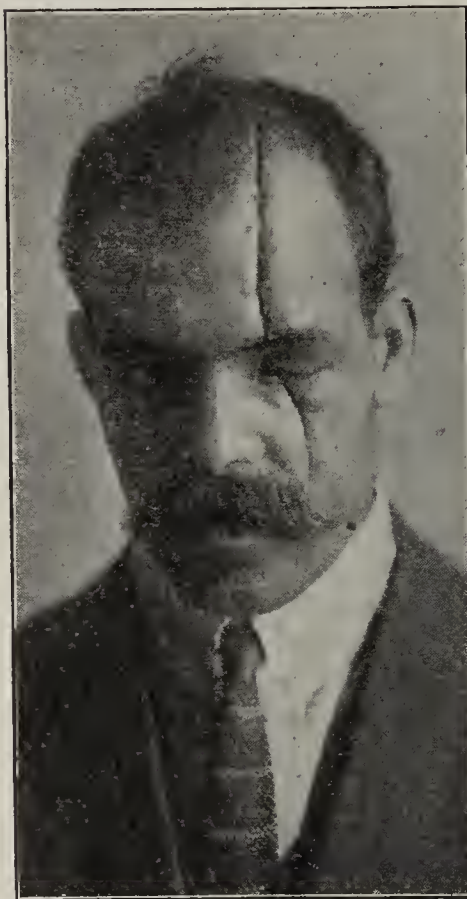
Finally, it becomes necessary to develop the application of heat by a method which is at once efficient and harmless, and I believe that I have done this by the technic which I have developed. I believe, further, that I have accomplished this in such a way as to make it highly probable that many forms of carcinomatous growths may be eradicated.

11. Percy, James F.: The Results of the Treatment of Cancer of the Uterus by the Actual Cautery, with a Practical Method for Its Application, *THE JOURNAL A. M. A.*, March 9, 1912, p. 696; A Method of Applying Heat Both to Inhibit and Destroy Inoperable Carcinoma of the Uterus and Vagina, *Surg., Gynec. and Obst.*, September, 1913, p. 371.

DEEP WOUND OF BRAIN

F. H. GUNN, M.D., AND H. C. FAIRBROTHER, M.D.
EAST ST. LOUIS, ILL.

G. R., a Greek, aged 35, blacksmith, of robust physique, while engaged in a fight with another Greek, Dec. 27, 1913,



Patient after recovery from deep wound of brain.

received a stroke with an ordinary chopping-ax. As shown in the accompanying illustration, the head was literally split wide open. The skull was severed back to the coronal suture, and forward through the malar and superior maxillary bones down to the alveolar arch. The brain was severed about 1 inch to the left of the median line, through the frontal lobe back to a point near the fissure of Rolando. The left eye was cut through near the center. The patient was brought into the hospital, the head shaved and cleaned, the eye removed. The incision closed and secured with sutures and adhesives, and absolute rest enjoined. Perfect recovery followed without an untoward symptom. In five weeks the patient returned to work, and up to the present time, a period

of three months, he has complained of no unfavorable symptom except occasional insomnia.

The Increase in the Number of the Insane.—Interesting statistics have been recently published by Dr. Magnan, head of the examination service of St. Anne's asylum, and by Dr. A. Fillassier, head of the statistics department of Paris, on the insane of the Department of the Seine.

During the period between 1871 and 1880, inclusive, the total number of cases of insanity in the Department of the Seine was 27,169. From 1881 to 1890, the cases furnished by the department numbered 41,288. During the third decennial period, from 1891 to 1900, the number of insane rose to 42,138. Finally, between 1901 and 1910, 43,035 cases of insanity were registered. Alcoholics formed more than a fourth of the number of insane. Of the 89,728 total admissions between 1887 and 1911 the number of alcoholics was 27,315.

The number of relapses, according to Magnan and Fillassier, is very high: in 1911, 15.3 per cent. for the men, and 11.3 per cent. for the women. Many of the relapses are due to alcoholism. Sometimes the cases are merely those of alcoholics who return to drinking, sometimes of degenerates who, from the effect of the poison, become insane anew. Among the exceptional relapses were those of some patients who entered St. Anne's fifteen, sixteen and seventeen and even forty times because of the abuse of intoxicants.

Of all the methods applied for the treatment of the various cases of insanity, Drs. Magnan and Fillassier believe that confinement to bed is the one which gives the best results. This method constitutes a considerable step in advance in the therapeutics of mental diseases. By confinement in bed the acute deliriums are improved, arrested and cured. Since 1897 a considerable diminution of suicides has been observed among men, and there have been none in the women's division. The amelioration of the maniac and melancholic condition is constant and often rapid. For the alcoholic, nothing can equal the value of confinement to bed.

New Instruments and Suggestions

ACROMION AUSCULTATION: A NEW AND DELICATE TEST IN THE EARLY DIAGNOSIS OF INCIPIENT PULMONARY TUBERCULOSIS

FRANK A. BRYANT, M.D., NEW YORK

The early recognition of physical signs in incipient pulmonary tuberculosis is a factor of such importance that the discussion of a new method of detecting conditions which produce slight pneumatic changes in lung-tissue should prove interesting.

The primary lesion in tuberculosis of the lungs is, as a rule, in one of the upper lobes (American System of Practical Medicine). In 427 successive cases of pneumonic tuberculosis examined at the Johns Hopkins Hospital, the right apex was involved in 172, the left in 130, and both in 111. This leaves only 14 cases out of 427 in which the initial lesion was elsewhere than at the apices.

It may be stated that phthisis in this locality is practically always caused by the aspirated tubercle. In this method of infection the tuberculous nodule is usually deposited just where the bronchiole loses its cartilaginous quality, becomes membranous and narrows down to enter the aveoli. Almost immediately (Osler, in Loomis-Thompson's Practice of Medicine) cell proliferation and tissue changes begin so that as early as the fifth day after infection, variations in the lumina of the air passages are sufficient to cause changes in the pitch of the respiratory note and prolonged expiration.

This early mechanical change in the walls of the smaller air-passages explains how by means of auscultation alone the very earliest evidences of infection and infiltration may be obtained, long before such a condition could be detected by percussion, cough, pallor, nocturnal perspiration and the more common signs by which lung tuberculosis is ordinarily diagnosed.

A new and delicate method of auscultation to which I desire to call additional attention and which has been described by Robert Abrahams and Nathan Magida, is called acromion auscultation (Abrahams, Robert: Auscultation at the Acromion Process: Its Significance in Apical Disease, *Arch. Diagnosis*, April, 1913. Magida, Nathan: Acromial Breathing as an Aid in the Diagnosis of Apical Pulmonary Tuberculosis, *New York Med. Jour.*, 1913, xcvi, 1261). It is, as its name implies, a process of listening with a bell stethoscope (or stethophone, as some prefer to call this instrument) over the acromion processes of the scapulae and particularly over the clavicular-acromion arthroses. It is of such significant service in ascertaining the very earliest signs of the invasion of pulmonary tuberculosis, that I believe it should be given a high place among the classical and recognized signs of this disease, and command the attention and respect which its useful character deserves.

ACOUSTIC PRINCIPLES

Acromion auscultation is based on the principles involved in the production and transmission of sound. It is a fundamental law of physics (Avery, E. M.: Elements of Natural Philosophy) that all sound may be traced to the vibration of some material substance. The sounds heard by direct auscultation over lung-tissue are produced by vibrations or movements of air, and occasionally mucus, within its substance. As a medium for the transmission of these vibrations in acromion auscultation, we have, first, the clavicles. It is worthy of note that the name is derived from the Latin word for key, inasmuch as they help to unlock some problems in the physical examination of the upper chest.

The clavicles, on account of the connection at their inner ends with the manubrium and first ribs, whose posterior surfaces lie directly over lung-tissue, and with their own inner concave surfaces lying across and on the apices of the lungs, act like the sounding-board of a musical instrument whose office is to greatly increase the intensity of the original vibrations.

Sound waves produced in the lungs are thus picked up, and traveling longitudinally through the long axes of these bones, arc, according to a principle in acoustics, reenforced by

the blending of similar waves and sympathetic vibrations. As in the case of the violin, the result is an intensification and even increase in volume of sound at their acromion ends.

This multiplication of sound at the acromion is analogous to the fact that a tuning fork can be heard much louder if it be placed against the end of a rod whose opposite end is held against the ear. Another familiar illustration of such bone conductivity is the increased resonance heard as the razor in shaving glides over the rami of the inferior maxillary. The telephone is another extensive example of the same principle.

The same conditions and principles which apply to the clavicles anteriorly obtain in the relation that the large resonant surfaces of the upper portion of the scapulae bear to the lung-tissue which they cover and to the acromion processes. It is apparent, therefore, according to physical laws, what effective collectors, intensifiers and transmitters of adventitious apical sounds these two bones may become.

METHOD OF USE

The manner of its use is exceedingly simple. The bell of an ordinary stethoscope should be placed as nearly over a point corresponding to the junction of the clavicle with the acromion process as possible. The effect of ordinary respiration should first be observed, after which the patient should be told to deepen the natural breathing, to count, to whisper or to cough, according to whichever sign it is sought to make available, as in the direct auscultation of the apices.

If the anterior portion of an upper lobe be suspected, the examiner should then stand at the side of the patient and endeavor to cover with the stethoscope a portion of the outer or external end of the clavicle by applying the bell of the instrument as nearly as possible in conformity with its long axis.

This manner of applying the stethoscope is recommended because the inner end of the clavicle, articulating as it does with the manubrium and first rib, and being bound firmly to the rib by the aponeurosis of the subclavius muscle and the costoclavicular ligaments, forms a fairly broad, compact resonating surface in direct contact with the anterior portion of the upper lobe and its apex. This resonant mass of bone and fibrous tissue acts as a collector of sound-waves, which it transmits longitudinally outward along the clavicle to its acromial end.

If the posterior portion of the upper lobe or its apex is to be tested, the examiner should stand in front of the subject and place his instrument on and as nearly over the tip of the acromion process as he can. In this locality the supraspinous fossa above and the under surface of the great shell-like subscapular fossa below spreading out over this region, lying on the posterior surfaces of the upper ribs, which in turn through their pleurae come into contact with lung-tissue beneath, act as other resonators, gathering up, intensifying and transmitting sound impulses to the listener's ear at the acromion.

While the chief use of acromion auscultation is to be found in its use in the incipient stage before emaciation has taken place, yet it is desirable occasionally to use it in later stages of the disease and when there has been a loss of flesh. This often leaves the bony prominences of the shoulder so uneven that the bell of the stethoscope cannot be adjusted readily to the contour of the shoulder in a manner to exclude the external air.

At first a soft rubber bell was used on the stethoscope, but that absorbed the sounds to such an extent that its use had to be abandoned. Later I found that the ordinary hard rubber or metal bell could be used on these bony shoulders by simply drawing up the loose skin and tissues around the mouth of the stethoscope with the fingers of the disengaged hand sufficiently to make an air-tight adjustment. Care must be taken, however, to keep this skin cushion motionless, or else extraneous and confusing sounds will be heard.

Rarely, slight friction sounds produced by a movement of the parts in the clavicular-acromion arthrosis may be heard, and on account of their similarity to those of mucus râles and clicks, caution must be used to differentiate and exclude such sounds from those originating in the lungs. I would

suggest that cases for examination at first be chosen from those which have already been diagnosed by other means as being tuberculous. For those unaccustomed to this method of examination, like the early study of heart murmurs, it will give greater satisfaction and confidence to begin the investigation with a known condition as a working hypothesis.

The bell stethoscope must always be used, because the phonendoscope, on account of its flat surface, cannot be adjusted to the rounded and sometimes bony prominences of the shoulder-joint.

ADVANTAGES

The primary and most valuable feature of this new method of auscultation is in its being an early indicator of apical invasion. Its basic principles are well adapted to collecting and transmitting to the ear pathognomonic sounds about the apices due to changes in the walls of the infundibula earlier in the history of the disease than they can be elicited in any other way.

In addition to this it is useful in determining the stage of the disease. In a stated number of cases of all stages of lung tuberculosis examined, acromion breathing was heard in all of the first-stage cases, in 57 per cent. of those in the second stage, and in only 2 per cent. of the third-stage cases. I have found it useful also in young, plethoric persons, in whom the presence of pathogenic bacilli is apt to be made known first by hemoptysis. In this class of cases there is frequently so much fatty tissue and muscle over the apices that little or nothing can be learned by direct auscultation or percussion. In such cases the value of acromion auscultation is emphasized.

62 West Fortieth Street.

MARCHI TECHNIC: SAFER AND EASIER CLEARING AND MOUNTING OF CELLOIDIN SECTIONS*

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This communication is presented on the assumption that, at present, chloroform is generally regarded as the best clearing reagent for Marchi celloidin sections. It is generally recommended that Marchi celloidin sections be cleared in chloroform and mounted in chloroform balsam because xylol and other clearing reagents, and xylol balsam, cause the black osmic acid staining of fat to fade. Clearing in chloroform, as recommended, presents certain well-known difficulties in technic. These difficulties sometimes make the fate of valuable material uncertain, for example, material that has been obtained as a result of painstaking and time-consuming experiment.

Obviously it would be a great advantage if such sections could be cleared in oleum origani cretici. The technical difficulties dependent on chloroform clearing would be overcome. There would be no danger of drying and shriveling of the sections. The sections could be thoroughly blotted and flattened with smooth (not embossed) filter-paper. The chloroform balsam could be carefully applied. The retraction of the balsam, on drying, from a part of the space between the cover-slips and the slides would be practically done away with. Dr. Mallory has informed me that this retraction can be still further guarded against by completely covering the sections on the slides with chloroform balsam and then allowing it to evaporate to a proper thickness before putting on the cover-slips. It would be possible to turn over valuable material to a technician for clearing and mounting with much less fear of loss of material and without placing undue responsibility and strain on the technician, especially in the case of large serial sections.

Marchi celloidin sections were placed in a dish of oleum origani cretici. Sections of Zenker-fixed tissue stained in hematoxylin and eosin were placed in another dish of the same oil. Oleum origani cretici is probably the most widely used clearing reagent for hematoxylin- and eosin-stained sections. At intervals, sections from each dish were mounted, the Marchi sections in chloroform balsam and the hematoxylin and eosin sections in xylol balsam. In the Marchi sections no evidence of fading was found after seven weeks in the oil. On the other hand, the hematoxylin and eosin sections had obviously faded.

Further, a large number of Marchi celloidin sections were mounted. The technic made use of was the usual technic except that the sections were cleared in oleum origani cretici instead of chloroform. At the end of ten years these show no evidence of fading on comparison with controls. The controls consist of new sections cut from the same set of blocks from which the oil-cleared sections were cut ten years ago. These control sections were cleared in chloroform.

Dr. Mallory has kindly examined the various sections mentioned above and has confirmed the observations.

CONCLUSION

Oleum origani cretici is a very much safer and easier clearing reagent than chloroform for celloidin sections to use in the Marchi technic. It is a safer clearing reagent for Marchi sections than it is for hematoxylin and eosin sections.

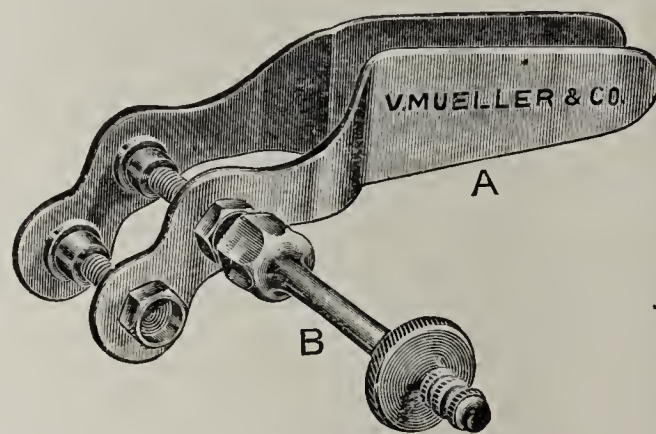
A NASAL SPLINT

E. P. HALL, M.D., KANSAS CITY, Mo.

The suffering of the patient whose nasal chambers are tightly packed with gauze for the twenty-four to forty-eight hours following the submucous resection of the septum must be a consideration which presents itself to the mind of the rhinologist when advising this otherwise excellent procedure. The obstruction to drainage of the nasal secretions except by seepage through thoroughly saturated sponges; the absence of oxygen with its bacteria-inhibiting power and consequent protection against increased virulence of existing sinusitis, and the possibility of direct infection of the wound are conditions all against surgical principles, and condemn this method.

A satisfactory nasal splint would be one to hold the flaps securely in position, to prevent hemorrhage, to offer no obstruction to discharge of nasal secretions and to permit free nasal respiration. The instrument here illustrated, when applied in the manner described, I have found to meet these requirements.

When the operation is completed, a strip of Bernay's sponge three or four layers in thickness, cut to size of blades or a trifle wider, is placed on both sides of the septum and the blades of instrument are guided into position over these



Nasal splint.

strips. The blades of the splint are not screwed tightly against the flaps, for the intervening packing affords the necessary elasticity to the splint to provide for the edema of tissue and to fix it immovably in position.

An adhesive-plaster strap is wound once around connecting bars and carried along the bridge of the nose to the forehead; this, with a cross-strap over the bridge, supports the weight of the extra nasal end of the splint. The screw-heads are grooved for insertion of a key to assist in turning the cogs to separate the blades when secretions and blood have cemented the working parts together.

Triangular plates held to grooves in the blades of the splint can be placed in position, taking care of a high operation should it be found necessary to support the entire flap.

The instrument may be so constructed that the blades are placed in position separately and then locked together. This is a later development of the device and preferable in that it is much easier to insert and remove without discomfort to the patient.

My experience justifies a recommendation of at least forty-eight hours for the length of time to leave the splint in position.

Models of this instrument are in the hands of V. Mueller & Co., Chicago.

* From the Department of Pathology, Syracuse University, College of Medicine.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

THIOCOL AND SYRUP THIOCOL, ROCHE

Report of the Council on Pharmacy and Chemistry

The following report, explaining the readmission of Thiocol and Syrup Thiocol, Roche, to New and Nonofficial Remedies, was adopted by the Council and authorized for publication.

W. A. PUCKNER, Secretary.

Seven years ago the Council accepted Thiocol for inclusion with New and Nonofficial Remedies (THE JOURNAL, Dec. 22, 1906, p. 2093) and later also a preparation of it, Syrup Thiocol, Roche (THE JOURNAL, Dec. 3, 1910, p. 1980.) About a year ago the Council learned that a preparation called Sirolin, containing Thiocol as its effective component, and practically the same as Syrup Thiocol, Roche, was being advertised to the public both in this country and abroad under grossly exaggerated claims. The Council directed that the matter be brought to the attention of the American agent for Thiocol preparations, the Hoffmann-LaRoche Chemical Works. This was done.

The agent's reply contained no promise that advertising in the lay press would be discontinued. As the Council holds that the advertising of medicinal products to the public is vicious in that it tends to encourage self-medication and the establishment of false security on the part of the public, the Council voted that Thiocol and Syrup Thiocol, Roche, be omitted from New and Nonofficial Remedies (THE JOURNAL, June 21, 1913, p. 1974).

Recently the following was received from the Hoffmann-LaRoche Chemical Works, New York:

"All popular propaganda for Sirolin has been abandoned in Germany, Russia, Great Britain and the United States and there never has been any popular propaganda of Sirolin in France. We can at the same time state that there will not in the future be any popular advertising or popular propaganda of any sort in behalf of Sirolin in the United States, Germany, Russia, Great Britain or France."

In view of the foregoing letter the Council has voted that Thiocol and Syrup Thiocol, Roche, be readmitted to New and Nonofficial Remedies.

NEW-BORNYVAL.—Neo-Bornyval.—New bornyval is borneol isovaleryl glycolate, $(CH_2)_2:CH.CH_2.COO.CH_2.COO.C_6H_{11}$, the isovaleryl glycolic acid ester of borneol.

Actions and Uses.—New bornyval is more resisting to the gastric juice than bornyval, and is said to pass the stomach without decomposition and on this account it is said to be less irritating to the stomach than bornyval. In the intestine it is decomposed into borneol, and the salts of valeric acid and glycolic acid.

The actions and uses of new bornyval are similar to those of bornyval or to preparations of valerian. It is said to be useful in the various neuroses, especially those of the circulatory, digestive and central nervous systems.

Dosage.—From 0.25 to 0.75 Gm. (4 to 12 minims) from two to four times daily. It is best given after meals with some milk, coffee or similar drink to avoid eructations.

Manufactured by J. D. Riedel, Aktien Gesellschaft, Berlin, Germany (Riedel and Co., New York). No U. S. patent. U. S. trademarks Nos. 41,917 and 56,450.

New Bornyval Pearls.—Each capsule contains new bornyval, 4 minims.

New bornyval is prepared by heating equivalent amounts of borneol chloracetate with salts of valeric acid and subsequent purification by distillation *in vacuo*.

New bornyval is a colorless, nearly tasteless and odorless, oily liquid, insoluble in water, readily soluble in alcohol, ether, benzene and fatty oils. The alcoholic solution is neutral to litmus. It has a specific gravity of from 1.025 to 1.030 and boils at 181 C. at 12 mm. pressure, and from 283 C. to 285 C., with decomposition, at 760 mm. pressure.

If about 6 Gm. new bornyval be saponified by boiling for one hour with from 50 to 100 Gm. of an alcoholic solution of potassium hydroxid (10 per cent.) under a reflux condenser, the alcohol distilled off, and the remainder distilled with steam, crystals will be formed in the condenser which, after recrystallization from petroleum ether, may be identified as borneol by their appearance, odor and melting-point. If the liquid from which the borneol was distilled be made acid and heated, the odor of isovaleric acid will be apparent.

Therapeutics

SOME OVERLOOKED CAUSES OF CHRONIC ILLNESS

Misdirected treatment is unfortunate, for both the patient and the physician; the former loses time and comfort, if not health, and the latter loses the patient. Consequently, a brief reference to some of the conditions in which the etiologic factors are sometimes overlooked, and therefore the treatment wrongly directed may not be amiss.

LINGUAL TONSIL COUGH

A congested lingual tonsil as the cause of a troublesome, dry cough is frequently overlooked. This is a common condition, and may occur without bronchitis, tracheitis or laryngitis. It may also occur without a pharyngitis, although it is frequently associated with it. It is frequent in cigarette smokers, and more or less in all smokers, but often occurs in patients who do not smoke. If a person has had this trouble once he is likely to have it recur with every cold. It not infrequently happens that a patient is suspected of having incipient tuberculosis, just because he has a lingual tonsil cough, especially if the hard, rasping cough has produced a blood-tinged mucus. Such a cough is generally worse when the patient lies down, is precipitated by any change of temperature from the house to out-of-doors, or vice versa, from a warm room to a cold room, or the reverse. It is also precipitated by laughing. If the cough begins there is a shower of coughs, until the patient has literally scraped the part irritated, much as one scratches an itching spot until it almost bleeds. The cause of this cough is quite generally referred by the patient to a tickling well down under the sternum. The patient may not always have a cough from lingual tonsil irritation, but may complain of a burning sensation which he may term "heart-burn."

The diagnosis of the condition is readily made by the use of the laryngoscope, when the lingual tonsil at the base of the tongue will be found, many times, red and inflamed, sometimes heavily coated, and at other times with large papillae projecting from the mucous membrane.

Emphasis should be laid on the fact that cough mixtures will not cure this cough. It is true that some gummy, gelatinous, sweetish, thick, syrupy preparations may so coat the lingual tonsil when they are

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swallowed as to ease the cough for a time; but what becomes of the poor stomach from such medication? Gargling may not reach this region; only patients who have been educated to do so can gargle to wash the lingual tonsil. Gargles should always be ordered, however; they will at least soothe the rest of the throat. Efficient gargles are the liquor antisepticus alkalinus of the National Formulary, which should be diluted with an equal part of hot or warm water; or a Seiler's tablet solution, one tablet dissolved in 2 or 3 ounces of warm water; or a simple and efficient gargle may be made by adding one-fourth of a teaspoonful of bicarbonate of soda and one-fourth of a teaspoonful of salt to half a glass of warm water. Another useful gargle is the following:

| | Gm. or c.c. | |
|---|-------------|---------|
| R Acidi borici..... | 2 | 3 ss |
| Potassii chloratis..... | 5 | 3 i |
| Aquae menthae piperitae.... | 200 | fl 3 vi |
| M. Sig: Use as a gargle every 3 or 4 hours. | | |

At times when the throat is flabby, a tannic acid gargle is of value, such as:

| | Gm. or c.c. | |
|--------------------------------------|-------------|---------|
| R Acidi tannici..... | 3 | gr. xl |
| Glycerini | 10 | fl 3 ii |
| Aquae gaultheriae q.s. ad | 200 | fl 3 vi |
| M. Sig: Use as a gargle twice a day. | | |

Of course, sedative cough mixtures containing codein or heroin are of benefit in reducing the irritation of the nerves of the throat, and ammonium chlorid will stimulate the mucus secretion and perhaps, sooner or later, also help the condition, but as above stated, such treatment seems unnecessary and is generally unsatisfactory in this kind of a cough. It is generally much better to give no medicine at all by the stomach. If the throat is dry, small doses of sodium iodid given three times a day will increase the mucus of the pharynx and lingual tonsil region and may aid in curing this cough.

The proper and only satisfactory treatment is by local applications. This irritated glandular tissue should be swabbed daily for a few times with boroglycerid, or less frequently with a solution of iodine such as:

| | Gm. or c.c. | |
|----------------------|-------------|---------|
| R Iodi | 1 | gr. xv |
| Potassii iodidi..... | 3 | gr. xlv |
| Glycerini | 30 | fl 3 i |
| M. | | |

The patient should understand that if he wishes to recover quickly from his cough, daily visits to his physician will accomplish more in a week than will three months of intermittent treatment.

DISTURBANCES OF THE THYROID

The most familiar condition of hypersecretion is Graves' disease, and the condition that is so readily diagnosed as serious hyposecretion, namely, cretinism and myxedema, is also well understood; but disturbances which may be caused by a small amount of hypersecretion or hyposecretion of the thyroid, are not so readily recognized.

It should not be forgotten that this gland may hypersecrete or hyposecrete in all degrees, or the gland may have some portions of its secretion increased and others diminished. In this last condition the disturbance that it causes is very hard to overcome, as inhibiting the thyroid activity on the one hand, or feeding thyroid on the other, is not likely to effect a cure.

Disturbances caused by too much or too little secretion and not by a mixed condition, however, may be greatly benefited by treatment.

About 90 per cent. of all cases of thyroid disturbance occur in women; therefore it is the condition of the gland in women that we are discussing.

The disturbances caused by an increased secretion are tachycardia or attacks of simple palpitation, nervous irritability, sleeplessness, increased perspiration, hot flashes, some digestive disturbances and a tendency to menstrual flooding. Some of the signs of hyposecretion which may not be recognized are certain forms of obesity, especially that form which, when fully developed, is typical of the picture of adiposis dolorosa; drowsiness and a tendency to sleep in the daytime, and more or less mental apathy and sluggishness; dry skin and perhaps chronic eczemas; slow pulse; often an increase in blood-pressure; various digestive disturbances, and amenorrhea or scanty menstruation before it is time for such a condition to occur.

The neurotic woman who is very active socially, good company and bright in repartee, and who may be doing much of the good work of the world, who works on nerve and finally collapses, very generally has hypersecretion of the thyroid. It is this type that may not be hysterical as we understand major hysteria with stigmata, but such patients when they have pains have them in excess of all local cause. They eat very little, even for days, perhaps get little sleep and recuperate with difficulty after they once break down, and one breakdown is likely to be followed by others. If these patients can be made apathetic without being made melancholic, they will rapidly recover. Such patients should receive, in a modified form, the same kind of treatment that we advise in more developed Graves' disease.

It has lately been shown that some of the symptoms in Graves' disease may be due to the secretion from left-over fragments of the thymus gland. On the other hand, it should be remembered that some types of mental depression and some instances of epilepsy are due to subsecretion of the thyroid.

If it is presumed, from the symptoms, that the thyroid is subsecreting, it may be activated either by iodine or by the administration of thyroid. If the symptoms are inconclusive (that is, some symptoms showing increased thyroid secretion and some an apparent undersecretion) it will often be found that the feeding of thyroid will make the patient worse, but small doses of an iodid may aid the thyroid in recovering its efficiency. Disturbances of the menopause are due to the secretions of the thyroid, ovaries and probably corpus luteum not having become correlated to the changed condition of the woman.

ORTHOSTATIC ALBUMINURIA

Not too great reliance should be placed on the fact that a morning urine is perfectly clear of albumin. It is necessary, in a doubtful condition, that we should examine specimens of urine passed at different times during the day, unless we are careful to obtain the twenty-four-hour specimen, and even then the variations of the urine passed at different times will not be discovered. Sometimes a patient who has an albumin-free morning urine will show a large percentage of albumin in the urine at noon and in the evening.

(To be continued)

STATE BOARD STATISTICS FOR 1913

THE ANNUAL PRESENTATION BY THE COUNCIL ON MEDICAL EDUCATION OF RESULTS OF STATE BOARD EXAMINATIONS

On pages 1640 to 1649 are three tables, A, B and C, giving in detail the results of the various state medical license examinations held during 1913. These statistics are complete, since full reports were obtained from all state licensing boards.

Tables A and B have been arranged so that, read from left to right, they give the results by colleges, showing the number of graduates appearing for examination in each state, whether they passed or failed, the total number examined during the year, the number who passed, the number who failed, the percentage of failures and the number of states in which graduates of each school appeared for examination. Read from above downward, they give the results by states, showing the number registered and rejected from each college, the total number examined, the total number registered, the total number rejected and the percentage of rejections. The fact that the majority of graduates take the license examination in the state in which the college is located is shown by the dark diagonal zone made by the grouping of figures, passing from the upper left to the lower right corner of each table. This shows also that the states in which low-grade medical schools are permitted to exist are themselves the recipients of the greater portion of the ill-trained output of such schools. These tables are worthy of much careful study, for many important deductions are possible. The marginal numbers will enable the reader more readily to follow the lines for any colleges in which he is interested.

CAUTION IN FORMING CONCLUSIONS

In making comparisons on the basis of these statistics, several factors should be considered carefully. The number examined is important since, if all other conditions are equal, the larger the number of graduates examined the more accurate is the finding. But other conditions are seldom equal. The number of states in which a school's graduates have been examined is important. The larger this number the more accurate will be the conclusions. Again, the character of the board making the examination and the methods employed are important factors to be considered, since some boards hold very careful examinations and include practical laboratory and clinical tests, or they may mark the papers more severely, while others, especially partisan boards, may be very lenient. In this connection it should be stated that although conditions are undergoing a steady improvement, it is still true that the character of the license examination as usually conducted, is such that graduates of colleges conducted largely by quiz-class methods may easily be successful in passing them. It is particularly important in forming conclusions based on these statistics to note for each college the states in which its graduates *are not admitted to examinations*—information set forth for the first time with these statistics, in Table D.

GRADUATES OF ALL YEARS EXAMINED IN 1913

Table A shows the results for all candidates who took examinations in 1913 regardless of the years in which they graduated. This shows that altogether 6,435 were examined last year, as compared with 6,879 in 1912; 6,960 in 1911; 7,004 in 1910, and 7,287 in 1909. Of those examined, 18.6 per cent. failed, as compared with 20.5 per cent. in 1912; 19.9 per cent. in 1911; 18.4 per cent. in 1910, and 19.6 per cent. in 1909. During the years 1905 to 1908 the percentage of failures each year was over 20 per cent. The rather lower percentage in recent years is doubtless due to two causes: (1) wider extension of reciprocity and (2) the fact that graduates of low-grade medical colleges are now not admitted to examinations in about thirty states (see Table

D). Graduates of low-grade colleges therefore who are usually responsible for high-failure percentages are found to take their examinations in the more lenient states and as a consequence, fewer failures result.

There were 99 medical colleges in the United States granting degrees in 1913, which had graduates examined, as compared with 110 in 1912, and with 153 in 1905. Foreign graduates were examined in twenty-four states, the total number being eighty-nine; and of this number forty-two, or 47.2 per cent. failed. The largest number of foreigners examined in any state was twenty in New York. Graduates of Canadian schools were examined in nineteen states, more appearing, naturally, in the border-line states. The figures for the Canadian colleges are given separately in order to show the number of candidates coming from each as well as to show the successes of their graduates at the examinations. Altogether 58 candidates from Canadian colleges were examined, of which number 17, or 29.3 per cent., failed. Of all Canadian colleges, the McGill University had the largest number examined. The highest percentages of failures were for Laval University, 63.3, Queen's University, 40 and the University of Toronto, 20.

UNDERGRADUATES EXAMINED DURING 1913

Line 107 of Table A shows the number of non-graduates examined in seven states during 1913. Altogether 251 non-graduates were examined, of which number 95, or 37.8 per cent., failed, as compared with 35 per cent. in 1912, 38.5 per cent. in 1911 and 45.6 per cent. in 1910. Such candidates were examined during 1913 in Colorado, Florida, Maryland, Massachusetts, Oregon, Tennessee and Texas. Of such candidates 1 was licensed in Colorado, 15 in Oregon, 19 in Massachusetts and 121 in Tennessee. In Tennessee in the last four years 1,187 candidates were registered by examination, and of these 515, or 43.4 per cent., were non-graduates. Meanwhile, Tennessee is now the only Southern state which has the door wide open for non-graduates and is the only state in the country which registers any considerable number of such candidates.

RECENT GRADUATES EXAMINED DURING 1913

Table B gives the results for graduates of 1909 to 1913 inclusive who were examined during 1913. This table is particularly important since it deals with recent graduates and is, therefore, the fairest basis for comparison between colleges. Such comparisons are worthless, however, unless reference is also made to Table D, showing in what states candidates are reported not eligible for examination. Of all candidates examined in 1913, 5,390, or 83.8 per cent., were recent graduates, and of this number 16.5 per cent. failed, as compared with 18.6 per cent. for all candidates. The figures for several medical schools which have ceased to exist either through merger or otherwise have been included in the line for miscellaneous colleges.

OLD PRACTITIONERS EXAMINED DURING 1913

Table C is so arranged as to show in comparison the results of all years (first column), for recent graduates (second column), the graduates of 1908 and previous year (third column), and the graduates of 1913 (fourth column). Of the graduates of 1908 and previous years—of "old practitioners"—794 were examined, and of this number 223, or 28.1 per cent., failed as compared with 16.5 per cent. of failures for recent graduates. This high percentage of failures is probably due chiefly to the long time these candidates have been out of college and to the fact that they are required to take the same examination as recent graduates.

CONTINUED ON PAGE 1652

H—Homeopathic; E—Eclectic.

[illegible]

TABLE A—PHYSICIANS EXAMINED BY

| Marginal Number. | NAME OF COLLEGE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | Marginal Number | |
|-----------------------------|---|---------|---------|----------|------------|----------|-------------|----------|----------------------|---------|---------|-------|----------|---------|---------|--------|----------|-----------|-------|----------|---------------|----------|-----------------|-----|
| | | Alabama | Arizona | Arkansas | California | Colorado | Connecticut | Delaware | District of Columbia | Florida | Georgia | Idaho | Illinois | Indiana | Iowa | Kansas | Kentucky | Louisiana | Maine | Maryland | Massachusetts | Michigan | | |
| | | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | | |
| NEBRASKA | | | | | | | | | | | | | | | | | | | | | | | | |
| 54 | John A. Creighton Medical College..... | | 0 1 | | 1 0 | | | | | 0 | | 2 0 | | | | 1 0 | | | | | | | 54 | |
| 55 | Cotner Medical College.—E..... | | | | 1 0 | | | | | 0 | | | | | | | | | | | | | 55 | |
| 56 | University of Nebraska, College of Medicine..... | | | | | 0 1 | | | | | | | | | | | | | | | | | 56 | |
| NEW HAMPSHIRE | | | | | | | | | | | | | | | | | | | | | | | | |
| 57 | Dartmouth Medical School..... | | | | | | 1 0 | | | | | | | | | | | | | | 8 1 | | 57 | |
| NEW YORK | | | | | | | | | | | | | | | | | | | | | | | | |
| 58 | Albany Medical College..... | | | | 1 0 | | | 1 0 | | 1 0 | 1 0 | | 1 0 | 1 0 | 1 0 | 1 0 | | | 2 0 | | 1 0 | | 58 | |
| 59 | Columbia University, Coll. of Phys. and Surgs. . | 1 0 | | | 1 0 | | 4 1 | | 1 0 | 1 0 | 1 0 | | 1 0 | 1 0 | 1 0 | 1 0 | | | | | 1 0 | | 59 | |
| 60 | Cornell University Medical College..... | | | | 2 0 | | | | | 1 0 | | | | | | | | | | | | | 60 | |
| 61 | Fordham University, School of Medicine..... | | | | | | 2 1 | | | | | | | | | 1 0 | | | | | | | 61 | |
| 62 | Long Island College Hospital..... | | | | 1 0 | | 2 1 | | 1 0 | | | | | 1 0 | | | | | | | 1 0 | | 62 | |
| 63 | New York Homeopathic Med. Coll. and Hosp.—H. | | | | | | 5 0 | | 2 0 | | | | | | | | | | | | 1 0 | | 63 | |
| 64 | New York Med. Coll. and Hosp. for Women.—H. | | | | 1 0 | | | | | | | | 1 0 | | | | | | 1 0 | | | 1 1 | 64 | |
| 65 | Syracuse University College of Medicine..... | | | | 1 0 | | | | | 1 0 | | | | | | 1 0 | | | | | 2 0 | | 65 | |
| 66 | University and Bellevue Hospital Medical Coll. . | | | | 1 0 | | 5 0 | | | 1 0 | | | | | | | 1 0 | | | | 1 0 | 1 0 | 66 | |
| 67 | University of Buffalo, Medical Dept. | | | | | | | | | 0 1 | | | | | | | | | | | | | 67 | |
| NORTH CAROLINA | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | Leonard Medical School..... | 0 1 | | | | | | | | 0 1 | 1 0 | | | | | | | | | | | | 63 | |
| 69 | North Carolina Medical College..... | | | | | | | | | 1 0 | 1 0 | | | | | | | | | | | | 69 | |
| OHIO | | | | | | | | | | | | | | | | | | | | | | | | |
| 70 | Cleveland-Pulte Medical College.—H..... | | | 7 0 | 0 2 | | | | | 1 0 | | | | 2 0 | | | | | | 0 1 | | | 70 | |
| 71 | Eclectic Medical College.—E..... | | | | | | | | | | | | | | | | | 1 0 | | | | | 71 | |
| 72 | Ohio-Miami Medical College..... | 1 0 | | | 1 0 | | | | | | | | | | | | | | | | | | 72 | |
| 73 | Starling-Ohio Medical College..... | | | | | | | | | | | | | | | | | | | | | | 73 | |
| 74 | Toledo Medical College..... | | | | | | | | | 1 0 | | | | | | | | | | | 1 0 | | 74 | |
| 75 | Western Reserve University, School of Medicine... | | | | | | | | | | | | | | | | | | | | | | 75 | |
| OKLAHOMA | | | | | | | | | | | | | | | | | | | | | | | | |
| 76 | University of Oklahoma, School of Medicine..... | | | | | | | | | | | | | | | | | | | | | | 76 | |
| OREGON | | | | | | | | | | | | | | | | | | | | | | | | |
| 77 | University of Oregon, Medical Dept. | | | | | | | | | | | 1 0 | | | | | | | | | | | 77 | |
| PENNSYLVANIA | | | | | | | | | | | | | | | | | | | | | | | | |
| 78 | Hahnemann Medical College and Hospital.—H... | | | | | | 1 0 | | | 2 0 | | | | 2 0 | 1 0 | | 2 0 | 1 0 | 1 0 | 6 1 | 2 0 | 1 0 | 78 | |
| 79 | Jefferson Medical College..... | 2 0 | | 2 0 | 3 0 | | 6 0 | 5 0 | | | | | 2 0 | | 3 0 | | | | | 2 0 | | | 79 | |
| 80 | Medico-Chirurgical College of Philadelphia..... | | | | | | 1 0 | | 1 0 | | | 1 0 | | | | | | | | 1 1 | | | 80 | |
| 81 | Temple University, Medical Dept. | | | | | | | | 1 0 | 2 0 | | 1 0 | | 2 0 | 3 0 | 2 0 | | | | 3 0 | 3 0 | | 81 | |
| 82 | University of Pennsylvania, School of Medicine... | 2 0 | 1 0 | | 4 0 | | | | 1 0 | | | | | | | | | | | | | 1 0 | 82 | |
| 83 | University of Pittsburgh, Medical Dept. | | | | 1 1 | | | | 1 0 | | | | | | | | | | | 5 0 | 4 1 | | 83 | |
| 84 | Woman's Medical College of Pennsylvania..... | | | | | 1 0 | 1 0 | | 2 0 | | | | | | | | | | | | | | 84 | |
| SOUTH CAROLINA | | | | | | | | | | | | | | | | | | | | | | | | |
| 85 | Medical College of South Carolina..... | | | | | | | | | 1 1 | 1 0 | | | 1 0 | | | | | | | | | 85 | |
| TENNESSEE | | | | | | | | | | | | | | | | | | | | | | | | |
| 86 | Lincoln Memorial University, Medical Dept. | | 0 1 | | 0 1 | | | | | | 3 3 | 7 9 | | 4 8 | | | 6 2 | 2 2 | 0 1 | | 0 3 | | 86 | |
| 87 | Meharry Medical College..... | 2 0 | | 4 8 | | | | | | | | | | 1 0 | | | 0 1 | | 2 4 | | | | 87 | |
| 88 | University of Tennessee, College of Medicine..... | 0 3 | | 7 1 | | | | | | | 1 1 | | | | | | | | | | | | 88 | |
| 89 | University of West Tennessee, Medical Dept. | | | | | | | | | 1 0 | 7 1 | | 2 0 | 1 0 | | 1 0 | | 5 0 | 1 0 | | | | 89 | |
| 90 | Vanderbilt University, Medical Dept. | 4 0 | | 1 0 | 4 0 | | | | | | | | | | | | | | | | | | 90 | |
| TEXAS | | | | | | | | | | | | | | | | | | | | | | | | |
| 91 | Baylor University College of Medicine..... | | | | | | | | | | | | | 1 0 | | | | | 1 0 | | | | 91 | |
| 92 | Texas Christian University, School of Medicine... | | | | | | | | | | | | | | | | | | | | | | 92 | |
| 93 | Southern Methodist University, Medical Dept. | | | | | | | | | | | | | 1 0 | | | | | | | | | 93 | |
| 94 | University of Texas, Dept. of Medicine..... | | | | | | | | | | | | | | | | | | | | | | 94 | |
| VERMONT | | | | | | | | | | | | | | | | | | | | | | | | |
| 95 | University of Vermont College of Medicine..... | | | | 1 0 | | 8 8 | | | | | | | | | | | | | | | 11 3 | 95 | |
| VIRGINIA | | | | | | | | | | | | | | | | | | | | | | | | |
| 96 | Medical College of Virginia..... | | | | | | | | | 1 0 | | | | 0 1 | | | | | | | 2 1 | 2 0 | 1 0 | 96 |
| 97 | University of Virginia, Dept. of Medicine..... | 1 0 | 1 0 | 1 0 | | | | | | 1 0 | 4 0 | | | | | | | | | | | | | 97 |
| 98 | University College of Medicine, Richmond..... | 1 1 | | | | | | | 1 0 | | | | | | | | | | | | | | | 98 |
| WISCONSIN | | | | | | | | | | | | | | | | | | | | | | | | |
| 99 | Marquette University, Medical Dept. | | | | | | | | | | | | | 1 0 | | | | | | | | 1 0 | | 99 |
| CANADIAN | | | | | | | | | | | | | | | | | | | | | | | | |
| 100 | Laval University, Medical Faculty..... | | | | | | | 1 0 | | | | | | | | | | | 1 1 | | 1 0 | 1 0 | 1 0 | 100 |
| 101 | McGill University, Medical Faculty..... | | | | | | | | | | | | | | | | | | | | | | | 101 |
| 102 | Queen's University, Faculty of Medicine..... | | | | | | | | | | | | | | | | | | | | | | | 102 |
| 103 | University of Manitoba, Manitoba Med. Coll. | | | | | | | | | | 1 0 | | | | | | | | | | | | 2 1 | 103 |
| 104 | University of Toronto, Medical Faculty..... | | | | | | | | | | | | | | | | | | | | | | | 104 |
| 105 | Foreign Colleges..... | | 2 0 | | 2 3 | 0 1 | | 1 1 | | 2 1 | | | | 2 3 | | | | 1 0 | | 3 1 | 5 4 | 3 0 | | 105 |
| 106 | Miscellaneous Medical Colleges..... | 9 8 | 3 4 | 23 8 | 26 11 | 3 2 | 3 19 | | 2 4 | 22 13 | 3 3 | 4 0 | 22 16 | 3 0 | 27 1 47 | 2 6 | 4 4 | 11 5 | 2 14 | 15 2 | 19 29 | | | 106 |
| 107 | Undergraduates..... | | | | | 1 0 | | | | 0 1 | | | | | | | | | | | | | | 107 |
| Totals by States..... | | 147 | 35 | 119 | 199 | 58 | 128 | 13 | 60 | 165 | 195 | 23 | 665 | 102 | 111 | 96 | 90 | 89 | 55 | 148 | 289 | 102 | | |
| Totals—Examined—Passed..... | | 90 | 26 | 91 | 163 | 53 | 77 | 12 | 55 | 116 | 171 | 21 | 567 | 101 | 107 | 89 | 78 | 69 | 46 | 108 | 215 | 99 | | |
| Totals—Examined—Failed..... | | 57 | 9 | 28 | 36 | 5 | 51 | 1 | 5 | 49 | 24 | 2 | 98 | 1 | 4 | 7 | 12 | 20 | 9 | 40 | 74 | 3 | | |
| Percentage of Failures..... | | 38.8 | 25.7 | 23.5 | 18.1 | 8.6 | 39.8 | 7.7 | 8.3 | 29.7 | 12.3 | 8.7 | 14.7 | 1.0 | 3.6 | 7.3 | 13.3 | 22.5 | 16.4 | 27.0 | 25.6 | 2.9 | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | | |

H—Homeopathic; E—Eclectic.

| Marginal Number | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | Totals | Examined— Passed | Examined— Failed | Percentage of Failures | No. States Ex. in | Marginal Number |
|-----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------|---------------------|---------------------|---------------------------|-------------------|-----------------|
| | P | F | P | F | P | F | P | F | P | F | P | F | P | F | P | F | P | F | P | F | P | F | P | F | P | F | P | F | | | | | | |
| 54 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 57 | 53 | 4 | 7.0 | 11 | 54 |
| 55 | | | | 1 | 0 | 5 | 1 | 37 | 2 | | | | | | 2 | 0 | | | 2 | 0 | | | 1 | 0 | | | | | 11 | 10 | 1 | 9.1 | 5 | 55 |
| 56 | | | | | | 10 | 0 | | | | | | | | 1 | 0 | | | 1 | 0 | | | | | 1 | 0 | | | 13 | 12 | 1 | 7.7 | 4 | 56 |
| 57 | | | | 1 | 0 | | | | | 2 | 0 | | | | | | | | | | | | | | | | | | 18 | 16 | 2 | 11.1 | 6 | 57 |
| 58 | | | | 1 | 0 | | | | | 41 | 21 | | | | | | | 1 | 0 | | | | 1 | 0 | | | | | 69 | 48 | 21 | 30.4 | 8 | 58 |
| 59 | | 2 | 0 | 4 | 0 | | | 1 | 0 | 88 | 13 | 3 | 0 | | 1 | 0 | 4 | 0 | 3 | 0 | 1 | 0 | | 1 | 1 | | | 4 | 147 | 131 | 16 | 10.9 | 27 | 59 |
| 60 | | | | | | | | | | 20 | 1 | | | | | | | | 2 | 0 | | | | | 1 | 0 | | | 29 | 28 | 1 | 3.4 | 7 | 60 |
| 61 | | | | | | | | | | 15 | 8 | | | | | | | | | | | | | | | | | | 28 | 19 | 9 | 32.1 | 3 | 61 |
| 62 | | | | | | | | | | 78 | 29 | | | | | | | | | | | | | | 1 | 0 | | | 118 | 88 | 30 | 25.4 | 7 | 62 |
| 63 | | | | 1 | 0 | | | 1 | 0 | 8 | 1 | | | | | | 1 | 0 | 1 | 1 | | | | | | | | 60 | 39 | 21 | 35.0 | 10 | 63 | |
| 64 | | | | | | | | | | 6 | 2 | | | | | | | | | | | | | | | | | | 11 | *9 | 2 | 18.2 | 4 | 64 |
| 65 | | | | | | | | | | 25 | 6 | | | | | | | | | | | | | | | 0 | 1 | | 39 | 31 | 8 | 20.6 | 9 | 65 |
| 66 | | | | | | | | | | 63 | 5 | | | | | | 1 | 0 | 1 | 0 | | | | | | | | 92 | 85 | 7 | 7.6 | 10 | 66 | |
| 67 | | | | | | 1 | 0 | 1 | 0 | 35 | 13 | | | | 1 | 0 | 1 | 0 | | | | | | | 1 | 1 | | | 58 | 43 | 15 | 25.9 | 10 | 67 |
| 68 | | | | | | | | | | | 6 | 12 | | | | | 0 | 2 | | 7 | 7 | | | 1 | 1 | | 6 | 53 | 25 | 28 | 51.9 | 9 | 68 | |
| 69 | | | | | | | | | | 23 | 7 | | | | | | | 3 | 3 | | 1 | 0 | | | 2 | 0 | | 1 | 42 | 32 | 10 | 23.8 | 7 | 69 |
| 70 | | | | | | | | | | | | | 21 | 1 | | 2 | 0 | 1 | 1 | | | | | | | | | 27 | 25 | 2 | 7.5 | 4 | 70 | |
| 71 | | | | 1 | 0 | | | | | | | | 14 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | | | | | | | | 40 | 34 | 6 | 15.0 | 15 | 71 | |
| 72 | | | | | | | | | | 0 | 1 | | | | | | | | | | | | | | | 0 | 1 | 2 | 31 | 30 | 1 | 3.2 | 7 | 72 |
| 73 | | | | | | | | | | | | | 52 | 1 | | | | | | | | | | | | | | 54 | 53 | 1 | 1.9 | 2 | 73 | |
| 74 | | | | | | | | | | | | | 15 | 0 | | | | | | | | | | | | | | 15 | 15 | 0 | 0. | 1 | 74 | |
| 75 | | | | | | | | | | 1 | 0 | | | | 1 | 0 | | | | | | | | | | | | 31 | 31 | 0 | 0. | 5 | 75 | |
| 76 | | | | | | | | | | | | | | 9 | 0 | | | | | | | | | | | | | 9 | 9 | 0 | 0. | 1 | 76 | |
| 77 | | | | | | | | | | | | | | | 12 | 2 | | | | | | | | | | | | 23 | 21 | 2 | 8.7 | 3 | 77 | |
| 78 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 41 | 37 | 4 | 9.8 | 9 | 78 | |
| 79 | 1 | 0 | 2 | 0 | 1 | 0 | | | | 3 | 0 | | | | 1 | 0 | 27 | 2 | | | | | | | | | | 1 | 154 | 140 | 14 | 9.1 | 32 | 79 |
| 80 | | | | | | | | | | 4 | 3 | 0 | 1 | | 2 | 0 | 4 | 1 | 54 | 7 | 1 | 0 | | | | | | 2 | 69 | 61 | 8 | 11.6 | 10 | 80 |
| 81 | 1 | 0 | | | | | | | | | | 0 | 1 | | | | 16 | 3 | | | | | | | | | | 25 | 20 | 5 | 20.0 | 6 | 81 | |
| 82 | | | | | | | | | | 10 | 5 | 6 | 0 | 1 | 0 | 4 | 0 | | 3 | 0 | 70 | 2 | 1 | 0 | 1 | 0 | | 2 | 146 | 139 | 7 | 4.8 | 25 | 82 |
| 83 | | | | | | | | | | 0 | 1 | | | | | | 50 | 1 | | | | | | | | | | 62 | 55 | 7 | 11.3 | 7 | 83 | |
| 84 | | | | | | | | | | 4 | 3 | | | | | | 1 | 1 | 15 | 1 | | | | | 1 | 0 | | 43 | 37 | 6 | 14.0 | 11 | 84 | |
| 85 | | | | | | | | | | | 0 | 1 | | | | | | | | 37 | 7 | | | | | | | 49 | 40 | 9 | 4.9 | 4 | 85 | |
| 86 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 20 | 8 | 12 | 60.0 | 7 | 86 | |
| 87 | 0 | 1 | 1 | 2 | 1 | 0 | | | | | 0 | 1 | | | 1 | 1 | | | | | | | | | 0 | 1 | | 1 | 158 | 102 | 56 | 35.4 | 20 | 87 |
| 88 | | | 4 | 3 | | | | | | | 0 | 2 | | | 1 | 0 | | | | | | | | | 0 | 1 | | 0 | 55 | 39 | 16 | 29.1 | 12 | 88 |
| 89 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 16 | 6 | 10 | 62.5 | 3 | 89 | |
| 90 | | | 6 | 0 | 2 | 0 | 1 | 0 | | 0 | 1 | 2 | 0 | | 1 | 0 | | | | | | | | | | | | 80 | 75 | 5 | 6.2 | 19 | 90 | |
| 91 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 22 | 21 | 1 | 4.5 | 3 | 91 | |
| 92 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 19 | 18 | 1 | 5.3 | 4 | 92 | |
| 93 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 14 | 14 | 0 | 0. | 1 | 93 | |
| 94 | | | | 1 | 0 | | | | | | | 1 | 0 | | | | | | | 0 | 1 | | | | | | | 40 | 39 | 1 | 2.5 | 5 | 94 | |
| 95 | | | | | | | 1 | 1 | | | 3 | 4 | | | | | | | | | | | | | | | | 61 | 45 | 16 | 26.2 | 7 | 95 | |
| 96 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 61 | 45 | 16 | 26.2 | 11 | 96 | |
| 97 | | | 1 | 0 | | | | | | 5 | 2 | 3 | 0 | | | 1 | 0 | | | | | | | | 25 | 12 | | 4 | 29 | 27 | 2 | 6.9 | 14 | 97 |
| 98 | | | | | | | | | | 1 | 0 | 8 | 1 | | | | | | | | | | | | 32 | 2 | | 3 | 54 | 49 | 5 | 9.3 | 8 | 98 |
| 99 | 0 | 1 | | 2 | 0 | 2 | 1 | | | | | | 0 | 2 | | 1 | 0 | | | | | | | | | | | 70 | 8 | 1 | 0 | | 99 | |
| 100 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | 11 | 4 | 7 | 63.6 | 8 | 100 | |
| 101 | 1 | 0 | | | | | | | | 7 | 1 | | | | | | | | | | | | | | | | | | | | | | | |

| Marginal Number | NAME OF COLLEGE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | Marginal Number | | | | | |
|-----------------|--|---------|---------|----------|------------|----------|-------------|----------|----------------------|---------|---------|-------|----------|---------|------|--------|----------|-----------|-------|----------|---------------|----------|-----------------|----|----|----|----|----|
| | | Alabama | Arizona | Arkansas | California | Colorado | Connecticut | Delaware | District of Columbia | Florida | Georgia | Idaho | Illinois | Indiana | Iowa | Kansas | Kentucky | Louisiana | Maine | Maryland | Massachusetts | Michigan | | | | | | |
| | | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | P F | | | | | | |
| 1 | ALABAMA | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Birmingham Medical College..... | 24 | 17 | | | | | | | 1 | 0 | 1 | 0 | | | | | 1 | 0 | | | | 1 | | | | | |
| 2 | University of Alabama, School of Medicine..... | 22 | 5 | 1 | 0 | | | | | 8 | 0 | 1 | 0 | | | | | 1 | 0 | | | | 2 | | | | | |
| 3 | ARKANSAS | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | University of Arkansas, Medical Dept. | | | 22 | 9 | | | | | | | | | | | 1 | 0 | 0 | 1 | | | | 3 | | | | | |
| 4 | CALIFORNIA | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | California Eclectic Medical College.—E..... | | | | 2 | 4 | | | | | | | | | | | | | | | | | 4 | | | | | |
| 5 | College of Phys. and Surgs. Los Angeles..... | | 1 | 0 | 20 | 1 | | | | | | | | | | | | | | | | | 5 | | | | | |
| 6 | Hahnemann Medical College of the Pacific.—H... | | | | 12 | 1 | | | | | | | | | | | | | | | | | 6 | | | | | |
| 7 | Leland Stanford Junior Univ., Dept. of Med. | | | | 7 | 0 | | | | | | | | | | | | | | | | | 7 | | | | | |
| 8 | Oakland College of Medicine and Surgery..... | | | | 4 | 0 | | | | | | | | | | | | | | | | | 8 | | | | | |
| 9 | College of Phys. and Surgs., San Francisco..... | | | | 4 | 3 | | | | | | | | | | | | | | | | | 9 | | | | | |
| 10 | University of California, Medical Dept. | | | | 10 | 0 | | | | | | | | | | | | | | | | | 10 | | | | | |
| 11 | COLORADO | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | University of Colorado, School of Medicine..... | | 1 | 0 | 5 | 0 | 44 | 0 | | | | | | 2 | 0 | | | | | | | | 11 | | | | | |
| 12 | CONNECTICUT | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Yale University, Medical Dept. | | | | | | 14 | 1 | | | | | | | | | | | | | 1 | 0 | 12 | | | | | |
| 13 | DISTRICT OF COLUMBIA | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | George Washington University, Dept. of Med. ... | | | | | | | | 12 | 0 | | 1 | 0 | 2 | 0 | | | | | 5 | 0 | 2 | 0 | 13 | | | | |
| 14 | Georgetown University School of Medicine..... | | | | | | 3 | 2 | 1 | 0 | 10 | 0 | 1 | 0 | 1 | 0 | | | | | 1 | 0 | 14 | | | | | |
| 15 | Howard University School of Medicine..... | 1 | 0 | | | | 0 | 1 | | 9 | 0 | 1 | 0 | | | 3 | 0 | 2 | 0 | | | | 15 | | | | | |
| 16 | GEORGIA | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Atlanta College of Physicians and Surgeons.... | 3 | 6 | | | | | | | 10 | 2 | 83 | 0 | | | | | 1 | 2 | | | | 16 | | | | | |
| 17 | Atlanta School of Medicine..... | 1 | 4 | | | | | | | 7 | 2 | 32 | 1 | | | | | 1 | 0 | | 1 | 2 | 17 | | | | | |
| 18 | Georgia College of Eclectic Med. and Surg.—E... | 0 | 1 | 1 | 0 | | | | | 0 | 7 | 2 | 9 | | | | | | | | | | 18 | | | | | |
| 19 | Southern College of Medicine and Surgery..... | 0 | 2 | | | | | | | 0 | 7 | 2 | 9 | | | | | | | | | | 19 | | | | | |
| 20 | University of Georgia, Medical Dept. | | | | | | | | | 3 | 3 | 25 | 1 | | | | | | | | 1 | 1 | 20 | | | | | |
| 21 | ILLINOIS | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | Bennett Medical College..... | | 1 | 0 | | | | | 2 | 0 | | | | 58 | 10 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 2 | 0 | 21 | | | |
| 22 | Chicago College of Medicine and Surgery..... | 4 | 2 | 1 | 0 | 1 | 1 | | | 2 | 0 | | 1 | 0 | 151 | 29 | 6 | 0 | 9 | 0 | 5 | 0 | 1 | 0 | 22 | | | |
| 23 | Hahnemann Medical College and Hospital.—H... | | | | | 1 | 0 | 2 | 0 | | | | | 24 | 5 | 3 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 23 | | | | |
| 24 | Jenner Medical College..... | | | | | | | | | | | | | 10 | 6 | | | | | | | | | 24 | | | | |
| 25 | Northwestern University Medical School..... | | | 1 | 0 | 3 | 0 | | | | | | | 54 | 1 | 2 | 0 | 7 | 0 | | | | | 25 | | | | |
| 26 | University of Illinois College of Medicine..... | | 1 | 0 | 3 | 1 | | | | | | | | 122 | 8 | 3 | 0 | 6 | 0 | 1 | 0 | | 2 | 0 | 26 | | | |
| 27 | Rush Medical College..... | | 2 | 0 | 2 | 0 | 1 | 0 | | | | | | 74 | 0 | 2 | 0 | 6 | 0 | 3 | 0 | | | 27 | | | | |
| 28 | INDIANA | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | Indiana University School of Medicine..... | | 1 | 0 | | | | | | | | | | 48 | 0 | | | | | | | | | 28 | | | | |
| 29 | IOWA | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | State Univ. of Iowa College of Medicine..... | | | | | | | | | | | | 1 | 0 | | 17 | 0 | | | | | 1 | 0 | 29 | | | | |
| 30 | State Univ. of Iowa Coll. of Homeo. Med.—H... | | | | | | | | | | | | | | | 7 | 0 | | | | | | | 30 | | | | |
| 31 | KANSAS | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | University of Kansas School of Medicine..... | | 1 | 0 | | | | | | | | | | | | 8 | 0 | | | | | | | 31 | | | | |
| 32 | KENTUCKY | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | University of Louisville, Medical Dept. | | 1 | 0 | | | 0 | 4 | | 2 | 0 | 4 | 1 | 17 | 1 | 1 | 0 | 1 | 0 | 48 | 4 | 3 | 0 | 32 | | | | |
| 33 | LOUISIANA | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33 | Tulane University, School of Medicine..... | 7 | 2 | | | | | | | 4 | 0 | 1 | 0 | | | | | 1 | 0 | 49 | 0 | | | 33 | | | | |
| 34 | MAINE | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | Medical School of Maine..... | | | | | | | | | | | | | | | | | | 10 | 1 | | 2 | 2 | 34 | | | | |
| 35 | MARYLAND | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | Eastern Univ., School of Med., Baltimore.—E... | | | | | | | | | | | | | | | | | | | | 0 | 1 | | 35 | | | | |
| 36 | Johns Hopkins University, Medical Dept. | | | | 3 | 0 | 3 | 0 | 1 | 0 | 2 | 0 | | 3 | 0 | 1 | 0 | 1 | 0 | | 4 | 0 | | 36 | | | | |
| 37 | College of Physicians and Surgeons, Baltimore... | | | | | 6 | 5 | | | 1 | 0 | | 1 | 0 | | | | | | | 7 | 4 | 4 | 0 | 37 | | | |
| 38 | University of Maryland School of Medicine..... | 1 | 1 | | 1 | 0 | 1 | 4 | | 2 | 0 | 1 | 0 | 2 | 0 | | | | | | 27 | 9 | | 1 | 0 | 38 | | |
| 39 | MASSACHUSETTS | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39 | Boston University School of Medicine.—H..... | | | | | | | | | | | | | | | | | | 2 | 0 | | 8 | 1 | 1 | 0 | 39 | | |
| 40 | College of Physicians and Surgeons, Boston.... | | | | | | | | 1 | 1 | 1 | 0 | | | | | | | 3 | 5 | 0 | 1 | 2 | 7 | | 40 | | |
| 41 | Harvard Medical School..... | | | | 1 | 0 | 1 | 0 | 2 | 0 | | | | 1 | 0 | 1 | 0 | 1 | 0 | | 11 | 0 | | 34 | 1 | 1 | 0 | 41 |
| 42 | Tufts College Medical School..... | | | | | | 2 | 2 | | | 0 | 1 | | 1 | 0 | | 1 | 0 | | 6 | 0 | 1 | 0 | 69 | 9 | | 42 | |
| 43 | MICHIGAN | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 43 | Detroit College of Medicine and Surgery..... | | | | 1 | 0 | 1 | 0 | 0 | 1 | | | | 1 | 0 | | | | | | | | | 27 | 0 | 43 | | |
| 44 | Univ. of Michigan, Dept. of Med. and Surg. | | | | | | | | | | | | | | | | | | | | | | | 32 | 0 | 44 | | |
| 45 | Univ. of Michigan, Homeopathic College.—H... | | | | | | | | | | | | | | | | | | | | | | | 13 | 0 | 45 | | |
| 46 | MINNESOTA | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 46 | University of Minnesota, Medical School..... | | | | 1 | 0 | | | | | | | | | | | | | | | | | | | 46 | | | |
| 47 | MISSOURI | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 47 | American Medical College..... | | | | 0 | 1 | | | | | 0 | 2 | | 1 | 3 | 1 | 0 | | 0 | 1 | 1 | 0 | | | 47 | | | |
| 48 | Eclectic Medical University.—E..... | | | 10 | 2 | | 0 | 1 | | | | | | | | | | | | | | | | | 48 | | | |
| 49 | Ensworth Medical College..... | | | | | | | | | | | | | | | 5 | 0 | 1 | 1 | | | | | | 49 | | | |
| 50 | Kansas City Hahnemann Medical College.—H... | | | | | 1 | 0 | | | | | | | | | | 5 | 0 | | | | | | | 50 | | | |
| 51 | St. Louis University School of Medicine..... | | 2 | 0 | 1 | 0 | 1 | 0 | | | 2 | 0 | | 1 | 0 | 7 | 0 | | 3 | 0 | 3 | 0 | | | 51 | | | |
| 52 | St. Louis College of Physicians and Surgeons... | | | | | | | | | | | | | | 0 | 2 | | 1 | 1 | | 1 | 0 | | | 52 | | | |
| 53 | Washington University, Medical School..... | | 2 | 0 | 1 | 0 | | | | | | | | | 4 | 0 | | | | | | | | | 53 | | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | | | | | | |

| Marginal Number | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | Totals | Examined— Passed | Examined— Failed | Percentage of Failures | No. States Ex. in | Marginal Number | | |
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| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 4 | 4 | 0 | 0. | 1 | 8 | | |
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| | NEBRASKA | | | | | | | | | | | | | | | | | | | | | | |
| 54 | John A. Creighton Medical College..... | | | | 1 0 | | | | | | | 2 0 | | | | 1 0 | | | | | | | |
| 55 | Cotner Medical College.—E..... | | | | | | | | | | | | | | | | | | | | | | |
| 56 | University of Nebraska, College of Medicine..... | | | | | | | | | | | | | | | | | | | | | | |
| | NEW HAMPSHIRE | | | | | | | | | | | | | | | | | | | | | | |
| 57 | Dartmouth Medical School..... | | | | | | 1 0 | | | | | | | | | | | | | | 6 1 | | |
| | NEW YORK | | | | | | | | | | | | | | | | | | | | | | |
| 58 | Albany Medical College..... | | | | | | | 1 0 | | | | | 1 0 | | | | | | | | 1 0 | | |
| 59 | Columbia University, Coll. of Phys. and Surgs. | | | | 1 0 | | 1 1 | | | | 1 0 | | | | | 1 0 | 1 0 | | | 1 0 | | 1 1 | |
| 60 | Cornell University Medical College..... | | | | 1 0 | | | | | 1 0 | | | | | | | | | | | 1 0 | | |
| 61 | Fordham University, School of Medicine..... | | | | | | 2 1 | | | | | | | | | | | | | | | | |
| 62 | Long Island College Hospital..... | | | | 1 0 | | 2 1 | | 1 0 | | | | | | | | | | | | 1 0 | | |
| 63 | New York Homco. Med. Coll. and Hosp.—H. | | | | | | 5 0 | | 2 0 | | | | | | | | | | | | 1 0 | | |
| 64 | New York Med. Coll. and Hosp. for Women.—H. | | | | | | | | | | | | | 1 0 | | | | | 1 0 | | | 1 0 | |
| 65 | Syracuse University College of Medicine..... | | | | 1 0 | | | | | | | | | | | | | | | | 2 0 | | |
| 66 | University and Bellevue Hospital Medical Coll. | | | | | | 5 0 | | | | | | | | | | 1 0 | | | | 1 0 | 1 0 | |
| 67 | University of Buffalo, Medical Dept. | | | | 1 0 | | | | | | | | | | | | | | | | | | |
| | NORTH CAROLINA | | | | | | | | | | | | | | | | | | | | | | |
| 68 | Leonard Medical School..... | 0 1 | | | | | | | | 0 1 | 1 0 | | | | | | | | | | | | |
| 69 | North Carolina Medical College..... | | | | | | | | | 1 0 | 1 0 | | | | | | | | | | | | |
| | OHIO | | | | | | | | | | | | | | | | | | | | | | |
| 70 | Cleveland-Pulte Medical College.—H..... | | | | | | | | | | | | | | | | | | | | | | |
| 71 | Eclectic Medical College.—E..... | | | 6 0 | 0 1 | | | | | | | | | 2 0 | | | | | | 0 1 | | | |
| 72 | Ohio-Miami Medical College..... | 1 0 | | | 1 0 | | | | | | | | | | | | 1 0 | | | | | | |
| 73 | Starling-Ohio Medical College..... | | | | | | | | | | | | | | | | | | | | | | |
| 74 | Toledo Medical College..... | | | | | | | | | | | | | | | | | | | | 1 0 | | |
| 75 | Western Reserve University, School of Medicine.. | | | | | | | | | | | | | | | | | | | | | | |
| | OKLAHOMA | | | | | | | | | | | | | | | | | | | | | | |
| 76 | University of Oklahoma, School of Medicine..... | | | | | | | | | | | | | | | | | | | | | | |
| | OREGON | | | | | | | | | | | | | | | | | | | | | | |
| 77 | University of Oregon, Medical Dept. | | | | | | | | | | | | | | | | | | | | | | |
| | PENNSYLVANIA | | | | | | | | | | | | | | | | | | | | | | |
| 78 | Hahnemann Medical College and Hospital.—H.... | | | | | | 6 0 | 5 0 | | 1 0 | | | 2 0 | | | 2 0 | | 2 0 | 1 0 | | 6 0 | 1 0 | |
| 79 | Jefferson Medical College..... | 2 0 | | 2 0 | | | | | | | | 1 0 | | | | | | | | | 2 0 | 2 0 | |
| 80 | Medico-Chirurgical College of Philadelphia..... | | | | | | | | | | | | | | | | | | | | | | |
| 81 | Temple University, Medical Dept. | | | | | | | | 1 0 | | | | | | | | | | | | 1 1 | | |
| 82 | University of Pennsylvania, School of Medicine.. | 2 0 | | | 1 0 | | | 1 0 | 1 0 | | 1 0 | | | 2 0 | 1 0 | | | | | | 3 0 | | |
| 83 | University of Pittsburgh, Medical Dept. | | | | 1 1 | | | 1 0 | | | | | | | | | | | | | | | |
| 84 | Woman's Medical College of Pennsylvania..... | | | | | 1 0 | 1 0 | | 2 0 | | | | | | | | | | | 5 0 | 4 1 | | |
| | SOUTH CAROLINA | | | | | | | | | | | | | | | | | | | | | | |
| 85 | Medical College of South Carolina..... | | | | | | | | | 1 1 | 1 0 | | | | | | | | | | | | |
| | TENNESSEE | | | | | | | | | | | | | | | | | | | | | | |
| 86 | Lincoln Memorial University, Medical Dept. | | | | | | | | | | | | | | | | 2 1 | 0 1 | | | | | |
| 87 | Meharry Medical College..... | 2 0 | | 4 7 | | | | | | 3 3 | 7 7 | | 4 6 | | | 6 2 | 2 2 | 0 1 | | | 0 3 | | |
| 88 | University of Tennessee, College of Medicine..... | 0 3 | | 6 1 | | | | | | | | | 1 0 | | | 0 1 | | 2 4 | | | | | |
| 89 | University of West Tennessee, Medical Dept. | | | | | | | | | 1 1 | | | | | | | | | | | | | |
| 90 | Vanderbilt University, Medical Dept. | 3 0 | | 1 0 | 4 0 | | | | 1 0 | 7 0 | | 2 0 | 1 0 | | 1 0 | | 5 0 | 1 0 | | | | | |
| | TEXAS | | | | | | | | | | | | | | | | | | | | | | |
| 91 | Baylor University College of Medicine..... | | | | | | | | | | | | 1 0 | | | | | | | | | | |
| 92 | Texas Christian University, School of Medicine.. | | | | | | | | | | | | | | | | | 1 0 | | | | | |
| 93 | Southern Methodist University, Medical Dept. | | | | | | | | | | | | 1 0 | | | | | | | | | | |
| 94 | University of Texas, Dept. of Medicine..... | | | | | | | | | | | | | | | | | | | | | | |
| | VERMONT | | | | | | | | | | | | | | | | | | | | | | |
| 95 | University of Vermont College of Medicine..... | | | | 1 0 | | 8 8 | | | | | | | | | | | | | | 10 1 | | |
| | VIRGINIA | | | | | | | | | | | | | | | | | | | | | | |
| 96 | Medical College of Virginia..... | | | | | | | | | | | | | | | | | | | 2 1 | 2 0 | | |
| 97 | University of Virginia, Dept. of Medicine..... | 1 0 | | 1 0 | | | | | | 2 0 | | | | | | | | | | | | 1 0 | |
| 98 | University College of Medicine, Richmond..... | 0 1 | | | | | | 1 0 | | | | | | | | | | | | | | | |
| | WISCONSIN | | | | | | | | | | | | | | | | | | | | | | |
| 99 | Marquette University, Medical Dept. | | | | | | | | | | | | 1 0 | | | | | | | | 1 0 | | |
| | CANADIAN | | | | | | | | | | | | | | | | | | | | | | |
| 100 | Laval University, Medical Faculty..... | | | | | | | | | | | | | | | | | | 1 0 | | 1 0 | 1 0 | |
| 101 | McGill University, Medical Faculty..... | | | | | | 1 0 | | | | | | | | | | | | | | 1 0 | | |
| 102 | Queen's University, Faculty of Medicine..... | | | | | | | | | | | | | | | | | | | | | | |
| 103 | University of Manitoba, Manitoba Med. Coll. | | | | | | | | | 1 0 | | | | | | | | | | | | 2 1 | |
| 104 | University of Toronto, Medical Faculty..... | | | | | | | | | | | | | | | | | | | | | | |
| 105 | Foreign Colleges | | 1 0 | | 1 1 | | | 0 1 | | 0 1 | | | 0 1 | | | | | 1 0 | | 0 1 | 1 2 | | |
| 106 | Miscellaneous Medical Colleges..... | 7 8 | | 14 7 | 4 2 | | 2 17 | | 2 4 | 6 4 | 2 2 | | 15 11 | | 25 0 | 45 2 | 4 4 | 3 10 | 3 2 | 14 15 | 2 7 | 1 0 | |
| | Totals by States..... | 134 | 14 | 98 | 117 | 50 | 116 | 12 | 53 | 96 | 190 | 9 | 623 | 91 | 99 | 92 | 88 | 85 | 47 | 138 | 210 | 93 | |
| | Totals—Examined—Passed | 81 | 14 | 72 | 100 | 49 | 68 | 11 | 48 | 68 | 169 | 9 | 541 | 90 | 97 | 85 | 76 | 67 | 39 | 101 | 171 | 92 | |
| | Totals—Examined—Failed | 53 | 0 | 26 | 17 | 1 | 48 | 1 | 5 | 28 | 21 | 0 | 82 | 1 | 2 | 7 | 12 | 18 | 8 | 37 | 39 | 1 | |
| | Percentage of Failures..... | 39.5 | 0. | 26.5 | 14.5 | 2.0 | 32.1 | 8.3 | 9.4 | 29.6 | 11.0 | 0. | 13.2 | 1.0 | 2.0 | 7.6 | 13.6 | 21.2 | 17.0 | 36.6 | 18.6 | 1.0 | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | |

H—Homeopathic; E—Eclectic.

| | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | Totals | Examined— Passed | Examined— Failed | Percentage of Failures | No. States Ex. in | Marginal Number | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------|-------------|----------|------------------|----------|--------|---------------|---------------------------------|------------|--|----------------|--------------|------|----------|----------------|---|--------------|----------------|--------------|---|-------|------|---------|---|------------|---------------|-----------|--|---------|---------|---------------------|---------------------|---------------------------|-------------------|-----------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Minnesota | Mississippi | Missouri | Montana | Nebraska | Nevada | New Hampshire | New Jersey | New Mexico | New York | North Carolina | North Dakota | Ohio | Oklahoma | Oregon | Pennsylvania | Rhode Island | South Carolina | South Dakota | Tennessee | Texas | Utah | Vermont | Virginia | Washington | West Virginia | Wisconsin | Wyoming | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 5 1 37 7 10 0 | 2 0 0 | | | | | | | | | | 1 0 0 1 0 0 | | | | 2 0 | | | | 1 0 | | | | 1 0 | | 54 9 11 | 51 9 11 | 3 0 0 | 5.6 0. 0. | 9 3 2 | 54 55 56 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 1 0 | | | 3 1 1 | 0 | | 1 0 | | | | | | | | | | | | | | | | | | | 15 | 13 | 2 | 13.3 | 6 | 57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 0 4 | 0 | | | | | 1 0 1 0 2 0 4 0 8 1 | | 41 21 86 12 3 0 20 1 15 8 77 29 18 19 6 2 25 6 5 63 35 12 | | | | | | 3 0 3 0 1 0 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 | | | | 1 0 1 0 1 0 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 | | | | 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 | | | | 67 127 27 46 113 26 21 14 1 31.3 11.0 3.7 6 18 7 58 37 21 9 7 2 22.2 16.7 7.9 23.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Marginal Number | NAME OF COLLEGE | Graduates of All Years | | | | | Graduates of 1909-1913 | | | | | Graduates of 1908 and Previous | | | | | Graduates of 1913 | | | | |
|----------------------|--|------------------------|---------------|---------------|------------------|------------------|------------------------|---------------|---------------|------------------|------------------|--------------------------------|---------------|---------------|------------------|------------------|-------------------|---------------|---------------|------------------|------------------|
| | | Number Examined | Number Passed | Number Failed | Per Cent. Failed | Number of States | Number Examined | Number Passed | Number Failed | Per Cent. Failed | Number of States | Number Examined | Number Passed | Number Failed | Per Cent. Failed | Number of States | Number Examined | Number Passed | Number Failed | Per Cent. Failed | Number of States |
| ALABAMA | | | | | | | | | | | | | | | | | | | | | |
| 1 | Birmingham Medical College..... | 51 | 31 | 20 | 39.2 | 7 | 47 | 30 | 17 | 36.2 | 6 | 4 | 1 | 3 | 75.0 | 2 | 24 | 12 | 12 | 50.0 | |
| 2 | University of Alabama..... | 49 | 43 | 6 | 12.2 | 10 | 45 | 39 | 6 | 13.3 | 9 | 4 | 4 | 0 | 0. | 3 | 18 | 16 | 2 | 11.1 | |
| ARKANSAS | | | | | | | | | | | | | | | | | | | | | |
| 3 | University of Arkansas..... | 41 | 30 | 11 | 26.9 | 6 | 41 | 30 | 11 | 24.4 | 6 | | | | | | 31 | 25 | 6 | 19.4 | |
| CALIFORNIA | | | | | | | | | | | | | | | | | | | | | |
| 4 | California Eclectic Medical College.—E..... | 8 | 3 | 5 | 62.5 | 2 | 7 | 3 | 4 | 57.1 | 2 | 1 | 0 | 1 | 100.0 | 1 | 7 | 3 | 4 | 57.1 | |
| 5 | College of Phys. and Surgs., Los Angeles..... | 24 | 22 | 2 | 8.3 | 4 | 24 | 22 | 2 | 8.3 | 4 | | | | | | 22 | 21 | 1 | 4.5 | |
| 6 | Hahnemann Medical College of the Pacific.—H... | 15 | 13 | 2 | 13.3 | 3 | 13 | 12 | 1 | 7.7 | 1 | 2 | 1 | 1 | 50.0 | 2 | 10 | 10 | 0 | 0. | |
| 7 | Leland Stanford Junior University..... | 7 | 7 | 0 | 0. | 1 | 7 | 7 | 0 | 0. | 1 | | | | | | 7 | 7 | 0 | 0. | |
| 8 | Oakland College of Medicine and Surgery..... | 4 | 4 | 0 | 0. | 1 | 4 | 4 | 0 | 0. | 1 | | | | | | 3 | 3 | 0 | 0. | |
| 9 | College of Phys. and Surgs., San Francisco..... | 10 | 4 | 6 | 60.0 | 3 | 8 | 4 | 4 | 50.0 | 2 | 2 | 0 | 2 | 100.0 | 2 | 1 | 1 | 0 | 0. | |
| 10 | University of California, Medical Dept. | 14 | 13 | 1 | 7.2 | 2 | 10 | 10 | 0 | 0. | 1 | 4 | 3 | 1 | 25.0 | 2 | 9 | 9 | 0 | 0. | |
| COLORADO | | | | | | | | | | | | | | | | | | | | | |
| 11 | University of Colorado, School of Medicine..... | 64 | 64 | 0 | 0. | 11 | 62 | 62 | 0 | 0. | 10 | 2 | 2 | 0 | 0. | 2 | 38 | 38 | 0 | 0. | |
| CONNECTICUT | | | | | | | | | | | | | | | | | | | | | |
| 12 | Yale University, Medical Dept. | 29 | 27 | 2 | 6.9 | 4 | 26 | 24 | 2 | 7.7 | 3 | 3 | 3 | 0 | 0. | 2 | 3 | 3 | 0 | 0. | |
| DISTRICT OF COLUMBIA | | | | | | | | | | | | | | | | | | | | | |
| 13 | George Washington University, Dept. of Med. ... | 37 | 35 | 2 | 5.4 | 13 | 31 | 31 | 1 | 3.2 | 12 | 6 | 5 | 1 | 16.7 | 5 | 8 | 8 | 0 | 0. | |
| 14 | Georgetown University School of Medicine..... | 35 | 28 | 7 | 20.0 | 12 | 32 | 26 | 6 | 19.3 | 10 | 3 | 2 | 1 | 33.3 | 3 | 10 | 9 | 1 | 10.0 | |
| 15 | Howard University School of Medicine..... | 38 | 35 | 3 | 7.9 | 17 | 37 | 35 | 2 | 5.4 | 17 | 1 | 0 | 1 | 100.0 | 1 | 10 | 10 | 0 | 0. | |
| GEORGIA | | | | | | | | | | | | | | | | | | | | | |
| 16 | Atlanta College of Physicians and Surgeons..... | 128 | 113 | 15 | 11.7 | 10 | 123 | 110 | 13 | 10.6 | 10 | 5 | 3 | 2 | 40.0 | 4 | 116 | 105 | 11 | 9.5 | |
| 17 | Atlanta School of Medicine..... | 59 | 48 | 11 | 18.6 | 7 | 58 | 48 | 10 | 17.1 | 8 | 1 | 0 | 1 | 100.0 | 1 | 40 | 37 | 3 | 7.5 | |
| 18 | Georgia College of Eclectic Med. and Surg.—E... | 4 | 1 | 3 | 75.0 | 4 | 4 | 1 | 3 | 75.0 | 4 | | | | | | 1 | 0 | 1 | 100.0 | |
| 19 | Southern College of Medicine and Surgery..... | 26 | 2 | 24 | 92.3 | 5 | 26 | 2 | 24 | 92.3 | 5 | | | | | | 20 | 2 | 18 | 90.0 | |
| 20 | University of Georgia, Medical Dept. | 42 | 34 | 8 | 19.0 | 4 | 41 | 33 | 8 | 19.5 | 4 | 1 | 1 | 0 | 0. | 1 | 33 | 31 | 2 | 6.1 | |
| ILLINOIS | | | | | | | | | | | | | | | | | | | | | |
| 21 | Bennett Medical College..... | 104 | 90 | 14 | 13.5 | 23 | 100 | 86 | 14 | 14.0 | 19 | 4 | 4 | 0 | 0. | 4 | 62 | 51 | 11 | 17.7 | |
| 22 | Chicago College of Medicine and Surgery..... | 266 | 220 | 46 | 17.3 | 32 | 265 | 219 | 46 | 17.4 | 32 | 1 | 1 | 0 | 0. | 1 | 205 | 183 | 22 | 10.7 | |
| 23 | Hahnemann Medical College and Hospital.—H... | 59 | 50 | 9 | 15.3 | 17 | 46 | 41 | 5 | 10.9 | 11 | 13 | 9 | 4 | 30.8 | 9 | 28 | 27 | 1 | 3.6 | |
| 24 | Jenner Medical College..... | 17 | 10 | 7 | 41.2 | 2 | 16 | 10 | 6 | 40.0 | 1 | 1 | 0 | 1 | 100.0 | 1 | 10 | 8 | 2 | 20.0 | |
| 25 | Northwestern University Medical School..... | 116 | 112 | 4 | 3.4 | 20 | 97 | 94 | 3 | 3.1 | 16 | 19 | 18 | 1 | 5.3 | 10 | 55 | 54 | 1 | 1.8 | |
| 26 | University of Illinois College of Medicine..... | 199 | 186 | 13 | 6.5 | 23 | 179 | 168 | 11 | 6.2 | 20 | 20 | 18 | 2 | 10.0 | 10 | 126 | 123 | 3 | 2.4 | |
| 27 | Rush Medical College..... | 153 | 151 | 2 | 1.3 | 24 | 124 | 123 | 1 | 0.4 | 20 | 29 | 28 | 1 | 3.4 | 17 | 88 | 88 | 0 | 0. | |
| INDIANA | | | | | | | | | | | | | | | | | | | | | |
| 28 | Indiana University School of Medicine..... | 52 | 50 | 2 | 3.8 | 5 | 51 | 50 | 1 | 2.0 | 4 | 1 | 0 | 1 | 100.0 | 1 | 47 | 47 | 0 | 0. | |
| IOWA | | | | | | | | | | | | | | | | | | | | | |
| 29 | State Univ. of Iowa, College of Medicine..... | 26 | 25 | 1 | 3.8 | 8 | 19 | 19 | 0 | 0. | 3 | 7 | 6 | 1 | 14.3 | 6 | 17 | 17 | 0 | 0. | |
| 30 | State Univ. of Iowa, College of Homeo. Med.—H | 7 | 7 | 0 | 0. | 1 | 7 | 7 | 0 | 0. | 1 | | | | | | 6 | 6 | 0 | 0. | |
| KANSAS | | | | | | | | | | | | | | | | | | | | | |
| 31 | University of Kansas School of Medicine..... | 10 | 10 | 0 | 0. | 3 | 9 | 9 | 0 | 0. | 2 | 1 | 1 | 0 | 0. | 1 | 7 | 7 | 0 | 0. | |
| KENTUCKY | | | | | | | | | | | | | | | | | | | | | |
| 32 | University of Louisville, Medical Dept. | 140 | 114 | 26 | 21.4 | 26 | 129 | 108 | 21 | 16.3 | 22 | 11 | 6 | 5 | 45.5 | 8 | 83 | 79 | 4 | 4.8 | |
| LOUISIANA | | | | | | | | | | | | | | | | | | | | | |
| 33 | Tulane University, Medical Dept. | 101 | 96 | 5 | 4.9 | 13 | 97 | 94 | 3 | 3.1 | 11 | 4 | 2 | 2 | 50.0 | 3 | 68 | 67 | 1 | 1.5 | |
| MAINE | | | | | | | | | | | | | | | | | | | | | |
| 34 | Medical School of Maine..... | 31 | 26 | 5 | 16.1 | 8 | 19 | 16 | 3 | 15.8 | 4 | 12 | 10 | 2 | 16.7 | 6 | 13 | 11 | 2 | 15.4 | |
| MARYLAND | | | | | | | | | | | | | | | | | | | | | |
| 35 | Eastern Univ., School of Med., Baltimore.—E.... | 1 | 0 | 1 | 100.0 | 1 | 1 | 0 | 1 | 100.0 | 1 | | | | | | 1 | 0 | 1 | 100.0 | |
| 36 | Johns Hopkins University, Medical Dept. | 104 | 98 | 6 | 5.8 | 23 | 97 | 91 | 6 | 6.2 | 22 | 7 | 7 | 0 | 0. | 6 | 55 | 53 | 2 | 3.6 | |
| 37 | College of Physicians and Surgeons, Baltimore.. | 74 | 56 | 18 | 24.3 | 19 | 67 | 51 | 16 | 23.5 | 16 | 7 | 5 | 2 | 28.6 | 6 | 36 | 30 | 6 | 16.7 | |
| 38 | University of Maryland School of Medicine..... | 88 | 66 | 22 | 25.0 | 18 | 80 | 61 | 19 | 23.7 | 16 | 8 | 5 | 3 | 37.5 | 6 | 45 | 41 | 4 | 8.9 | |
| MASSACHUSETTS | | | | | | | | | | | | | | | | | | | | | |
| 39 | Boston University School of Medicine.—H..... | 23 | 22 | 1 | 4.4 | 8 | 16 | 15 | 1 | 6.3 | 6 | 7 | 7 | 0 | 0. | 5 | 11 | 10 | 1 | 9.1 | |
| 40 | College of Physicians and Surgeons, Boston.... | 25 | 10 | 15 | 60.0 | 8 | 24 | 10 | 14 | 58.3 | 7 | 1 | 0 | 1 | 100.0 | 1 | 7 | 2 | 5 | 71.4 | |
| 41 | Harvard Medical School..... | 94 | 87 | 7 | 7.4 | 23 | 78 | 72 | 6 | 7.7 | 20 | 16 | 15 | 1 | 6.3 | 12 | 34 | 31 | 3 | 8.8 | |
| 42 | Tufts College Medical School..... | 109 | 92 | 17 | 15.6 | 13 | 106 | 90 | 16 | 15.1 | 12 | 3 | 2 | 1 | 33.3 | 3 | 71 | 61 | 10 | 14.1 | |
| MICHIGAN | | | | | | | | | | | | | | | | | | | | | |
| 43 | Detroit College of Medicine and Surgery..... | 34 | 34 | 0 | 0. | 8 | 28 | 28 | 0 | 0. | 2 | 6 | 6 | 0 | 0. | 6 | 27 | 27 | 0 | 0. | |
| 44 | Univ. of Michigan, Dept. of Med and Surg. | 62 | 60 | 2 | 3.2 | 16 | 45 | 44 | 1 | 2.2 | 12 | 17 | 16 | 1 | 5.9 | 10 | 33 | 33 | 0 | 0. | |
| 45 | Univ. of Michigan, Homeopathic College..... | 18 | 16 | 2 | 10.5 | 4 | 16 | 14 | 2 | 12.5 | 2 | 2 | 2 | 0 | 0. | 3 | 12 | 12 | 0 | 0. | |
| MINNESOTA | | | | | | | | | | | | | | | | | | | | | |
| 46 | University of Minnesota Medical College..... | 62 | 61 | 1 | 1.6 | 6 | 55 | 55 | 0 | 0. | 4 | 7 | 6 | 1 | 14.3 | 5 | 43 | 43 | 0 | 0. | |
| MISSOURI | | | | | | | | | | | | | | | | | | | | | |
| 47 | American Medical College..... | 90 | 61 | 29 | 32.2 | 19 | 63 | 46 | 17 | 27.0 | 14 | 27 | 15 | 12 | 44.4 | 12 | 43 | 36 | 7 | 16.3 | |
| 48 | Eclectic Medical University.—E..... | 15 | 11 | 4 | 26.7 | 3 | 13 | 10 | 3 | 23.1 | 2 | 2 | 1 | 1 | 50.0 | 2 | 11 | 9 | 2 | 18.2 | |
| 49 | Ensworth Medical College..... | 17 | 12 | 5 | 29.4 | 9 | 13 | 11 | 2 | 15.4 | 5 | 4 | 1 | 3 | 75.0 | 4 | 10 | 10 | 0 | 0. | |
| 50 | Kansas City Hahnemann Medical College.—H.... | 10 | 10 | 0 | 0. | 6 | 10 | 10 | 0 | 0. | 6 | | | | | | 6 | 6 | 0 | 0. | |
| 51 | St. Louis University School of Medicine..... | 85 | 82 | 3 | 3.5 | 17 | 81 | 80 | 1 | 1.2 | 15 | 4 | 2 | 2 | 50.0 | 4 | 71 | 69 | 2 | 2.8 | |
| 52 | St. Louis College of Physicians and Surgeons.... | 34 | 16 | 18 | 52.9 | 13 | 19 | 10 | 9 | 47.4 | 7 | 15 | 6 | 9 | 60.0 | 9 | 10 | 6 | 4 | 40.0 | |
| 53 | Washington University, Medical Dept. | 45 | 45 | 0 | 0. | 9 | 36 | 36 | 0 | 0. | 6 | 9 | 9 | 0 | 0. | 6 | 28 | 28 | 0 | 0. | |

| NAME OF COLLEGE | Graduates of All Years | | | | | Graduates of 1909-1913 | | | | | Graduates of 1908 and Previous | | | | | Graduates of 1913 | | | | | Marginal Number |
|---|------------------------|---------------|---------------|------------------|------------------|------------------------|---------------|---------------|------------------|------------------|--------------------------------|---------------|---------------|------------------|------------------|-------------------|---------------|---------------|------------------|------------------|-----------------|
| | Number Examined | Number Passed | Number Failed | Per Cent. Failed | Number of States | Number Examined | Number Passed | Number Failed | Per Cent. Failed | Number of States | Number Examined | Number Passed | Number Failed | Per Cent. Failed | Number of States | Number Examined | Number Passed | Number Failed | Per Cent. Failed | Number of States | |
| NEBRASKA | | | | | | | | | | | | | | | | | | | | | |
| John A. Creighton Medical College..... | 57 | 53 | 4 | 7.0 | 11 | 54 | 51 | 3 | 5.6 | 9 | 3 | 2 | 1 | 33.3 | 3 | 29 | 29 | 0 | 0. | 3 | 54 |
| Notre Dame Medical College.—E..... | 11 | 10 | 1 | 9.1 | 5 | 9 | 9 | 0 | 0. | 3 | 2 | 1 | 1 | 50.0 | 2 | 8 | 8 | 0 | 0. | 2 | 55 |
| University of Nebraska, College of Medicine..... | 13 | 12 | 1 | 7.7 | 4 | 11 | 11 | 0 | 0. | 2 | 2 | 1 | 1 | 50.0 | 2 | 9 | 9 | 0 | 0. | 1 | 56 |
| NEW HAMPSHIRE | | | | | | | | | | | | | | | | | | | | | |
| Dartmouth Medical School..... | 18 | 16 | 2 | 11.1 | 6 | 15 | 13 | 2 | 13.3 | 6 | 3 | 3 | 0 | 0. | 2 | 7 | 7 | 0 | 0. | 4 | 57 |
| NEW YORK | | | | | | | | | | | | | | | | | | | | | |
| Albany Medical College..... | 69 | 48 | 21 | 30.4 | 8 | 67 | 46 | 21 | 31.3 | 6 | 3 | 1 | 2 | 66.7 | 1 | 32 | 16 | 16 | 50.0 | 4 | 58 |
| Columbia University, College of P. and S. | 147 | 131 | 16 | 10.9 | 27 | 127 | 113 | 14 | 11.0 | 18 | 20 | 18 | 2 | 10.0 | 14 | 70 | 67 | 3 | 4.3 | 9 | 59 |
| Cornell University Medical College..... | 29 | 28 | 1 | 3.4 | 7 | 27 | 26 | 1 | 3.7 | 7 | 7 | 2 | 2 | 0. | 2 | 12 | 12 | 0 | 0. | 1 | 60 |
| Durham University, College of Medicine..... | 28 | 19 | 9 | 32.1 | 3 | 28 | 19 | 9 | 32.1 | 3 | ..... | ..... | ..... | ..... | ..... | 9 | 8 | 1 | 11.1 | 1 | 61 |
| Long Island College Hospital..... | 118 | 88 | 30 | 25.4 | 7 | 115 | 85 | 30 | 26.1 | 5 | 3 | 3 | 0 | 0. | 3 | 43 | 35 | 8 | 18.6 | 2 | 62 |
| New York Homeopathic Med. Coll. and Hosp.—H..... | 60 | 39 | 21 | 35.0 | 10 | 58 | 37 | 21 | 36.2 | 8 | 2 | 2 | 0 | 0. | 2 | 43 | 29 | 14 | 32.6 | 7 | 63 |
| New York Med. Coll. and Hosp. for Women.—H..... | 11 | 9 | 2 | 18.2 | 4 | 9 | 7 | 2 | 22.2 | 2 | 2 | 2 | 0 | 0. | 2 | 9 | 7 | 2 | 22.2 | 2 | 64 |
| Syracuse University College of Medicine..... | 39 | 31 | 8 | 20.6 | 8 | 36 | 30 | 6 | 16.7 | 6 | 3 | 1 | 2 | 66.7 | 3 | 12 | 11 | 1 | 8.3 | 1 | 65 |
| University and Bellevue Hospital Med. College.... | 92 | 85 | 7 | 7.6 | 10 | 89 | 82 | 7 | 7.9 | 7 | 3 | 3 | 0 | 0. | 3 | 52 | 48 | 4 | 7.7 | 3 | 66 |
| University of Buffalo, Medical Dept. | 58 | 43 | 15 | 25.9 | 10 | 52 | 40 | 12 | 23.1 | 6 | 6 | 3 | 3 | 50.0 | 6 | 25 | 20 | 5 | 20.0 | 1 | 67 |
| NORTH CAROLINA | | | | | | | | | | | | | | | | | | | | | |
| Leonard Medical School..... | 53 | 25 | 28 | 51.9 | 10 | 50 | 24 | 26 | 52.0 | 10 | 3 | 1 | 2 | 66.7 | 1 | 32 | 16 | 16 | 50.0 | 4 | 68 |
| North Carolina Medical College..... | 42 | 32 | 10 | 23.8 | 7 | 40 | 32 | 8 | 20.0 | 7 | 2 | 0 | 2 | 100.0 | 2 | 32 | 28 | 4 | 12.5 | 5 | 69 |
| OHIO | | | | | | | | | | | | | | | | | | | | | |
| Cleveland-Pulte Medical College.—H..... | 27 | 25 | 2 | 7.5 | 4 | 27 | 25 | 2 | 7.5 | 4 | ..... | ..... | ..... | ..... | ..... | 25 | 23 | 2 | 8.0 | 4 | 70 |
| Eclectic Medical College.—E..... | 40 | 34 | 6 | 15.0 | 15 | 35 | 30 | 5 | 14.3 | 12 | 5 | 4 | 1 | 20.0 | 5 | 27 | 26 | 1 | 3.7 | 9 | 71 |
| Ohio-Miami Medical College..... | 31 | 30 | 1 | 3.2 | 7 | 31 | 30 | 1 | 3.2 | 7 | ..... | ..... | ..... | ..... | ..... | 26 | 26 | 0 | 0. | 3 | 72 |
| Warling-Ohio Medical College..... | 54 | 53 | 1 | 1.9 | 2 | 53 | 52 | 1 | 1.9 | 1 | 1 | 1 | 0 | 0. | 1 | 53 | 52 | 1 | 1.9 | 1 | 73 |
| Colorado Medical College..... | 15 | 15 | 0 | 0. | 1 | 15 | 15 | 0 | 0. | 1 | ..... | ..... | ..... | ..... | ..... | 15 | 15 | 0 | 0. | 1 | 74 |
| Western Reserve University..... | 31 | 31 | 0 | 0. | 5 | 30 | 30 | 0 | 0. | 4 | ..... | 1 | 1 | 0. | 1 | 26 | 26 | 0 | 0. | 1 | 75 |
| OKLAHOMA | | | | | | | | | | | | | | | | | | | | | |
| University of Oklahoma, Medical School..... | 9 | 9 | 0 | 0. | 1 | 9 | 9 | 0 | 0. | 1 | ..... | ..... | ..... | ..... | ..... | 9 | 9 | 0 | 0. | 1 | 76 |
| OREGON | | | | | | | | | | | | | | | | | | | | | |
| University of Oregon, Medical Dept. | 23 | 21 | 2 | 8.7 | 3 | 21 | 19 | 2 | 9.5 | 2 | 2 | 2 | 0 | 0. | 2 | 7 | 7 | 0 | 0. | 2 | 77 |
| PENNSYLVANIA | | | | | | | | | | | | | | | | | | | | | |
| Ahmann Medical College and Hospital.—H..... | 41 | 37 | 4 | 9.8 | 9 | 35 | 31 | 4 | 11.4 | 5 | 6 | 6 | 0 | 0. | 6 | 24 | 23 | 1 | 4.2 | 2 | 78 |
| Jefferson Medical College..... | 154 | 140 | 14 | 9.1 | 32 | 137 | 127 | 10 | 7.3 | 27 | 17 | 13 | 4 | 23.5 | 14 | 84 | 78 | 6 | 7.1 | 16 | 79 |
| Medical-Chirurgical College of Philadelphia..... | 69 | 61 | 8 | 11.6 | 10 | 63 | 56 | 7 | 11.1 | 7 | 6 | 5 | 1 | 16.7 | 4 | 33 | 32 | 1 | 3.0 | 6 | 80 |
| Temple University, Medical Dept. | 25 | 20 | 5 | 20.0 | 6 | 25 | 20 | 5 | 20.0 | 6 | ..... | ..... | ..... | ..... | ..... | 9 | 9 | 0 | 0. | 2 | 81 |
| University of Pennsylvania, Medical Dept. | 146 | 139 | 7 | 4.8 | 25 | 127 | 120 | 7 | 5.5 | 22 | 19 | 19 | 0 | 0. | 12 | 74 | 72 | 2 | 2.7 | 11 | 82 |
| University of Pittsburgh, Medical Dept. | 62 | 55 | 7 | 11.3 | 7 | 62 | 55 | 7 | 11.3 | 7 | ..... | ..... | ..... | ..... | ..... | 46 | 43 | 3 | 6.5 | 3 | 83 |
| Woman's Medical College of Pennsylvania..... | 43 | 37 | 6 | 14.0 | 11 | 38 | 33 | 5 | 13.2 | 9 | 5 | 4 | 1 | 20.0 | 4 | 23 | 20 | 3 | 13.0 | 5 | 84 |
| SOUTH CAROLINA | | | | | | | | | | | | | | | | | | | | | |
| Medical College of South Carolina..... | 49 | 40 | 9 | 4.9 | 4 | 46 | 38 | 8 | 17.4 | 4 | 3 | 2 | 1 | 33.3 | 2 | 30 | 28 | 2 | 6.7 | 1 | 85 |
| TENNESSEE | | | | | | | | | | | | | | | | | | | | | |
| Mcneolin Memorial University, Medical Dept. | 20 | 8 | 12 | 60.0 | 7 | 18 | 8 | 10 | 55.6 | 5 | 2 | 0 | 2 | 100.0 | 2 | 9 | 3 | 6 | 66.7 | 2 | 86 |
| Sherry Medical College..... | 158 | 102 | 56 | 35.4 | 20 | 143 | 96 | 47 | 32.9 | 18 | 15 | 6 | 9 | 60.0 | 8 | 96 | 80 | 16 | 16.7 | 14 | 87 |
| University of Tennessee, Medical Dept. | 55 | 39 | 16 | 29.1 | 12 | 50 | 35 | 15 | 30.0 | 11 | 5 | 4 | 1 | 20.0 | 3 | 37 | 29 | 8 | 21.6 | 8 | 88 |
| University of West Tennessee, Medical Dept. | 16 | 6 | 10 | 62.5 | 3 | 16 | 6 | 10 | 62.5 | 3 | ..... | ..... | ..... | ..... | ..... | 9 | 4 | 5 | 55.6 | 3 | 89 |
| Vanderbilt University, Medical Dept. | 80 | 75 | 5 | 6.2 | 19 | 76 | 74 | 2 | 2.6 | 18 | 4 | 1 | 3 | 75.0 | 4 | 54 | 52 | 2 | 3.7 | 12 | 90 |
| TEXAS | | | | | | | | | | | | | | | | | | | | | |
| Taylor University College of Medicine..... | 22 | 21 | 1 | 4.5 | 3 | 22 | 21 | 1 | 4.5 | 3 | ..... | ..... | ..... | ..... | ..... | 20 | 19 | 1 | 5.0 | 2 | 91 |
| Texas Christian University, School of Medicine.. | 19 | 18 | 1 | 5.3 | 4 | 19 | 18 | 1 | 5.3 | 4 | ..... | ..... | ..... | ..... | ..... | 11 | 11 | 0 | 0. | 2 | 92 |
| Southern Methodist University, Medical Dept. | 14 | 14 | 0 | 0. | 1 | 14 | 14 | 0 | 0. | 1 | ..... | ..... | ..... | ..... | ..... | 13 | 13 | 0 | 0. | 1 | 93 |
| University of Texas, Medical Dept. | 40 | 39 | 1 | 2.5 | 5 | 38 | 38 | 0 | 0. | 3 | 2 | 1 | 1 | 50.0 | 2 | 34 | 34 | 0 | 0. | 2 | 94 |
| VERMONT | | | | | | | | | | | | | | | | | | | | | |
| University of Vermont College of Medicine..... | 61 | 45 | 16 | 26.2 | 7 | 58 | 44 | 14 | 24.2 | 7 | 3 | 1 | 2 | 66.7 | 1 | 30 | 29 | 1 | 3.3 | 6 | 95 |
| VIRGINIA | | | | | | | | | | | | | | | | | | | | | |
| Medical College of Virginia..... | 61 | 45 | 16 | 26.2 | 11 | 58 | 43 | 15 | 25.8 | 10 | 3 | 2 | 1 | 33.3 | 3 | 45 | 31 | 14 | 31.1 | 6 | 96 |
| University of Virginia, Dept. of Medicine..... | 29 | 27 | 2 | 6.9 | 14 | 18 | 17 | 1 | 5.6 | 9 | 11 | 10 | 1 | 9.1 | 7 | 8 | 8 | 0 | 0. | 5 | 97 |
| University College of Medicine, Richmond..... | 54 | 49 | 5 | 9.3 | 8 | 52 | 47 | 5 | 10.2 | 8 | 2 | 2 | 0 | 0. | 2 | 42 | 39 | 3 | 7.1 | 3 | 98 |
| WISCONSIN | | | | | | | | | | | | | | | | | | | | | |
| Marquette University, Medical Dept. | 90 | 78 | 12 | 13.3 | 9 | 90 | 78 | 12 | 13.3 | 9 | ..... | ..... | ..... | ..... | ..... | 71 | 67 | 4 | 5.6 | 5 | 99 |
| CANADIAN | | | | | | | | | | | | | | | | | | | | | |
| McGill University, Medical Dept. | 11 | 4 | 7 | 63.6 | 8 | 6 | 2 | 4 | 66.7 | 5 | 5 | 2 | 3 | 60.0 | 5 | 1 | 1 | 0 | 0. | 1 | 100 |
| McGill University, Medical Faculty..... | 15 | 14 | 1 | 6.7 | 8 | 8 | 7 | 1 | 12.5 | 5 | 7 | 7 | 0 | 0. | 4 | 5 | 5 | 0 | 0. | 4 | 101 |
| Queen's University Medical Faculty..... | 15 | 9 | 6 | 40.0 | 8 | 10 | 7 | 3 | 30.0 | 7 | 5 | 2 | 3 | 60.0 | 3 | 2 | 2 | 0 | 0. | 2 | 102 |
| University of Manitoba, Manitoba Med. Coll. | 2 | 2 | 0 | 0. | 2 | 1 | 1 | 0 | 0. | 1 | 1 | 1 | 0 | 0. | 1 | 1 | 1 | 0 | 0. | 1 | 103 |
| University of Toronto, Faculty of Medicine..... | 15 | 12 | 3 | 20.0 | 10 | 7 | 6 | 1 | 14.3 | 5 | 8 | 6 | 2 | 25.0 | 6 | ..... | ..... | ..... | ..... | ..... | 104 |
| Foreign Colleges | 89 | 47 | 42 | 47.2 | 24 | 22 | 9 | 13 | 59.1 | 13 | 67 | 38 | 29 | 43.3 | 22 | 1 | 0 | 1 | 100.0 | 1 | 105 |
| Secellaneous Medical Colleges..... | 698 | 466 | 232 | 33.2 | 43 | 471 | 313 | 158 | 33.5 | 35 | 227 | 154 | 73 | 32.1 | 38 | 261 | 213 | 48 | 18.3 | 28 | 106 |
| Undergraduates | 251 | 156 | 95 | 37.8 | 7 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 107 |
| Totals | 6435 | 5236 | 1199 | 18.6 | ..... | 5390 | 4509 | 881 | 16.5 | ..... | 794 | 571 | 223 | 28.1 | ..... | 3465 | 3112 | 353 | 10.2 | ..... | ..... |

H—Homeopathic; E—Eclectic.

* Nine medical colleges give only the first two years of the medical course. Work taken in six of these is apparently fully accepted by all boards for advanced standing in other recognized medical colleges. Work taken in the other three is reported not so recognized in seven states unless the student entered with two years of preliminary college work.

† At the close of the present session Dartmouth Medical College will discontinue teaching the clinical branches.

‡ Third Classification revised to May 10, 1914.

(x) According to official reports the licensing boards of the states thus indicated do not grant full recognition to, or have taken action refusing to admit to their examinations graduates of, the colleges marked by this letter—x.

(a) Colorado registers without further examination only graduates of medical colleges in good standing who present licenses issued after examination granted by other state licensing boards. The law permits any one, graduate or non-graduate, to try the Board's written examination. No grad-

(b) Indiana, Iowa, Minnesota, North Dakota and Kentucky report that no graduate of any medical school may take examinations in those states unless before entering on the study of medicine he or she has completed two years of work in an approved college or university. This rule applies to all graduates hereafter in Iowa, Minnesota and North Dakota. This rule is reported to apply to all graduates of 1915 and thereafter in Indiana, and to all graduates of 1919 and thereafter in Kentucky.

(c) South Dakota reports that no medical college will be considered in good standing which accepts or graduates students who do not have the required preliminary education—two years of college work. This has applied to all colleges since Aug. 1, 1911, and the ruling will affect all graduates of 1915 and thereafter.

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Undoubtedly the less favorable conditions in medical colleges at the time these physicians graduated have some bearing on this result. Justice to such candidates, who have been licensed, but who, for good reasons, desire to change their locations, is the strongest argument for interstate reciprocity in medical licensure, or for special percentage allowances at the examinations for years of practice. The total number of these candidates is diminishing each year as increased reciprocal relations are established. As a rule, the states which do not have reciprocal relations with other states (as Florida, Montana, Massachusetts, Oregon, Washington, see Table L) examined the largest number of old practitioners.

GRADUATES OF 1913 EXAMINED DURING 1913

Table C also gives the results for the graduates of 1913 who were examined during the year by state boards, and shows that 3,465, or 53.8 per cent. of all candidates examined during the year, graduated in 1913, including ten who graduated in Canada and other foreign colleges. Educational statistics show that the medical colleges of the United

TABLE E—COLLEGES GROUPED BY STATES
Showing the Number Examined and Percentage of Failures

| All Colleges of | Graduates | | | | | | | | State Rank According to the Number Examined | Rank According to Suc- cesses at Examinations |
|----------------------|----------------------|---------------------|----------------------|---------------------|----------------------|---------------------|----------------------|---------------------|--|--|
| | Of All Years | | Of 1909 to 1913 | | Of 1908 & Prev. | | Of 1913 | | | |
| | Number Ex- amined | Per Cent. Failed | Number Ex- amined | Per Cent. Failed | Number Ex- amined | Per Cent. Failed | Number Ex- amined | Per Cent. Failed | | |
| | | | | | | | | | | |
| Alabama..... | 100 | 26.0 | 92 | 25.0 | 8 | 37.5 | 42 | 33.3 | 15 | 26 |
| Arkansas..... | 41 | 26.9 | 41 | 24.4 | ..... | ..... | 31 | 19.4 | 26 | 28 |
| California..... | 82 | 19.5 | 73 | 15.1 | 9 | 55.6 | 59 | 8.5 | 19 | 22 |
| Colorado..... | 64 | 0. | 62 | 0. | 2 | 0. | 38 | 0. | 21 | 1 |
| Connecticut..... | 29 | 6.9 | 26 | 7.7 | 3 | 0. | 3 | 0. | 29 | 9 |
| Dist. of Columbia... | 110 | 12.0 | 100 | 9.0 | 10 | 30.0 | 28 | 3.6 | 13 | 15 |
| Georgia..... | 259 | 23.6 | 252 | 23.1 | 7 | 42.9 | 210 | 16.7 | 7 | 25 |
| Illinois..... | 914 | 10.4 | 827 | 10.4 | 87 | 10.3 | 574 | 6.9 | 1 | 13 |
| Indiana..... | 52 | 3.8 | 51 | 2.0 | 1 | 100.0 | 47 | 0. | 24 | 6 |
| Iowa..... | 33 | 3.0 | 26 | 0. | 7 | 14.3 | 23 | 0. | 27 | 3 |
| Kansas..... | 10 | 0. | 9 | 0. | 1 | 0. | 7 | 0. | 32 | 1 |
| Kentucky..... | 140 | 21.4 | 129 | 16.3 | 11 | 45.5 | 83 | 4.8 | 11 | 24 |
| Louisiana..... | 101 | 4.9 | 97 | 3.1 | 4 | 50.0 | 68 | 1.5 | 14 | 7 |
| Maine..... | 31 | 16.1 | 19 | 15.8 | 12 | 16.7 | 13 | 15.4 | 28 | 19 |
| Maryland..... | 267 | 17.6 | 245 | 17.1 | 22 | 22.7 | 137 | 9.5 | 6 | 21 |
| Massachusetts..... | 251 | 15.9 | 224 | 20.1 | 27 | 11.1 | 123 | 15.4 | 8 | 17 |
| Michigan..... | 114 | 3.5 | 89 | 3.4 | 25 | 4.0 | 72 | 0. | 12 | 5 |
| Minnesota..... | 62 | 1.6 | 55 | 0. | 7 | 14.3 | 43 | 0. | 22 | 2 |
| Missouri..... | 296 | 16.5 | 235 | 13.6 | 61 | 60.7 | 179 | 8.4 | 5 | 20 |
| Nebraska..... | 81 | 7.4 | 74 | 4.1 | 7 | 42.9 | 46 | 0. | 20 | 10 |
| New Hampshire..... | 18 | 11.1 | 15 | 13.3 | 3 | 0. | 7 | 0. | 31 | 14 |
| New York..... | 651 | 19.9 | 608 | 20.2 | 43 | 25.6 | 307 | 15.3 | 2 | 23 |
| North Carolina..... | 95 | 40.0 | 90 | 36.7 | 5 | 80.0 | 64 | 31.2 | 16 | 30 |
| Ohio..... | 198 | 5.1 | 191 | 4.7 | 7 | 14.3 | 172 | 2.9 | 9 | 8 |
| Oklahoma..... | 9 | 0. | 9 | 0. | ..... | ..... | 9 | 0. | 33 | 1 |
| Oregon..... | 23 | 8.7 | 21 | 9.5 | 2 | 0. | 7 | 0. | 30 | 11 |
| Pennsylvania..... | 540 | 9.4 | 487 | 9.2 | 53 | 11.3 | 293 | 5.4 | 3 | 12 |
| South Carolina..... | 49 | 4.9 | 46 | 17.4 | 3 | 33.3 | 30 | 6.7 | 25 | 7 |
| Tennessee..... | 329 | 30.1 | 303 | 27.7 | 26 | 57.8 | 205 | 18.0 | 4 | 29 |
| Texas..... | 95 | 3.2 | 93 | 2.1 | 2 | 50.0 | 78 | 1.3 | 17 | 4 |
| Vermont..... | 61 | 26.2 | 53 | 24.2 | 3 | 66.7 | 30 | 3.3 | 23 | 27 |
| Virginia..... | 144 | 16.0 | 128 | 16.4 | 16 | 12.5 | 95 | 17.9 | 10 | 18 |
| Wisconsin..... | 90 | 13.3 | 90 | 13.3 | ..... | ..... | 71 | 5.6 | 18 | 16 |
| Totals Ex. in 1913. | 5339 | 15.2 | 4865 | 14.4 | 474 | 23.8 | 3194 | 9.5 | ..... | ..... |

This table gives data relating to the group of colleges in each state. For example, it shows that, of all the medical schools in New York, 651 graduates of various years were examined by state boards during 1913, and of this number 19.9 per cent. failed. Of the 608 who graduated in recent years, however (1909 to 1913 inclusive), 20.2 per cent. failed; of the 43 who graduated previous to 1909, 25.6 per cent. failed, and of the 307 graduates of 1913, 15.3 per cent. failed.

The ninth column gives the rank of each state group of colleges according to the number of applicants. The Illinois group of colleges leads, having 914 graduates examined by state boards during 1913, followed by New York with 651, Pennsylvania with 540, Tennessee with 329, Missouri with 296 and Maryland with 267.

The tenth column gives the rank of each state group of colleges according to the success of the graduates at the state board examinations. It is interesting to compare the figures of these two last columns. While the Illinois group ranks first according to the number examined it ranks thirteenth in the success of its graduates at examinations. While New York ranks second as to the number examined, it ranks twenty-third in the success of its graduates at examinations and while Pennsylvania ranks third as to the number examined, it ranks twelfth in the success of its graduates at examinations.

RESULTS FOR LARGER COLLEGES
Comparison with Previous Years (Table F)

| Year | Colleges Represented | Total Examined | Per Cent. Failed | Colleges, 100 or More Examined | Total Examined | Per Cent. Failed | Colleges, 50 to 100 Examined | Total Examined | Per Cent. Failed | Colleges, Less than 50 Examined | Total Examined | Per Cent. Failed | Foreign, Misc., and Non-grads. Exam'd | Per Cent. Failed |
|------|----------------------|----------------|------------------|--------------------------------|----------------|------------------|------------------------------|----------------|------------------|---------------------------------|----------------|------------------|---------------------------------------|------------------|
| 1904 | 149 | 6241 | 16.4 | 14 | 2271 | 11.7 | 28 | 1817 | 16.9 | 107 | 2153 | 21.0 | 794 | 43.8 |
| 1905 | 153 | 6411 | 18.3 | 14 | 2350 | 12.4 | 37 | 2543 | 17.7 | 102 | 1518 | 28.9 | 759 | 51.1 |
| 1906 | 151 | 6938 | 17.3 | 16 | 2504 | 14.5 | 34 | 2381 | 16.9 | 96 | 2053 | 21.3 | 1097 | 42.2 |
| 1907 | 146 | 6207 | 13.8 | 12 | 1626 | 12.7 | 36 | 2578 | 14.7 | 98 | 2003 | 13.6 | 1064 | 55.5 |
| 1908 | 137 | 6491 | 17.2 | 19 | 2596 | 15.6 | 26 | 1825 | 15.5 | 92 | 2070 | 20.8 | 1279 | 14.1 |
| 1909 | 134 | 6341 | 16.2 | 17 | 2476 | 16.9 | 27 | 1920 | 12.3 | 90 | 1945 | 19.2 | 946 | 42.2 |
| 1910 | 121 | 5953 | 15.3 | 17 | 2379 | 13.3 | 25 | 1791 | 13.7 | 79 | 1783 | 19.3 | 1051 | 36.3 |
| 1911 | 119 | 6062 | 17.2 | 18 | 2508 | 11.0 | 28 | 1895 | 17.1 | 73 | 1659 | 20.1 | 898 | 37.7 |
| 1912 | 110 | 5563 | 17.1 | 12 | 1776 | 15.6 | 31 | 2148 | 17.3 | 67 | 1639 | 18.5 | 790 | 37.7 |
| 1913 | 99 | 5339 | 15.2 | 15 | 2143 | 12.6 | 27 | 815 | 37.5 | 57 | 1381 | 17.1 | 1096 | 35.3 |

TOTAL RESULTS
Comparison with Previous Years

| Year | Table A | | | | B | | C | | A | | K | |
|------|----------------|-----------------|-----------------|-------------------|------------------------|-------------------|----------------------|-------------------|---------------------|-------------------|---|-------|
| | Total Examined | Examined—Passed | Examined—Failed | Percentage Failed | Recent Grads. Examined | Percentage Failed | Older Prac. Examined | Percentage Failed | Non-Grads. Examined | Percentage Failed | Registered with-out Written Examination | Total |
| 1904 | 7035 | 5672 | 1363 | 19.3 | 4773 | 14.1 | 579 | 29.7 | 515 | 52.6 | 999 | 60.6 |
| 1905 | 7170 | 5680 | 1490 | 20.8 | 6054 | 16.2 | 690 | 37.7 | 472 | 61.9 | 394 | 60.6 |
| 1906 | 8035 | 6368 | 1667 | 20.7 | 6250 | 16.4 | 793 | 27.1 | 703 | 51.3 | 1497 | 78.7 |
| 1907 | 7271 | 5723 | 1548 | 21.3 | 5922 | 15.1 | 675 | 27.7 | 674 | 69.6 | 1426 | 78.7 |
| 1908 | 7770 | 6084 | 1686 | 21.7 | 6477 | 17.8 | 796 | 31.5 | 494 | 56.8 | 1276 | 78.7 |
| 1909 | 7287 | 5857 | 1430 | 19.6 | 5891 | 15.4 | 958 | 30.0 | 438 | 54.1 | 1373 | 72.2 |
| 1910 | 7004 | 5712 | 1292 | 18.4 | 5678 | 14.9 | 973 | 29.1 | 353 | 45.6 | 1640 | 78.7 |
| 1911 | 6960 | 5578 | 1382 | 19.9 | 5685 | 17.2 | 945 | 29.4 | 330 | 38.5 | 1246 | 68.7 |
| 1912 | 6879 | 5466 | 1413 | 20.5 | 5770 | 18.6 | 856 | 29.2 | 253 | 34.8 | 1257 | 68.7 |
| 1913 | 6435 | 5236 | 1199 | 18.6 | 5390 | 16.5 | 225 | 32.1 | 251 | 37.8 | 1265 | 68.7 |

Totals for 1912 include figures for Pennsylvania not published last year.

States graduated 3,981 students last year; therefore 87 per cent. of all graduates in 1913 took examinations for licensure during that year. In some of the states, graduates in medicine are allowed to serve hospital internships without first becoming licensed practitioners, which doubtless accounts for some of the remaining 13 per cent. Of those examining 353, or 10.2 per cent., failed.

Table C permits of an interesting study of medical schools from the point of view of state board examinations. For some colleges a marked improvement in teaching methods is apparent from the fact that while the percentages of failures are high for old practitioners, they are lower for recent graduates and still lower for graduates of 1913. Other colleges, however, show no improvement either for recent graduates or for graduates of 1913. In the latter a knowledge of these colleges, based on a careful study which included inspections of the colleges, bears out what the figures of this table indicate, that some of these institutions are teaching medicine no better to-day than they did ten or more years ago.

NON-RECOGNITION OF MEDICAL COLLEGES

Table D shows for each college the states in which diplomas are not given unqualified recognition. Non-recognition is expressed by different terms in different states. Some boards list colleges as "in good standing" or "in good standing," some give them as "reputable" or "reputable;" in New York, full recognition is given only to colleges which are "registered," and in Michigan colleges

are divided into groups, only those of Group I having full recognition. This table also shows the latest rating given to each college by the Council on Medical Education.

The information given in this table is from official correspondence, and the data have been carefully verified. From the point of view of a prospective student who may be selecting a medical college, the facts are simply astounding. The table shows that there are only 31 medical colleges which have complete recognition in all states! If the student has completed two or more years of work in a recognized college or university before he seeks entrance to a medical college, he may take his choice from among 33 other colleges; otherwise he will find that his diploma will not enable him to secure a license in six states. If he gets his medical training in one of the remaining 43 colleges, he will awaken on graduation to the fact that his diploma is not recognized in from 10 to 32 states!

NON-RECOGNITION OF MEDICAL COLLEGES

(Based on Table D)

| Not recognized by licensing boards of | Number of Colleges |
|---------------------------------------|--------------------|
| From 24 to 32 states | 21 |
| From 10 to 15 states | 22 |
| From 2 to 9 states | 33 |
| Fully recognized in all states | 31 |
| Total | 107 |

Without the information published in Table D, these state board statistics would be not merely incomplete—they would be actually misleading. For example, in 1912, thirteen graduates of the Eclectic Medical University of Kansas City, Mo., were examined by the Arkansas Eclectic Board of Medical Examiners and all passed. None was examined elsewhere during the year, so the statistics showed no failures for this college during 1912, making it appear to

TABLE F—COLLEGES HAVING FIFTY OR MORE EXAMINED

TABLE SHOWS TOTAL NUMBER EXAMINED, TOTAL NUMBER PASSED, TOTAL NUMBER FAILED, PERCENTAGE OF FAILURES AND NUMBER OF STATES IN WHICH EACH COLLEGE HAD REPRESENTATIVES

| COLLEGE | Graduates of All Years | | | | | Graduates of 1909-1913 | | | | | Graduates of 1908 and Previous | | | | | Graduates of 1913 | | | | | Marginal Number |
|---|------------------------|---------------|---------------|------------------|---------------|------------------------|---------------|---------------|------------------|---------------|--------------------------------|---------------|---------------|------------------|---------------|-------------------|---------------|---------------|------------------|---------------|-----------------|
| | Number Examined | Number Passed | Number Failed | Per Cent. Failed | No. of States | Number Examined | Number Passed | Number Failed | Per Cent. Failed | No. of States | Number Examined | Number Passed | Number Failed | Per Cent. Failed | No. of States | Number Examined | Number Passed | Number Failed | Per Cent. Failed | No. of States | |
| Chicago College of Medicine and Surgery..... | 266 | 220 | 46 | 17.3 | 30 | 265 | 219 | 46 | 17.4 | 32 | 1 | 1 | 0 | 0. | 1 | 205 | 183 | 22 | 10.7 | 25 | 22 |
| University of Illinois, College of Medicine..... | 199 | 186 | 13 | 6.5 | 23 | 179 | 168 | 11 | 6.2 | 20 | 20 | 18 | 2 | 10.0 | 10 | 126 | 123 | 3 | 2.4 | 9 | 26 |
| Meharry Medical College..... | 158 | 102 | 56 | 35.4 | 20 | 143 | 96 | 47 | 32.9 | 18 | 15 | 6 | 9 | 60.0 | 8 | 96 | 80 | 16 | 16.7 | 14 | 87 |
| Jefferson Medical College..... | 154 | 140 | 14 | 9.1 | 32 | 137 | 127 | 10 | 7.3 | 27 | 17 | 13 | 4 | 23.5 | 14 | 84 | 78 | 6 | 7.1 | 16 | 79 |
| Cumtush Medical College..... | 153 | 151 | 2 | 1.3 | 24 | 124 | 123 | 1 | 0.4 | 20 | 29 | 28 | 1 | 3.4 | 17 | 88 | 88 | 0 | 0. | 14 | 27 |
| Columbia University, Coll. of Phys. and Surgs.. | 147 | 131 | 16 | 10.9 | 27 | 127 | 113 | 14 | 11.0 | 18 | 20 | 18 | 2 | 10.0 | 14 | 70 | 67 | 3 | 4.3 | 9 | 59 |
| University of Pennsylvania, Medical Dept. | 146 | 139 | 7 | 4.8 | 25 | 127 | 120 | 7 | 5.5 | 22 | 19 | 19 | 0 | 0. | 12 | 74 | 72 | 2 | 2.7 | 11 | 82 |
| University of Louisville, Medical Dept. | 140 | 114 | 26 | 21.4 | 26 | 129 | 108 | 21 | 16.3 | 22 | 11 | 6 | 5 | 45.5 | 8 | 83 | 79 | 4 | 4.8 | 13 | 32 |
| Atlanta College of Physicians and Surgeons.... | 128 | 113 | 15 | 11.7 | 10 | 123 | 110 | 13 | 10.6 | 10 | 5 | 3 | 2 | 40.0 | 4 | 116 | 105 | 11 | 9.5 | 9 | 16 |
| Long Island College Hospital..... | 118 | 88 | 30 | 25.4 | 7 | 115 | 85 | 30 | 26.1 | 5 | 3 | 3 | 0 | 0. | 3 | 43 | 35 | 8 | 18.6 | 2 | 62 |
| Northwestern University Medical School..... | 116 | 112 | 4 | 3.4 | 20 | 97 | 94 | 3 | 3.1 | 16 | 19 | 18 | 1 | 5.3 | 10 | 55 | 54 | 1 | 1.8 | 5 | 25 |
| Watts College Medical School..... | 109 | 92 | 17 | 15.6 | 13 | 106 | 90 | 16 | 15.1 | 12 | 3 | 2 | 1 | 33.3 | 3 | 71 | 61 | 10 | 14.1 | 6 | 42 |
| Weneth Medical College..... | 104 | 90 | 14 | 13.5 | 23 | 100 | 86 | 14 | 14.0 | 19 | 4 | 4 | 0 | 0. | 4 | 62 | 51 | 11 | 17.7 | 10 | 21 |
| Johns Hopkins University, Medical Dept. | 104 | 98 | 6 | 5.8 | 23 | 97 | 91 | 6 | 6.2 | 22 | 7 | 7 | 0 | 0. | 6 | 55 | 53 | 2 | 3.6 | 16 | 36 |
| Duane University, Medical Dept. | 101 | 96 | 5 | 4.9 | 13 | 97 | 94 | 3 | 3.1 | 11 | 4 | 2 | 2 | 50.0 | 3 | 68 | 67 | 1 | 1.5 | 8 | 33 |
| Harvard Medical School..... | 94 | 87 | 7 | 7.4 | 23 | 78 | 72 | 6 | 7.7 | 20 | 16 | 15 | 1 | 6.3 | 12 | 34 | 31 | 3 | 8.8 | 9 | 41 |
| University and Bellevue Hosp. Med. College.... | 92 | 85 | 7 | 7.6 | 10 | 89 | 82 | 7 | 7.9 | 7 | 3 | 3 | 0 | 0. | 3 | 52 | 48 | 4 | 7.7 | 3 | 66 |
| American Medical College..... | 90 | 61 | 29 | 32.2 | 19 | 63 | 46 | 17 | 27.0 | 14 | 27 | 15 | 12 | 44.4 | 12 | 43 | 36 | 7 | 16.3 | 8 | 47 |
| Marquette University, Medical Dept. | 90 | 78 | 12 | 13.3 | 9 | 90 | 78 | 12 | 13.3 | 9 | ..... | ..... | ..... | ..... | ..... | 71 | 67 | 4 | 5.6 | 5 | 30 |
| University of Maryland, School of Medicine.... | 88 | 66 | 22 | 25.0 | 18 | 80 | 61 | 19 | 23.7 | 16 | 8 | 5 | 3 | 37.5 | 6 | 45 | 41 | 4 | 8.9 | 10 | 38 |
| St. Louis University, School of Medicine..... | 85 | 82 | 3 | 3.5 | 17 | 81 | 80 | 1 | 1.2 | 15 | 4 | 2 | 2 | 50.0 | 4 | 71 | 69 | 2 | 2.8 | 11 | 51 |
| Vanderbilt University, Medical Dept. | 80 | 75 | 5 | 6.2 | 19 | 76 | 74 | 2 | 2.6 | 18 | 4 | 1 | 3 | 75.0 | 4 | 54 | 52 | 2 | 3.7 | 12 | 90 |
| College of Physicians and Surgeons, Baltimore.. | 74 | 56 | 18 | 24.3 | 19 | 67 | 51 | 16 | 23.5 | 16 | 7 | 5 | 2 | 28.1 | 6 | 36 | 30 | 6 | 16.7 | 9 | 37 |
| Albany Medical College..... | 69 | 48 | 21 | 30.4 | 8 | 67 | 46 | 21 | 31.3 | 6 | 2 | 2 | 0 | 0. | 2 | 32 | 23 | 9 | 28.1 | 1 | 58 |
| Medico-Chirurgical College of Philadelphia..... | 69 | 61 | 8 | 11.6 | 10 | 63 | 56 | 7 | 11.1 | 7 | 6 | 5 | 1 | 16.7 | 4 | 33 | 32 | 1 | 3.0 | 6 | 80 |
| University of Colorado, School of Medicine.... | 64 | 64 | 0 | 0. | 11 | 62 | 62 | 0 | 0. | 11 | 2 | 2 | 0 | 0. | 2 | 38 | 38 | 0 | 0. | 5 | 11 |
| University of Michigan, Coll. of Med. & Surg. .. | 62 | 60 | 2 | 3.2 | 16 | 45 | 44 | 1 | 2.2 | 12 | 17 | 16 | 1 | 5.9 | 10 | 33 | 33 | 0 | 0. | 4 | 44 |
| University of Minnesota, Coll. of Med. & Surg. .. | 62 | 61 | 1 | 1.6 | 6 | 55 | 55 | 0 | 0. | 4 | 7 | 6 | 1 | 14.3 | 5 | 43 | 43 | 0 | 0. | 1 | 46 |
| University of Pittsburgh, Medical Dept. | 62 | 55 | 7 | 11.3 | 7 | 62 | 55 | 7 | 11.3 | 7 | ..... | ..... | ..... | ..... | ..... | 46 | 43 | 3 | 6.5 | 3 | 83 |
| Medical College of Virginia..... | 61 | 45 | 16 | 26.2 | 11 | 58 | 43 | 15 | 25.8 | 10 | 3 | 2 | 1 | 33.3 | 3 | 45 | 31 | 14 | 31.1 | 6 | 96 |
| University of Vermont, College of Medicine.... | 61 | 45 | 16 | 26.2 | 7 | 58 | 44 | 14 | 24.2 | 7 | 3 | 1 | 2 | 66.7 | 1 | 30 | 29 | 1 | 3.3 | 6 | 95 |
| New York Homeopathic Med. Coll. & Hosp. | 60 | 39 | 21 | 35.0 | 10 | 58 | 37 | 21 | 36.2 | 8 | 2 | 2 | 0 | 0. | 2 | 43 | 29 | 14 | 32.6 | 7 | 63 |
| Atlanta School of Medicine..... | 59 | 48 | 11 | 18.6 | 7 | 58 | 48 | 10 | 17.1 | 8 | 1 | 0 | 1 | 100.0 | 1 | 40 | 37 | 3 | 7.5 | 4 | 17 |
| Wahneemann Medical Coll. & Hosp., Chicago.... | 59 | 50 | 9 | 15.3 | 17 | 46 | 41 | 5 | 10.9 | 11 | 13 | 9 | 4 | 30.8 | 9 | 28 | 27 | 1 | 3.6 | 6 | 23 |
| University of Buffalo, Medical Dept. | 58 | 43 | 15 | 25.9 | 10 | 52 | 40 | 12 | 23.1 | 6 | 6 | 3 | 3 | 50.0 | 6 | 25 | 20 | 5 | 20.0 | 1 | 67 |
| John A. Creighton Medical College..... | 57 | 53 | 4 | 7.0 | 11 | 54 | 51 | 3 | 5.6 | 9 | 3 | 2 | 1 | 33.3 | 3 | 29 | 29 | 0 | 0. | 3 | 54 |
| University of Tennessee, Medical Dept. | 55 | 39 | 16 | 29.1 | 12 | 50 | 35 | 15 | 30.0 | 11 | 5 | 4 | 1 | 20.0 | 3 | 37 | 29 | 8 | 21.6 | 8 | 88 |
| Marling-Ohio Medical College..... | 54 | 53 | 1 | 1.9 | 2 | 53 | 52 | 1 | 1.9 | 1 | 1 | 1 | 0 | 0. | 1 | 53 | 52 | 1 | 1.9 | 1 | 73 |
| University College of Medicine, Richmond..... | 54 | 49 | 5 | 9.3 | 8 | 52 | 47 | 5 | 10.2 | 6 | 2 | 2 | 0 | 0. | 2 | 71 | 67 | 4 | 5.6 | 5 | 99 |
| Leonard Medical School..... | 53 | 25 | 28 | 51.9 | 10 | 50 | 24 | 26 | 52.9 | 10 | 3 | 1 | 2 | 66.7 | 1 | 32 | 16 | 16 | 50.0 | 4 | 68 |
| Diana University School of Medicine..... | 52 | 50 | 2 | 3.8 | 5 | 51 | 50 | 1 | 2.0 | 4 | 1 | 0 | 1 | 100.0 | 1 | 47 | 47 | 0 | 0. | 1 | 28 |
| Birmingham Medical College..... | 51 | 31 | 20 | 39.2 | 7 | 47 | 30 | 17 | 36.2 | 6 | 4 | 1 | 3 | 75.0 | 2 | 24 | 12 | 12 | 50.0 | 3 | 1 |
| Totals..... | 3958 | 3381 | 577 | 14.5 | ..... | 3631 | 3128 | 503 | 13.8 | ..... | 327 | 253 | 74 | 22.6 | ..... | 2431 | 2207 | 224 | 9.2 | .. | .. |

This table is especially interesting, since it gives data relating to the 42 larger medical colleges arranged according to the number of graduates examined. This allows of comparison between colleges having classes of nearly equal size. This time the Chicago College of Medicine and Surgery had the largest number, the position having been held by the College of Physicians and Surgeons of Chicago in 1912, 1906 and 1907. In 1908 Jefferson Medical College had the highest number examined. In 1909, 1910 and 1911 the University of Louisville Medical Department had the largest number examined. The first place from the standpoint of the number examined, however, does not always mean first place from the standpoint of scholarship. Note the percentages of failures.

Of the 15 colleges having 100 or more examined, 7 have failure percentages of less than 10, while 8 stand out prominently with large failure percentages of 10.9, 11.7, 13.5, 15.6, 17.3, 21.4, 25.4 and 35.4. This marked difference holds for five of the colleges even in respect to recent graduates (of 1909 to 1913 inclusive) as well as for the graduates of 1913. The three highest failure percentages are for Leonard Medical College, 51.9; Long Island College Hospital, 25.4 and the University of Louisville, 21.4.

Of the 27 colleges having between 50 and 100 graduates examined, 11 had failure percentages of less than 10; 5 had failure percentages between 10 and 20, and 11 had failure percentages above 20, the five colleges having the highest failure percentages being Leonard Medical School, 51.9; Birmingham Medical College, 39.2; New York Homeopathic Medical College, 35.0; American Medical College, St. Louis, 32.2, and Albany Medical College, 30.4.

The average percentage of failures for these larger colleges for graduates of 1908 and previous years was 22.6; for graduates of 1909 to 1913 inclusive (recent graduates), 13.8; for graduates of 1913, 9.2, and for graduates of all years, was 14.5. Of the 5,329 graduates of the colleges in the United States which had graduates examined by state boards in 1913, these larger schools furnished 3,958 or 74.1 per cent.

TABLE G—COMPARISON OF RESULTS IN HOME STATES AND ELSEWHERE. BASED ON TABLE B

| COLLEGES | Results in Home State | | | Results in Other States | | | COLLEGES | Results in Home State | | | Results in Other States | | |
|--|-----------------------|--------|------------------|-------------------------|--------|------------------|--|-----------------------|--------|------------------|-------------------------|--------|------------------|
| | Total Examined | Passed | Failed Per Cent. | Total Examined | Passed | Failed Per Cent. | | Total Examined | Passed | Failed Per Cent. | Total Examined | Passed | Failed Per Cent. |
| ALABAMA.....-28.1 | 92 | 46 | 22 32.3 | 23 | 1 | 4.2 | Eclectic Medical Univ., Kansas City..... | 13 | ..... | ..... | 10 | 3 | 23.1 |
| Birmingham Medical College..... | 47 | 24 | 17 41.5 | 6 | 0 | 0. | Ensworth Medical College..... | 13 | 2 | 1 33.3 | 9 | 1 | 10.0 |
| University of Alabama..... | 45 | 22 | 5 18.5 | 17 | 1 | 5.6 | Kansas City Hahnemann Med. Col. | 10 | 1 | 0 0. | 9 | 0 | 0. |
| ARKANSAS.....-9.0 | 41 | 22 | 9 29.0 | 8 | 2 | 20.0 | St. Louis University..... | 81 | 54 | 0 0. | 26 | 1 | 3.7 |
| University of Arkansas..... | 41 | 22 | 9 29.0 | 8 | 2 | 20.0 | St. Louis Coll. of Phys. and Surgs. | 19 | 6 | 5 45.5 | 4 | 4 | 50.0 |
| CALIFORNIA.....+26.8 | 73 | 59 | 9 13.2 | 3 | 2 | 40.0 | Washington University..... | 36 | 27 | 0 0. | 9 | 0 | 0. |
| California Eclectic Medical College..... | 7 | 2 | 4 66.7 | 1 | 0 | 0. | NEBRASKA.....+2.0 | 74 | 54 | 2 3.6 | 17 | 1 | 5.6 |
| College of P. and S., Los Angeles..... | 24 | 20 | 1 4.8 | 2 | 1 | 33.3 | John A. Creighton Medical College..... | 54 | 37 | 2 5.1 | 14 | 1 | 6.7 |
| Hahnemann Med. Coll. of the Pacific.. | 13 | 12 | 1 7.7 | ..... | ..... | ..... | Cotner Medical College..... | 9 | 7 | 0 0. | 2 | 0 | 0. |
| Leland Stanford Junior University..... | 7 | 7 | 0 0. | ..... | ..... | ..... | University of Nebraska..... | 11 | 10 | 0 0. | 1 | 0 | 0. |
| Oakland Coll. of Medicine and Surgery.. | 4 | 4 | 0 0. | ..... | ..... | ..... | NEW HAMPSHIRE.....-15.9 | 15 | 3 | 1 25.0 | 10 | 1 | 9.1 |
| College of P. and S., San Francisco..... | 8 | 4 | 3 42.9 | 0 | 1 | 100.0 | Dartmouth Medical School..... | 15 | 3 | 1 25.0 | 10 | 1 | 9.1 |
| University of California..... | 10 | 10 | 0 0. | ..... | ..... | ..... | NEW YORK.....-15.4 | 608 | 386 | 115 22.9 | 99 | 8 | 7.5 |
| COLORADO.....- | 62 | 44 | 0 0. | 18 | 0 | 0. | Albany Medical College..... | 67 | 41 | 21 33.9 | 5 | 0 | 0. |
| University of Colorado..... | 62 | 44 | 0 0. | 18 | 0 | 0. | Columbia Univ., Coll. of P. and S. | 127 | 86 | 12 12.2 | 27 | 2 | 6.9 |
| CONNECTICUT.....+2.4 | 26 | 14 | 1 6.7 | 10 | 1 | 9.1 | Cornell University Medical School..... | 27 | 20 | 1 4.8 | 6 | 0 | 0. |
| Yale Medical School..... | 26 | 14 | 1 6.7 | 10 | 1 | 9.1 | Fordham University..... | 28 | 15 | 8 34.8 | 4 | 1 | 20.0 |
| DISTRICT OF COLUMBIA.....+13.0 | 100 | 31 | 0 0. | 60 | 9 | 13.0 | Long Island College Hospital..... | 115 | 77 | 29 27.4 | 8 | 1 | 11.1 |
| George Washington University..... | 32 | 12 | 0 0. | 19 | 1 | 5.0 | New York Homeo. Med. Coll. and Hosp.. | 58 | 18 | 19 70.4 | 19 | 2 | 6.5 |
| Georgetown University..... | 31 | 10 | 0 0. | 15 | 6 | 28.6 | N. Y. Med. Coll. and Hosp. for Women.. | 9 | 6 | 2 25.0 | 1 | 0 | 0. |
| Howard University..... | 37 | 9 | 0 0. | 26 | 2 | 7.1 | Syracuse University..... | 36 | 25 | 6 19.4 | 5 | 0 | 0. |
| GEORGIA.....+39.7 | 252 | 142 | 11 7.2 | 52 | 47 | 47.5 | Univ. and Bellevue Hosp. Med. Coll. | 89 | 63 | 5 7.3 | 19 | 2 | 9.5 |
| Atlanta College of Phys. and Surgs. .. | 123 | 83 | 0 0. | 27 | 13 | 32.5 | University of Buffalo, Med. Dept. | 52 | 35 | 12 25.5 | 5 | 0 | 0. |
| Atlanta School of Medicine..... | 58 | 32 | 1 3.0 | 16 | 9 | 36.0 | NORTH CAROLINA.....-1.1 | 90 | 29 | 18 38.3 | 27 | 16 | 37.2 |
| Georgia Coll. of Eclectic Med. and Surg.. | 4 | ..... | ..... | 1 | 3 | 75.0 | Leonard School of Medicine..... | 50 | 6 | 12 66.7 | 18 | 14 | 43.7 |
| Southern Coll. of Med. and Surg. | 26 | 2 | 9 81.0 | 0 | 15 | 100.0 | North Carolina Medical College..... | 40 | 23 | 6 20.7 | 9 | 2 | 18.2 |
| University of Georgia..... | 41 | 25 | 1 3.8 | 8 | 7 | 46.7 | OHIO.....+18.7 | 191 | 154 | 2 1.3 | 28 | 7 | 20.0 |
| ILLINOIS.....-0.9 | 827 | 493 | 59 10.7 | 248 | 27 | 9.8 | Cleveland-Pulte Medical College..... | 27 | 21 | 1 4.5 | 4 | 1 | 20.0 |
| Bennett Medical College..... | 100 | 58 | 10 14.7 | 28 | 4 | 14.3 | Eclectic Medical College..... | 35 | 14 | 0 0. | 16 | 5 | 23.8 |
| Chicago College of Med. and Surg. | 265 | 151 | 29 16.1 | 68 | 17 | 20.0 | Ohio-Miami Medical College..... | 31 | 25 | 0 0. | 5 | 1 | 16.7 |
| Hahnemann Medical College and Hosp. .. | 46 | 24 | 5 17.2 | 17 | 0 | 0. | Starling-Ohio Medical College..... | 53 | 52 | 1 1.9 | ..... | ..... | ..... |
| Jenner Medical College..... | 16 | 10 | 6 37.5 | ..... | ..... | ..... | Toledo Medical College..... | 15 | 15 | 0 0. | ..... | ..... | ..... |
| Northwestern University Med. School.... | 97 | 54 | 1 1.8 | 40 | 2 | 4.8 | Western Reserve University..... | 30 | 27 | 0 0. | 3 | 0 | 0. |
| University of Illinois..... | 179 | 122 | 8 6.2 | 46 | 3 | 6.1 | OKLAHOMA.....- | 9 | 9 | 0 0. | ..... | ..... | ..... |
| Rush Medical College..... | 124 | 74 | 0 0. | 49 | 1 | 2.0 | University of Oklahoma, School of Med.. | 9 | 9 | 0 0. | ..... | ..... | ..... |
| INDIANA.....+33.3 | 51 | 48 | 0 0. | 2 | 1 | 33.3 | OREGON.....-14.3 | 21 | 12 | 2 14.3 | 7 | 0 | 0. |
| Indiana University, School of Medicine.. | 51 | 48 | 0 0. | 2 | 1 | 33.3 | University of Oregon..... | 21 | 12 | 2 14.3 | 7 | 0 | 0. |
| IOWA.....- | 26 | 24 | 0 0. | 2 | 0 | 0. | PENNSYLVANIA.....+10.7 | 487 | 277 | 23 1.1 | 165 | 22 | 11.4 |
| State Univ. of Iowa, College of Med. | 19 | 17 | 0 0. | 2 | 0 | 0. | Hahnemann Medical College and Hosp.. | 35 | 26 | 2 7.1 | 5 | 2 | 28.6 |
| State Univ. of Iowa, Homeo. Dept. | 7 | 7 | 0 0. | ..... | ..... | ..... | Jefferson Medical College..... | 137 | 54 | 7 11.5 | 73 | 3 | 3.4 |
| KANSAS.....- | 9 | 8 | 0 0. | 1 | 0 | 0. | Medico-Chirurgical Coll. of Philadelphia.. | 63 | 48 | 4 7.7 | 8 | 3 | 27.7 |
| University of Kansas, School of Med. | 9 | 8 | 0 0. | 1 | 0 | 0. | Temple University..... | 25 | 16 | 3 15.8 | 4 | 2 | 33.3 |
| KENTUCKY.....+4.4 | 129 | 48 | 4 7.7 | 60 | 17 | 22.1 | University of Pennsylvania..... | 127 | 69 | 2 2.8 | 51 | 5 | 8. |
| University of Louisville, Medical Dept. .. | 129 | 48 | 4 7.7 | 60 | 17 | 22.1 | University of Pittsburgh..... | 62 | 50 | 4 7.4 | 5 | 3 | 37. |
| LOUISIANA.....+6.3 | 97 | 49 | 0 0. | 45 | 3 | 6.3 | Woman's Med. Coll. of Pennsylvania..... | 38 | 14 | 1 6.7 | 19 | 4 | 17. |
| Tulane University, Medical Dept. | 97 | 49 | 0 0. | 45 | 3 | 6.3 | SOUTH CAROLINA.....+35.7 | 46 | 36 | 6 14.3 | 2 | 2 | 50. |
| MAINE.....+15.9 | 19 | 10 | 1 9.1 | 6 | 2 | 25.0 | Medical College of South Carolina..... | 46 | 36 | 6 14.3 | 2 | 2 | 50. |
| Medical School of Maine..... | 19 | 10 | 1 9.1 | 6 | 2 | 25.0 | TENNESSEE.....+19.7 | 303 | 104 | 20 16.1 | 115 | 64 | 35. |
| MARYLAND.....-1.5 | 245 | 62 | 14 18.4 | 141 | 28 | 16.9 | Lincoln Memorial University..... | 18 | 3 | 8 72.7 | 5 | 2 | 28. |
| Eastern University..... | 1 | ..... | ..... | 0 | 1 | 100.0 | Mcharry Medical College..... | 143 | 51 | 3 5.6 | 45 | 44 | 49. |
| Johns Hopkins University..... | 97 | 28 | 1 3.4 | 63 | 5 | 7.3 | University of Tennessee..... | 50 | 19 | 0 0. | 16 | 15 | 48. |
| College of Physicians and Surgeons..... | 67 | 7 | 4 36.3 | 44 | 12 | 21.4 | University of West Tennessee..... | 16 | 5 | 7 58.3 | 1 | 3 | 75. |
| University of Maryland..... | 80 | 27 | 9 25.0 | 34 | 10 | 22.7 | Vanderbilt University | 76 | 26 | 2 7.1 | 48 | 0 | 0. |
| MASSACHUSETTS.....+6.7 | 224 | 113 | 18 13.7 | 74 | 19 | 20.4 | TEXAS.....-2.4 | 93 | 83 | 2 2.4 | 8 | 0 | 0. |
| Boston University..... | 16 | 8 | 1 11.1 | 7 | 0 | 0. | Baylor University..... | 22 | 19 | 1 5.0 | 2 | 0 | 0. |
| College of Physicians and Surgeons..... | 24 | 2 | 7 77.8 | 8 | 7 | 46.7 | Texas Christian University..... | 19 | 14 | 1 6.7 | 4 | 0 | 0. |
| Harvard Medical School..... | 78 | 34 | 1 2.9 | 38 | 5 | 11.6 | Southern Methodist University..... | 14 | 14 | 0 0. | ..... | ..... | ..... |
| Tufts College Medical School..... | 106 | 69 | 9 11.5 | 21 | 7 | 25.0 | University of Texas..... | 38 | 36 | 0 0. | 2 | 0 | 0. |
| MICHIGAN.....+11.8 | 89 | 72 | 0 0. | 15 | 2 | 11.8 | VERMONT.....+35.9 | 58 | 19 | 0 0. | 25 | 14 | 35. |
| Detroit College of Medicine..... | 28 | 27 | 0 0. | 1 | 0 | 0. | University of Vermont..... | 58 | 19 | 0 0. | 25 | 14 | 35. |
| Univ. of Michigan, Dept. of Medicine.... | 45 | 32 | 0 0. | 12 | 1 | 7.7 | VIRGINIA.....-5.7 | 128 | 59 | 14 19.2 | 48 | 7 | 12. |
| Univ. of Michigan, Homeo. Dept. | 16 | 13 | 0 0. | 2 | 1 | 33.3 | Medical College of Virginia..... | 58 | 25 | 12 32.4 | 18 | 3 | 14 |
| MINNESOTA.....- | 55 | 50 | 0 0. | 5 | 0 | 0. | University of Virginia..... | 18 | 3 | 0 0. | 14 | 1 | 6 |
| University of Minnesota..... | 55 | 50 | 0 0. | 5 | 0 | 0. | University College of Medicine..... | 49 | 31 | 2 6.1 | 16 | 3 | 18 |
| MISSOURI.....+7.8 | 235 | 116 | 13 10.1 | 87 | 19 | 17.9 | WISCONSIN.....+23.1 | 90 | 70 | 8 10.3 | 8 | 4 | 33 |
| American Medical College..... | 63 | 26 | 7 21.2 | 20 | 10 | 33.3 | Marquette University | 90 | 70 | 8 10.3 | 8 | 4 | 33 |
| | | | | | | | Totals.....+6.8 | 4865 | 2746 | 374 11.9 | 1420 | 325 | 18 |

In this table the graduates of each college who were examined in the state in which the college is located are grouped in one column while graduates of that college examined in other states are in another column. For example under Massachusetts, this table shows that of the 24 graduates of College of Physicians and Surgeons of Boston, who were examined by state boards during 1913, 9 were examined in Massachusetts, of which number 2 passed and 7, or 77.8 per cent., failed, while 15 were examined in other states, of which number 8 passed and 7, or 46.7 per cent., failed. This table shows that in the majority of instances the graduates have better chances of passing examinations in the state in which their colleges are located than they have elsewhere. This should always be considered in making comparisons between colleges. A low standard college, by having all its graduates examined in the home state, may sometimes show a lower percentage of failures than a college of much higher grade which has graduates examined by several states.

The heavy-faced figures give the results by states. The first column of heavy-faced figures preceded by the + and - signs, shows the differences between the percentages of examination in the home state and the examinations elsewhere. The plus sign indicates that graduates have better chances of success in the state where the colleges from which they graduated are located; the minus sign indicates that the chances are better elsewhere. The most marked variations in 1913 were in the examination of the graduates of the colleges of Georgia, 39.7 per cent.; Vermont, 35.9; South Carolina, 35.7; Indiana, 33.3; Wisconsin, 28.1, and California, 26.8, in all of which the chances of the graduates were better in the home state. The marked variations where the graduates' chances were better elsewhere were in Alabama, 28.1 per cent.; New Hampshire, 15.9; New York, 15.4 and Oregon, 14.3 per cent. The danger of forming hasty conclusions from these percentages taken alone, however, is very well shown by the figures for Indiana where there is one high grade school, where only 3 graduates were examined in "other states" and where the failure of one of them could have been accidental. More reliable are the percentages in Tennessee, Illinois, Pennsylvania and Missouri where larger number from larger groups of colleges were examined in "other states." The totals show that on the average the chances of success were 6.8 per cent. better if the graduate took the examination in the state where his college was located.

rank among the best teaching institutions in the country. How different the picture, however, when the facts are told that the Eclectic Medical University is not recognized in Missouri, its home state, and that the diplomas are not recognized in twenty-eight states!

There are 32 state licensing boards which are utilizing to some extent, at least, their legal power to refuse recognition to medical colleges which do not meet certain educational standards or which otherwise do not meet the requirements in the respective states. In the other 18 states, either the practice acts do not give the boards the right to enforce a requirement of reasonable standards, or else the boards are apparently not exercising their privileges. It is clearly evident that graduates of low-standard medical colleges which are not eligible for license in 32 states will flock to the other 18 states which have not removed recognition. These 18 states, therefore, will hereafter literally be the dumping-ground of the output of the low-grade medical colleges until needed legal powers are granted to the licensing boards or until those boards take action in the matter.

STUDY OF TOTALS AND PERCENTAGES

A study of totals and percentages as compared with previous years is of interest. The total examined in 1913—6,435—is the lowest number of candidates examined for license in any year since the compiling of these statistics began. The total examined in 1913 shows a decrease of 444 below 1912 and a decrease of just 1,600 below 1906, when 8,035 candidates were examined. Statistics regarding physicians licensed in the various states by reciprocity and by other methods are given in Tables I, J and K. By all methods—examination, reciprocity, under exemption, etc.—6,501 physicians were licensed during 1913, or 222 less than in 1912, and 1,364 less than in 1906, when 7,865 physicians were licensed.

Other deductions from the larger tables have been made and are presented in Tables E to H, which are worthy of careful study.

STUDY OF COLLEGES BY STATE GROUPS

Table E is based on the first three large tables and gives the results for the group of colleges located in each state. It shows what states are furnishing the largest number of physicians, and the failure percentages indicate what kind of training these colleges are furnishing so far as may be judged from the failures of their graduates before state boards. By comparing the percentages of the first column with the other columns it can be seen whether or not there has been any reduction in failures for graduates of recent years. Of the 33 states having medical colleges which grant degrees, 15 furnished 100 or more candidates examined. Of these 15 groups of colleges, 4 had failure percentages of less than 10 per cent.; 7 had failure percentages between 10 and 20, and 4 had over 20 per cent. of failures. The highest failure percentage was obtained by the North Carolina group with 40. Of the states having 100 or more candidates examined, however, the highest failure percentage was obtained by the Tennessee group, which had 30.1 per cent., followed by the Alabama group with 26.0 per cent., and the Georgia group with 23.6 per cent. of their graduates failing. Other deductions are given with the table.

STUDY OF LARGER COLLEGES

Table F is also based on the three large tables and gives the results of state board examinations as they affect the 42 largest medical colleges. Although these colleges represent 42.4 per cent. of the medical colleges in the United States having graduates examined, they furnished 74.1 per cent. of all the candidates for license coming from medical schools of the United States. This table show, however, that the graduation of large classes by a medical college does not prove excellence of teaching, since several colleges having 100 or more examined have very high failure percentages, and this holds true even for the graduates of 1913. In fact, the larger the college from the point of view of the number

of students and graduates, the more serious is inferior teaching ability, indicated by a high failure percentage. In fairness to the medical student, and in the interests of the public, such schools should greatly strengthen their teaching facilities or reduce the size of their classes.

Altogether for these schools, 577, or 14.5 per cent., failed, as compared with 17.1 per cent. of failures for the 1,381 candidates from the 57 colleges having less than 50 each examined.

Besides the graduates of the medical colleges of the United States, 1,096 candidates were examined, made up of 58 grad-

TABLE H—PHYSICIANS EXAMINED BY STATE BOARDS,
1909 TO 1913, INCLUSIVE

| STATE | 1909 | | 1910 | | 1911 | | 1912 | | 1913 | | Totals | | | |
|-----------------------|------------|----------|------------|----------|------------|----------|------------|----------|------------|----------|----------|------------|----------|---------------------|
| | Registered | Rejected | Registered | Rejected | Registered | Rejected | Registered | Rejected | Registered | Rejected | Examined | Registered | Rejected | Percentage Rejected |
| Alabama..... | 7 | 20 | 94 | 64 | 107 | 54 | 84 | 72 | 90 | 57 | 649 | 382 | 267 | 41.1 |
| Arizona..... | 19 | 6 | 15 | 9 | 28 | 9 | 32 | 10 | 26 | 9 | 163 | 120 | 43 | 26.4 |
| Arkansas..... | 111 | 131 | 96 | 28 | 108 | 30 | 124 | 27 | 91 | 28 | 774 | 530 | 244 | 31.5 |
| California..... | 184 | 73 | 204 | 47 | 227 | 59 | 256 | 60 | 163 | 36 | 1309 | 1034 | 275 | 21.0 |
| Colorado*..... | 36 | 15 | 43 | 5 | 33 | 8 | 41 | 1 | 53 | 5 | 245 | 211 | 34 | 13.9 |
| Connecticut..... | 52 | 13 | 69 | 18 | 73 | 20 | 70 | 18 | 77 | 51 | 461 | 341 | 120 | 26.0 |
| Delaware..... | 19 | 2 | 21 | 2 | 22 | 0 | 22 | 1 | 12 | 1 | 102 | 96 | 6 | 5.9 |
| Dist. of Columbia.... | 46 | 21 | 32 | 13 | 25 | 8 | 49 | 7 | 55 | 5 | 261 | 207 | 54 | 20.7 |
| Florida*..... | 70 | 12 | 102 | 15 | 87 | 23 | 114 | 31 | 116 | 49 | 619 | 489 | 130 | 21.0 |
| Georgia..... | 143 | 28 | 148 | 9 | 148 | 28 | 178 | 17 | 171 | 24 | 894 | 788 | 106 | 11.9 |
| Idaho..... | 54 | 23 | 47 | 24 | 41 | 13 | 35 | 12 | 21 | 2 | 272 | 198 | 74 | 27.2 |
| Illinois..... | 645 | 117 | 631 | 100 | 432 | 154 | 505 | 134 | 567 | 98 | 3383 | 2780 | 603 | 17.8 |
| Indiana..... | 102 | 3 | 97 | 9 | 114 | 7 | 95 | 4 | 101 | 1 | 533 | 509 | 24 | 4.5 |
| Iowa..... | 98 | 14 | 113 | 4 | 75 | 6 | 131 | 7 | 107 | 4 | 559 | 524 | 35 | 6.3 |
| Kansas..... | 121 | 20 | 66 | 25 | 56 | 25 | 50 | 12 | 89 | 7 | 471 | 382 | 89 | 18.9 |
| Kentucky..... | 120 | 18 | 119 | 35 | 88 | 36 | 88 | 8 | 78 | 12 | 602 | 493 | 109 | 18.1 |
| Louisiana..... | 121 | 33 | 104 | 34 | 123 | 30 | 128 | 36 | 69 | 20 | 698 | 545 | 153 | 21.9 |
| Maine..... | 55 | 10 | 73 | 5 | 86 | 11 | 74 | 17 | 46 | 9 | 386 | 334 | 52 | 13.4 |
| Maryland*..... | 130 | 33 | 131 | 32 | 160 | 39 | 160 | 46 | 108 | 40 | 879 | 689 | 190 | 21.6 |
| Massachusetts*..... | 213 | 95 | 197 | 100 | 226 | 74 | 227 | 54 | 215 | 74 | 1475 | 1078 | 397 | 26.9 |
| Michigan..... | 140 | 2 | 131 | 3 | 127 | 1 | 159 | 3 | 99 | 3 | 668 | 650 | 12 | 1.8 |
| Minnesota..... | 90 | 25 | 76 | 22 | 58 | 7 | 55 | 5 | 71 | 4 | 413 | 350 | 63 | 15.3 |
| Mississippi*..... | 130 | 154 | 84 | 150 | 115 | 113 | 56 | 48 | 61 | 19 | 930 | 446 | 484 | 52.0 |
| Missouri..... | 212 | 70 | 181 | 23 | 182 | 38 | 213 | 32 | 200 | 25 | 1176 | 988 | 188 | 15.9 |
| Montana..... | 68 | 23 | 73 | 24 | 44 | 19 | 50 | 9 | 57 | 16 | 383 | 292 | 91 | 23.8 |
| Nebraska..... | 74 | 8 | 80 | 0 | 67 | 11 | 88 | 10 | 87 | 2 | 427 | 396 | 31 | 7.3 |
| Nevada..... | 9 | 0 | 12 | 1 | 8 | 1 | 8 | 1 | 10 | 3 | 53 | 47 | 6 | 11.3 |
| New Hampshire..... | 20 | 10 | 34 | 8 | 18 | 5 | 36 | 7 | 17 | 3 | 158 | 125 | 33 | 20.9 |
| New Jersey..... | 76 | 12 | 63 | 17 | 107 | 15 | 59 | 14 | 69 | 7 | 439 | 374 | 65 | 14.8 |
| New Mexico..... | 11 | 4 | 6 | 1 | 2 | 2 | 6 | 2 | 6 | 1 | 41 | 31 | 10 | 24.4 |
| New York..... | 566 | 72 | 515 | 72 | 536 | 164 | 433 | 153 | 511 | 205 | 3227 | 2561 | 666 | 20.6 |
| North Carolina..... | 111 | 18 | 79 | 15 | 92 | 30 | 87 | 37 | 77 | 34 | 580 | 446 | 134 | 23.1 |
| North Dakota..... | 41 | 6 | 42 | 5 | 25 | 1 | 15 | 7 | 16 | 13 | 171 | 139 | 32 | 18.7 |
| Ohio..... | 192 | 13 | 172 | 10 | 170 | 8 | 199 | 12 | 189 | 3 | 968 | 922 | 46 | 4.7 |
| Oklahoma..... | 92 | 44 | 100 | 42 | 123 | 39 | 94 | 27 | 58 | 5 | 624 | 467 | 157 | 25.2 |
| Oregon*..... | 95 | 50 | 98 | 55 | 94 | 50 | 96 | 65 | 112 | 36 | 746 | 490 | 256 | 34.3 |
| Pennsylvania..... | 474 | 27 | 451 | 52 | 515 | 27 | 356 | 170 | 345 | 59 | 2476 | 2141 | 335 | 13.5 |
| Rhode Island..... | 23 | 10 | 23 | 10 | 32 | 5 | 39 | 12 | 28 | 4 | 186 | 145 | 41 | 22.0 |
| South Carolina..... | 46 | 33 | 61 | 44 | 94 | 27 | 90 | 35 | 99 | 47 | 576 | 390 | 186 | 32.3 |
| South Dakota..... | 60 | 21 | 52 | 9 | 53 | 5 | 16 | 1 | 30 | 1 | 248 | 211 | 37 | 14.9 |
| Tennessee*..... | 277 | 4 | 315 | 52 | 213 | 42 | 313 | 76 | 306 | 94 | 1692 | 1424 | 268 | 15.9 |
| Texas*..... | 181 | 19 | 162 | 5 | 151 | 19 | 151 | 13 | 168 | 11 | 880 | 813 | 67 | 7.6 |
| Utah..... | 28 | 4 | 34 | 4 | 22 | 3 | 20 | 2 | 24 | 3 | 144 | 128 | 16 | 11.1 |
| Vermont..... | 38 | 2 | 21 | 1 | 51 | 1 | 45 | 2 | 24 | 2 | 187 | 179 | 8 | 4.3 |
| Virginia..... | 136 | 40 | 122 | 14 | 115 | 43 | 105 | 30 | 87 | 19 | 711 | 565 | 146 | 20.6 |
| Washington..... | 148 | 49 | 154 | 43 | 102 | 43 | 69 | 27 | 63 | 22 | 720 | 536 | 184 | 25.6 |
| West Virginia..... | 105 | 10 | 88 | 25 | 88 | 22 | 66 | 20 | 58 | 17 | 499 | 405 | 94 | 18.8 |
| Wisconsin..... | 56 | 13 | 71 | 7 | 107 | 7 | 68 | 19 | 98 | 8 | 454 | 400 | 54 | 11.9 |
| Wyoming..... | 12 | 0 | 10 | 0 | 8 | 0 | 11 | 0 | 10 | 1 | 52 | 51 | 1 | 1.9 |
| Totals..... | 7287 | | 7004 | | 6900 | | 6879 | | 6435 | | 34565 | | | |
| Registered.. | 5857 | | 5712 | | 5578 | | 5466 | | 5236 | | 27849 | | | |
| Rejected..... | 1430 | | 1292 | | 1322 | | 1413 | | 1199 | | 6716 | | | |
| Per Cent. Rejected. | 19.6 | | 18.4 | | 19.9 | | 20.5 | | 18.6 | | 19.4 | | | |

This table gives the number of candidates registered and rejected by examination by each state during each of the last five years. The last four columns give the totals for the five years and the percentage rejected by each state.

Six states registered over 1,000 candidates by examination in the five years, these being California, Illinois, Massachusetts, New York, Pennsylvania and Tennessee. Over 2,000 were registered in only two states, Illinois and New York. Of the 1,424 candidates registered in Tennessee in the last five years, 591 or 41.5 per cent. were non-graduates.

The highest percentages of rejections were 52.0 in Mississippi, followed by Alabama, Oregon, South Carolina and Arkansas, with 41.1, 34.3, 32.3 and 31.5, respectively. The states marked with an asterisk (*) included non-graduates among those examined during the last five years, and for that reason would supposedly have higher percentages rejected. Such, however, was not the case in Tennessee. On the other hand, in several states the boards refuse to recognize certain colleges and eliminate many candidates prior to the examination by a careful scrutiny of credentials and as a result there are lower percentages of failures at the examinations.

The lowest failure percentages were in Michigan, 1.8; Wyoming, 1.9; Vermont, 4.3; Indiana, 4.5; Ohio, 4.7; Delaware, 5.9, and Iowa, 6.3.

uates of Canadian colleges, 89 foreign college graduates, 698 graduates of miscellaneous colleges and 251 non-graduates. Of these 1,096 candidates, 386, or 35.2 per cent., failed.

RESULTS IN HOME STATES AND ELSEWHERE

Table G is of much interest, because it shows for each college the results of examinations in the state in which the college is located, as compared with the results of examinations in other states, where there is less possibility of local influence. Of all recent graduates examined in 1913, 2,746, or 56.4 per cent., took their license examinations in the states in which the colleges from which they graduated were located. Of this number 11.9 per cent. failed on the average, whereas, of the 1,420 candidates examined in other states, 18.6 per cent. failed. This would indicate that, as a rule, the student's chances of passing the license examination are better if he stays in the college's home state. In this con-

nection it is interesting to note that no graduate of any of the colleges in the District of Columbia, in Michigan or Vermont failed in the examinations given in those states, although of the graduates of these colleges who were examined in other states, the failures of these groups of colleges were, respectively, 13, 11.8 and 35.9 per cent. There were no failures either at home or in other states for graduates of the colleges of Colorado, Iowa, Kansas or Minnesota. The student's chances for success at home and elsewhere were equal or nearly so in three instances, these being for the colleges of Illinois, Maryland and North Carolina; the student's chances were better in the home state in eighteen instances, while in seven instances the student's chances were better if he went to some other state.

TOTAL RESULTS FOR FIVE YEARS

Table H shows, so far as reports were obtainable, the number registered and the number rejected in each state for each of the past five years. A comparison of this table with the statistics in the last educational number of THE JOURNAL (Aug. 23, 1913, p. 602, Table 12), shows what would be expected, that the states having the largest number of medical graduates examined the largest number of physicians. Now, only one state, New Mexico, will register candidates on presentation of diploma, without examination. This table shows only those registered by examination. The next table (I) shows the total registered by all methods.

TOTAL REGISTRATION IN 1913

The tables thus far described have referred only to the results of examinations and to those registered on that basis. Table I, however, shows the total number who received licenses in each state, including those registered by examination, by reciprocity and under various exemption clauses. Altogether 6,501 physicians were registered by all methods during 1913, as compared with 6,723 in 1912, 6,824 in 1911, 7,352 in 1910 and 7,865 in 1906. By reciprocity or under exemption clauses, 1,265 were licensed in 1913 as compared with 1,257 in 1912, 1,246 in 1911 and 1,640 in 1910. Over 100 were registered by all methods in twenty-six states, over 200 in ten and over 300 in five, the largest numbers being registered in Illinois with 614, New York with 541, Pennsylvania with 366, Tennessee with 323 and Texas with 307. There were 156 non-graduates registered in five states, 121 (77.5 per cent.) having been registered in Tennessee, 19 in Massachusetts, 15 in Oregon and 1 in Colorado.

Table J gives those registered without examination on presentation of satisfactory credentials, which included a license issued by some other state. This is usually described by the term "reciprocity," which conveys the idea that the state which accepts the license of another must be granted the same courtesy by the state issuing the original license. The term does not well describe this method of registration, however, since some state boards consider it more fair to the physician to accept his credentials, if satisfactory, whether or not the state board issuing the original license returns the favor. In fact, the new practice act of California requires the acceptance of the licenses issued by any state if the applicant's credentials are otherwise acceptable. Had not reciprocal relations been established by the 41 states shown in the table, 1,223 physicians, the majority of whom have been in practice for many years, would have been compelled to undergo the ordeal of a second trying examination.

RECIPROCITY AND EDUCATIONAL STANDARDS

As formerly administered, reciprocal relations between some states tended to lower rather than to elevate educational standards, and this is still true in some states. A study of these statistics will show that in several instances such relations exist between states differing widely in their standards of education and in the methods and severity of their examinations. It can be seen, therefore, that a loosely administered provision for reciprocity provides a wide-open door through which unqualified candidates can obtain registration. There are some boards, however, which wisely reserve and exercise the right to reject any candidate who does not possess satis-

TABLE I—REGISTRATION BY STATE BOARDS DURING THE YEAR 1913

| STATES | By Examination | | | By Reciprocity | Without Written Examination or Under Exemption | Total Registered |
|---------------------------|----------------------|------------------------------|---------------|----------------|--|------------------|
| | Graduates, 1909-1913 | Graduates, 1908 and Previous | Non-graduates | | | |
| Alabama..... | 81 | 8 | ... | ... | ... | 90 |
| Arizona..... | 14 | 12 | ... | ... | ... | 26 |
| Arkansas..... | 72 | 19 | ... | 51 | ... | 142 |
| California..... | 100 | 63 | ... | 39 | ... | 202 |
| Colorado..... | 49 | 3 | 1 | 89 | ... | 142 |
| Connecticut..... | 68 | 9 | ... | 5 | ... | 82 |
| Delaware..... | 11 | 1 | ... | 9 | ... | 21 |
| District of Columbia..... | 48 | 7 | ... | 5 | ... | 60 |
| Florida..... | 68 | 48 | ... | ... | ... | 116 |
| Georgia..... | 169 | 2 | ... | 29 | ... | 200 |
| Idaho..... | 9 | 12 | ... | 4 | ... | 25 |
| Illinois..... | 541 | 26 | ... | 47 | ... | 614 |
| Indiana..... | 90 | 11 | ... | 15 | ... | 116 |
| Iowa..... | 97 | 10 | ... | 32 | ... | 139 |
| Kansas..... | 85 | 4 | ... | 40 | ... | 129 |
| Kentucky..... | 76 | 2 | ... | 18 | 3 | 99 |
| Louisiana..... | 67 | 2 | ... | 10 | ... | 79 |
| Maine..... | 39 | 7 | ... | 7 | ... | 53 |
| Maryland..... | 101 | 8 | ... | 21 | ... | 130 |
| Massachusetts..... | 171 | 25 | 19 | ... | ... | 215 |
| Michigan..... | 92 | 7 | ... | 69 | 1 | 169 |
| Minnesota..... | 68 | 3 | ... | 50 | ... | 121 |
| Mississippi..... | 57 | 4 | ... | 6 | ... | 67 |
| Missouri..... | 177 | 23 | ... | 45 | ... | 245 |
| Montana..... | 26 | 31 | ... | ... | ... | 57 |
| Nebraska..... | 81 | 6 | ... | 15 | ... | 102 |
| Nevada..... | 3 | 7 | ... | 29 | ... | 39 |
| New Hampshire..... | 12 | 5 | ... | 4 | ... | 21 |
| New Jersey..... | 65 | 4 | ... | 88 | ... | 157 |
| New Mexico..... | 4 | 2 | ... | 6 | 35 | 47 |
| New York..... | 482 | 29 | ... | 27 | 3 | 541 |
| North Carolina..... | 75 | 2 | ... | 25 | ... | 102 |
| North Dakota..... | 12 | 4 | ... | 12 | ... | 28 |
| Ohio..... | 185 | 4 | ... | 72 | ... | 261 |
| Oklahoma..... | 52 | 6 | ... | 48 | ... | 106 |
| Oregon..... | 53 | 43 | 15 | ... | ... | 111 |
| Pennsylvania..... | 331 | 15 | ... | 20 | ... | 366 |
| Rhode Island..... | 24 | 4 | ... | ... | ... | 28 |
| South Carolina..... | 92 | 7 | ... | 4 | ... | 103 |
| South Dakota..... | 23 | 7 | ... | 5 | ... | 35 |
| Tennessee..... | 171 | 14 | 121 | 17 | ... | 323 |
| Texas..... | 147 | 21 | ... | 139 | ... | 307 |
| Utah..... | 20 | 4 | ... | 8 | ... | 32 |
| Vermont..... | 23 | 1 | ... | 2 | ... | 26 |
| Virginia..... | 80 | 7 | ... | 12 | ... | 99 |
| Washington..... | 43 | 20 | ... | ... | ... | 63 |
| West Virginia..... | 54 | 4 | ... | 24 | ... | 82 |
| Wisconsin..... | 95 | 3 | ... | 68 | ... | 166 |
| Wyoming..... | 6 | 4 | ... | 7 | ... | 17 |
| Totals..... | 4509 | 571 | 156 | 1223 | 42 | 6501 |

This table shows the total number registered during 1913 in each state by the various methods. The first three columns show those registered by examination; the first column showing the recent graduates registered, the second column, the old practitioners (graduates of 1908 and previous years) and the third column, the non-graduates. The fourth column shows the number licensed through reciprocity; the fifth column shows those licensed under various exemption clauses in the practice acts, such as because of national fame or by recognition of diplomas (New Mexico). It is interesting to note that, as a rule, states which have registered large numbers through reciprocity have examined very few old practitioners. The chief exception is California, which has only recently begun registration under a practice act providing for the recognition of licenses granted in other states. The last column shows the total number of physicians registered by all methods in each state during the year. Only five states registered over 300 each, these being Illinois, 614; New York, 541; Pennsylvania, 366; Tennessee, 323, and Texas, 307.

[illegible]

This table shows the number of physicians registered by each state through reciprocity during 1913. Reciprocity is not the best term to use, however, since some states, California and Colorado, for instance, register candidates who have satisfactory credentials including licenses, regardless as to whether the states issuing the original licenses reciprocate with them or not. Taking New York as an example, reading from left to right, the table shows that New York registered a total of 27 applicants through reciprocity during 1913, of which number 4 came from Delaware, 1 from Indiana, 13 from Michigan, 6 from New Jersey and 3 from Ohio. Reading from above downward, the table shows that 70 physicians left New York during 1913 and registered in other states under the reciprocity provision, of which number 1 registered in Arkansas, 4 in California, 3 in Colorado, 4 in Connecticut, 1 in Georgia, 9 in Michigan, 42 in New Jersey, 2 in North Carolina, 4 in Ohio and 1 in Utah. Texas leads, having registered 139 physicians through reciprocity in 1913, followed by Colorado, 89; New Jersey, 88; Ohio, 72; Michigan, 69 and Wisconsin, 68. It is interesting to note in what states the original licenses were issued. The table shows that of the 1,223 applicants registered through reciprocity 171, or 14.0 per cent., obtained their original licenses in Illinois and 86, the next largest number, were first registered in Pennsylvania. The states which furnished the next highest numbers were Oklahoma, 74; New York, 70; Michigan, 66; Missouri, 61 and Ohio, 50.

| STATE | Physicians Going from States Named During | | | | | Totals | STATE | Physicians Going from States Named During | | | | | Totals |
|---------------------------|---|------|------|------|------|--------|--------------------------|---|------|------|------|------|--------|
| | 1909 | 1910 | 1911 | 1912 | 1913 | | | 1909 | 1910 | 1911 | 1912 | 1913 | |
| Alabama..... | 2 | .... | 3 | 1 | 2 | 8 | New Jersey..... | 29 | 16 | 14 | 18 | 10 | 87 |
| Arizona*..... | 2 | .... | .... | .... | 3 | 5 | New Mexico*..... | 7 | 1 | 1 | 4 | 8 | 21 |
| Arkansas..... | 1 | 52 | 11 | 15 | 37 | 116 | New York..... | 59 | 224 | 42 | 46 | 70 | 441 |
| California..... | 1 | 2 | 1 | .... | .... | 4 | North Carolina..... | 7 | 7 | 16 | 12 | 14 | 56 |
| Colorado..... | 12 | 13 | 16 | 9 | 12 | 62 | North Dakota..... | 5 | 8 | 7 | 12 | 6 | 38 |
| Connecticut*..... | 2 | .... | .... | 1 | 2 | 5 | Ohio..... | 47 | 45 | 40 | 39 | 50 | 221 |
| Delaware..... | 1 | 6 | 9 | 15 | 8 | 39 | Oklahoma..... | 5 | 21 | 3 | 28 | 74 | 131 |
| District of Columbia..... | 13 | 11 | 23 | 18 | 17 | 82 | Oregon*..... | .... | .... | .... | .... | 3 | 3 |
| Florida*..... | 1 | 1 | .... | 1 | 1 | 4 | Pennsylvania..... | 7 | 21 | 12 | 57 | 86 | 183 |
| Georgia..... | 10 | 14 | 7 | 13 | 26 | 70 | Rhode Island*..... | 1 | .... | .... | .... | .... | 1 |
| Idaho*..... | 1 | .... | .... | 5 | .... | 6 | South Carolina..... | 7 | 5 | 4 | 5 | 3 | 24 |
| Illinois..... | 320 | 286 | 236 | 193 | 171 | 1206 | South Dakota..... | 1 | .... | 2 | 1 | 10 | 14 |
| Indiana..... | 46 | 50 | 37 | 40 | 33 | 206 | Tennessee..... | 21 | 45 | 28 | 51 | 39 | 184 |
| Iowa..... | 77 | 84 | 63 | 58 | 36 | 318 | Texas..... | 4 | 23 | 10 | 24 | 19 | 80 |
| Kansas..... | 41 | 63 | 50 | 27 | 32 | 213 | Utah..... | 4 | 1 | 2 | 3 | 12 | 22 |
| Kentucky..... | 30 | 74 | 42 | 36 | 43 | 225 | Vermont..... | 24 | 27 | 36 | 30 | 11 | 128 |
| Louisiana..... | 2 | 9 | 8 | 10 | 13 | 42 | Virginia..... | 26 | 31 | 28 | 25 | 26 | 136 |
| Maine..... | 18 | 15 | 14 | 23 | 9 | 79 | Washington*..... | .... | 2 | 7 | 3 | 2 | 14 |
| Maryland..... | 25 | 41 | 52 | 48 | 42 | 208 | West Virginia..... | 36 | 45 | 45 | 29 | 41 | 196 |
| Massachusetts*..... | 3 | .... | 2 | 2 | 2 | 9 | Wisconsin..... | 46 | 31 | 41 | 35 | 28 | 181 |
| Michigan..... | 51 | 51 | 69 | 59 | 66 | 296 | Wyoming..... | 2 | 1 | 2 | 4 | 4 | 13 |
| Minnesota..... | 35 | 31 | 29 | 29 | 29 | 153 | Alaska..... | .... | .. | .... | 1 | 1 | 2 |
| Mississippi..... | 1 | 1 | 3 | 5 | 15 | 25 | U. S. Army..... | 3 | .... | .... | 2 | 1 | 6 |
| Missouri..... | 58 | 91 | 59 | 67 | 61 | 336 | U. S. P. H. Service..... | .... | 2 | .... | .... | .... | 2 |
| Montana*..... | .... | 3 | .... | 1 | .... | 4 | Canada..... | .... | 2 | .... | .... | .... | 2 |
| Nebraska..... | 53 | 42 | 46 | 29 | 34 | 204 | Foreign and Misc..... | 10 | .... | .... | 3 | .... | 13 |
| Nevada..... | 2 | 3 | 2 | 3 | 4 | 14 | Totals..... | 1167 | 1502 | 1128 | 1141 | 1223 | 6161 |
| New Hampshire..... | 8 | 1 | 6 | 1 | 7 | 23 | | | | | | | |

This table shows that 6,161 candidates were registered through reciprocity during the last five years. Registration by reciprocity has been gradually increasing although there was a drop in 1911. A study of the totals for the different states shows that of the 6,161 registered during the four years 1,206, or 19.5 per cent., obtained their original licenses in Illinois. This is more than twice the number coming from any other state. The states furnishing the next highest numbers are New York, 441; Missouri, 336, and Iowa, 318. The states marked with an asterisk (*) do not have reciprocal relations and would not appear in this table except for the fact that some states, like California, Colorado and New Jersey, will accept a physician's credentials if satisfactory, whether the state issuing his original license returns the favor or not.

factory credentials even though he is licensed in a state with which it has reciprocal relations. Some boards also prudently require that the applicant, before he is eligible to registration through reciprocity, must have been engaged in the actual and reputable practice of his profession for at least a year in the state in which the original license was granted. Without this provision a candidate may be tempted to obtain his original license in the state giving the easiest examination. Without the one-year residence clause, therefore, standards of examination are apt to be lowered. Again, some states wisely refuse to register by reciprocity any candidate who has failed to pass their own examinations. In the establishing of reciprocal relations, therefore, the state board should reserve and exercise the discretionary power to refuse to register any candidate who could not originally have registered in that state, and, secondly, the board should

shows in what states the original licenses were granted of those who were registered elsewhere under the reciprocity provision during the last five years. It should be noted that of the 6,161 physicians licensed through reciprocity during the last five years, the original licenses of 1,206 (19.6 per cent.) were obtained in Illinois, more than twice as many as came from any other state. In New York 441 physicians took their original license examinations, 336 in Missouri, 318 in Iowa and 296 in Michigan.

The chart shows the standards of preliminary education for each state. There are 7 states, Colorado, Iowa, Indiana, Kentucky, Minnesota, North Dakota and South Dakota, in which the standard is two years of collegiate work; in 11 states the standard is one year of college work; and in 20 states the standard is a four-year high-school education. There are six states in which the law seriously divides the

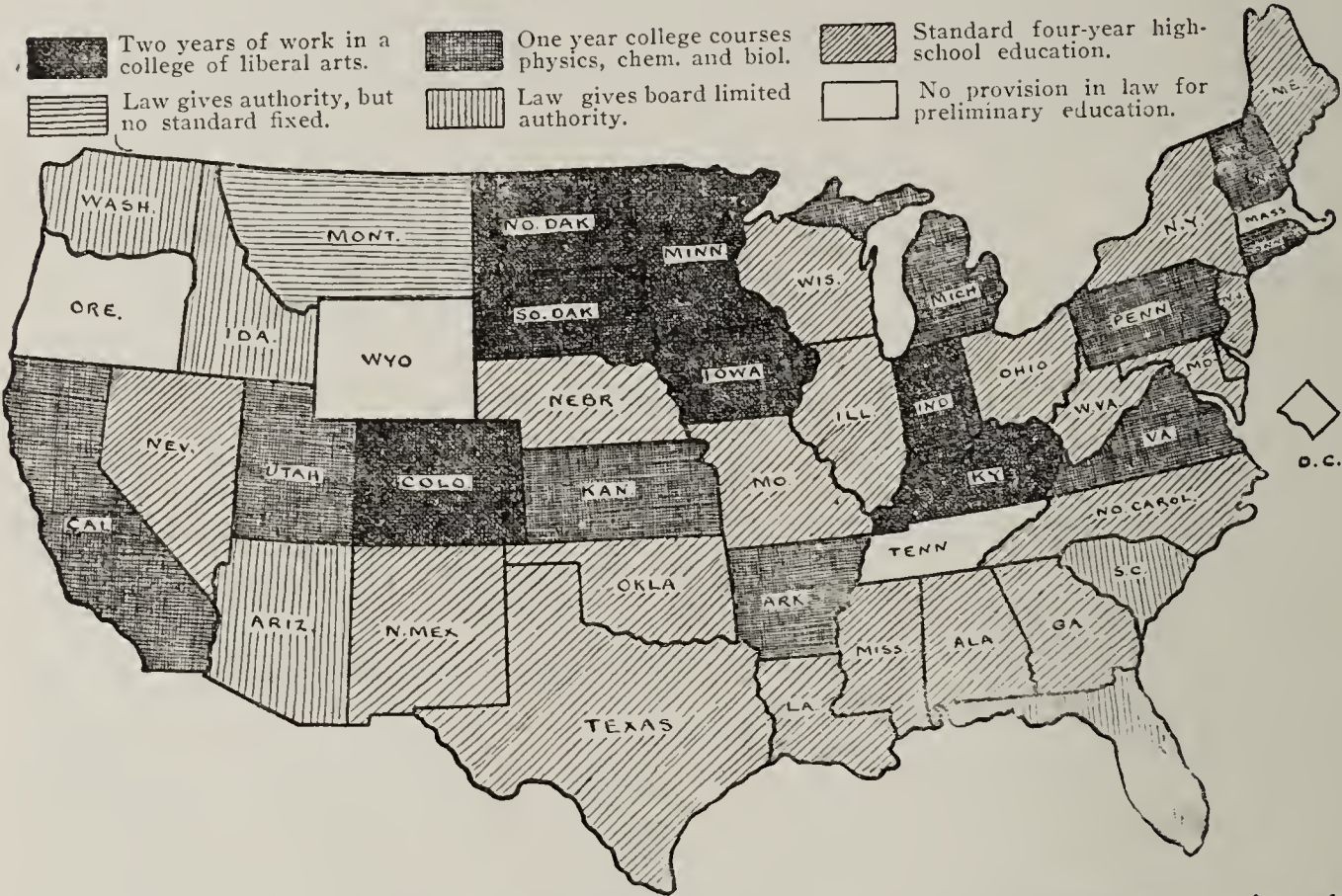
authority between independent boards, or where the standard is less than a four-year high-school education, while in four states, Massachusetts, Oregon, Tennessee, Wyoming and in the District of Columbia, the practice acts make no provision for preliminary education. Table L shows the states in which the boards have adopted the requirement of one or two years of collegiate work as a minimum. It is known that in several other states the adoption of these higher requirements in the near future is contemplated.

IN CONCLUSION

In the publication of these statistics the endeavor has been to give an absolutely fair presentation of facts, a knowledge of which is always beneficial. Without ques-

tion this annual presentation of the results of state licensing examinations has had a most helpful influence on medical education and medical licensure in this country. We reiterate our acknowledgments to the state licensing board whose ready cooperation and complete reports have made this publication of these data possible.

STATE REQUIREMENTS OF PRELIMINARY EDUCATION



require that the applicant shall have been in actual practice of medicine for at least a year before he is eligible to registration under the reciprocity provision.

In the light of the foregoing statement in regard to reciprocity, it will be interesting to study Table K, which

TABLE L—STATE REQUIREMENTS OF HIGHER PRELIMINARY EDUCATION

There are now eighteen states which have adopted requirements of preliminary education in addition to a standard four-year high-school education. These states, the number of college years required and the time the higher requirement becomes effective are as follows:

| State Examining Board of— | Number of Years Required | Affects Students Matriculating | Affects All Applicants |
|---------------------------|--------------------------|--------------------------------|------------------------|
| Minnesota..... | 2 | 1903-09 | 1912 |
| North Dakota..... | 2 | 1908-09 | 1912 |
| Colorado..... | 2 | 1910-11 | 1914 |
| Connecticut..... | 1 | 1910-11 | 1914 |
| Kansas..... | 1 | 1910-11 | 1914 |
| Indiana..... | 2 | 1910-11 | 1914 |
| Utah..... | 1 | 1911-12 | 1915 |
| Iowa..... | 2 | 1911-12 | 1915 |
| South Dakota..... | 2 | 1912-13 | 1916 |
| Vermont..... | 1 | 1914-15 | 1918 |
| Kentucky..... | 2 | 1914-15 | 1918 |
| Michigan..... | 1 | 1914-15 | 1918 |
| New Hampshire..... | 1 | 1914-15 | 1918 |
| Pennsylvania..... | 1 | 1914-15 | 1918 |
| Rhode Island..... | 1 | 1914-15 | 1918 |
| Virginia..... | 1 | 1915-16 | 1919 |
| Arkansas..... | 1 | 1915-16 | 1919 |
| California..... | 1 | | |

TABLE M—ADVANCES IN STATE LICENSE REQUIREMENT IN TEN YEARS

| Requirement or provision | States having provision for | | | States still having no provision for |
|--|-----------------------------|------|----------|--------------------------------------|
| | 1904 | 1914 | Increase | |
| Preliminary Education— | | | | |
| Any requirement..... | 20 | 45 | 25 | 4 |
| A standard four-year high school education or higher..... | 10 | 37 | 27 | 12 |
| One or two years of college work as a minimum..... | 0 | 18 | 18 | 31 |
| That all applicants be graduates of a medical college..... | 36 | 45 | 9 | 4 |
| That all applicants undergo an examination for license..... | 45 | 48 | 3 | 1 |
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SATURDAY, MAY 23, 1914

STATISTICS OF STATE BOARD EXAMINATIONS

We publish this week, for the eleventh consecutive year, tabulated statistics based on examinations conducted by state medical licensing boards. This year, however, the matter presented includes other information having a direct bearing on state boards and on methods of registration. For example, Table D, showing in what states certain colleges are not recognized, although not based on the reports of examinations, has a very important influence on the results of those examinations and is absolutely essential in the forming of an accurate conclusion regarding any state board or any medical college. All the data published, however, are based on official reports, and the figures have been carefully verified, so that reliance may be placed on the facts presented. Reports were received from all state boards this year and the statistics are complete. This is in marked contrast with the statistics of 1903, when the publication of these data began. At that time reports from a large number of boards could not be secured for the reason that no permanent records of the examinations had been kept.

IMPORTANCE OF THESE STATISTICS

The casual reader glancing over the tables will probably not appreciate the conditions which make the publication of these data so important. Medical education and medical licensure in this country are controlled by the forty-nine individual states, each of which in these matters is legally independent of the others. In the forty-nine states there are forty-nine different practice acts, providing for about sixty different licensing boards, no two of which entirely agree in the details of the methods followed or the standards enforced. No legal provision exists in this country for a national control in these matters, for a coordination of standards or for a cooperation between the different boards. This lack of a national control, or of uniformity of standards and of effectiveness of methods, is a very serious matter. In some states the public is well protected against illiterate and incompetent doctors, while in other states, because of poor laws or political boards, the right to practice medicine

is easily secured by any person, no matter how incompetent he may be. If a doctor has had his license revoked in one state for malpractice or other reasons, he promptly goes to another state, where he seldom fails to secure a license. If he is caught again, he as promptly transfers his allegiance to a third state. To correct these serious conditions, a greater uniformity of standards and effectiveness of methods was essential among state boards. Toward that end the American Medical Association since 1903 has been voluntarily collecting and publishing information such as appears this week. If there were a national control of the licensing of physicians in the United States, such as exists in practically every other country, it would not be necessary for the American Medical Association to do this work.

The various tables deserve careful attention. A few additional comments are worth while, and the reader is urged to make a further study by referring to the tables and the descriptive matter accompanying them.

FACTS REGARDING EACH STATE

These tables give valuable information regarding medical licensure in each state. For example, Tables A and B show the number of candidates who appeared for examination, the colleges from which they graduated, the number from each college who passed and the number from each who failed, the total number registered, the total number rejected and the percentage of candidates rejected. This table allows of comparison between the totals and the percentages of one state and those of other states. If a state board's examinations are unusually lenient for graduates of medical schools located in that state as compared with the results for the same colleges in other states, the fact will be shown in Table G. To decide whether a low percentage of rejections means "leniency" or not, the reader should note in Table D whether the board has *refused to examine* graduates of low-grade colleges. If the board examines the graduates of only high-grade colleges, a low failure percentage is to be expected. If, on the other hand, a board admits graduates of any and all schools, or perhaps also non-graduates, an unusually high failure percentage would be expected. If in the latter circumstances there is still a low failure percentage, then "leniency" is perhaps too mild a term. The total number of candidates examined, registered and rejected in the last five years by each board and the percentage of rejections are shown in Table H. This permits comparison not only of the figures of the last year with those of the four previous years, but also of the figures of one state with those of the others. Table I shows for each state the totals registered by all methods, by examination, by reciprocity and under exemption clauses. This table also shows the number of non-graduates licensed. Table J shows the number of candidates licensed by

each state through reciprocity and shows in what states the original licenses were granted. Table K shows the total number of physicians from each state who, during the last five years, secured licenses elsewhere through reciprocity. Table L gives the eighteen states which have adopted higher standards of preliminary education and the dates when the higher requirements are effective. The preliminary standards of all states are shown in the chart.

FACTS REGARDING EACH COLLEGE

The tables also give much information regarding medical colleges. For example, Tables A and B show in what states graduates of each college were examined; they show the number who passed and the number who failed in each state, the total examined in all states, the number who passed, the number who failed, the percentage of failures and the number of states in which graduates of the college were admitted to examinations. In fact, Tables A, B and C permit a comparative study of medical colleges of much value in connection with any investigation of medical colleges. Table E shows for the group of colleges located in each state the total number of graduates examined in all states, the percentage of failures and the rank of each group according (1) to the number examined and (2) to the success of the graduates at the examinations. Table F furnishes an interesting study of the larger colleges — those having fifty or more graduates examined during the year — and allows of comparison between colleges of nearly equal size. The mere fact that a college has large classes is no indication that it furnishes a better medical training. In fact, the data in Table F show that usually the contrary is true. Before a conclusion is formed regarding any college it is highly important to note in Table D whether or not its graduates are refused examination in any states. A low-grade college may occasionally have a very low percentage of failures by having all its graduates appear before a lenient board. The examination results taken alone would seem to indicate good teaching methods. Such an erroneous conclusion is prevented, however, if it is found, as shown in Table D, that graduates of the college are not admitted to examination in from ten to thirty-two states. A fairly good college may occasionally have a high percentage of failures, especially if they are in states having more rigid examinations. It is seldom, however, that a well-equipped and well-conducted medical college will, year after year, receive as high as 15 or 20 per cent. of failures of its graduates at state licensing examinations. These statistics regarding colleges are very interesting, and throw an important side-light on the classification¹ of medical colleges of the United States prepared by the Council on Medical Education, which is based on an actual inspection of the colleges.

TOTAL REGISTRATION IN ALL STATES

These statistics show for each state the number of candidates coming not only from each medical school in this country, but also from Canadian and other foreign medical colleges. In short, they give an accurate record of the number and source of those who are entering the practice of medicine each year in this country. Without the data published this week, it could not be known that 6,501 physicians were licensed in this country during 1913, and that this included 5,236 who were registered by examination, including 156 non-graduates, 42 who were registered under the various exemption clauses, and 1,223, mostly old practitioners, who were registered under the provision for reciprocity.

STATISTICS ACCURATE AND RELIABLE

The work of collecting and publishing these statistics was begun by THE JOURNAL in 1903, but since the Council on Medical Education began active work in 1905, they have been developed as an important part of the Council's work. Every report received from the state licensing boards is now carefully checked, duplications are avoided, errors are corrected and the statistics are thereby rendered accurate and reliable. This is made possible through the enormous amount of data collected by the Council regarding medical colleges, students and graduates. Through the possession by the Council of complete alumni lists of all existing medical colleges, the Council is in position to avoid charging a college with a failure which may have been erroneously accredited to it when, in fact, the candidate who failed was a graduate of some other college.

INFLUENCE ON MEDICAL LICENSURE

These statistics have had a much greater effect, however, than that rendered by a mere numerical record of physicians examined and licensed, and probably no one has recognized their value more than the state licensing boards themselves. As a result, in many states splendid systems of record-keeping are now to be found where formerly, in several states at least, no records whatever were kept, and in several other states the systems were far from perfect. During the last several years, furthermore, they have furnished abundant argument for practical tests in state license examinations and have undoubtedly had much to do with the improved character of these examinations and the better methods of conducting them. A study of the statistics for several years will show that, although there has been a gradual improvement, there is still much that needs to be done.

INFLUENCE ON MEDICAL COLLEGES

The influence on medical colleges resulting from the publication of these statistics has been tremendous. Whereas previously these institutions may have been unaware of the weaknesses in their methods of teach-

1. THE JOURNAL A. M. A., Aug. 23, 1913, p. 585.

ing, these statistics have shown them how frequently their graduates fail at the state license examinations. There has been marked improvement in their equipment, better teachers have been secured and better methods adopted, and it can be seen by a review of the statistics published during the last several years that a number of colleges have materially reduced the failure percentages of their graduates at these examinations.

COOPERATION MUTUALLY ADVANTAGEOUS

As will be understood by the careful reader, these statistics have their greatest value when studied in connection with other data collected by the Council on Medical Education and published in *THE JOURNAL* and in the Council's reports. The state board statistics are made more accurate and reliable through the data kindly furnished by medical colleges; they are based on reports received direct from state boards; but through the careful checking of those reports, errors are frequently corrected, the state boards are notified and in this way state records are also made more accurate. The statistics published this week, therefore, have been made possible only through the cordial cooperation of both the state boards and medical colleges, and for this cooperation we again express our acknowledgments.

THE SOURCES OF DANGER IN ANTIMENINGITIS SERUM

Despite the undeniable success which has followed the antiserum treatment of cerebrospinal fever since its introduction as a therapeutic measure in 1906, important contributions that have appeared from time to time in *THE JOURNAL*¹ must serve to direct attention to the possible sources of danger from the administration of the serum. The papers referred to include reports of alarming symptoms and in a number of instances, death. The untoward results occurred in such close relation to the administration of the treatment that the latter, rather than the disease, seemed to be responsible.

To account for these accidents during the administration of the serum, various explanations have been advanced. Thus, at different times it has been asserted that these deaths were due to rapid lysis of the meningococcus and the consequent liberation of a toxic amount of bacterial toxin; to the production, through the introduction of large amounts of a foreign protein, of anaphylactic shock; to increased intracranial tension, from the too rapid or too free use of the antiserum, and the consequent interference with the vital centers, or to the presence in the serum of poisonous

preservatives which were carried directly to the centers of respiration, with a resulting paralysis and death. Among these possible sources of danger, that attributable to sudden increase in intracranial pressure was promptly recognized. Precautions to avoid it are seen in the directions of Flexner and Jobling² to make the injection slowly and carefully, and previously to withdraw from the spinal canal at least as much fluid as the amount of antiserum to be injected. Furthermore, Koplik³ favors the gravity method of introducing the serum rather than the syringe method.

Trikresol has been employed in this country as a preservative of the serum. This has been charged with toxic effects on the patients; but it must be noted that sudden deaths have been reported in cases in which the serum used contained no preservative. Dr. Worth Hale of the staff of the Hygienic Laboratory of the United States Public Health Service has lately undertaken to determine, by experiments on animals,⁴ the responsible factors in the deaths from subdural injections of antimeningitis serum. From his studies it would appear that death from the introduction of the fluid may result either from an increase in intracranial tension or from the presence in the serum of trikresol. The danger from trikresol, however, seems much greater and more certain than that which may possibly arise from increased pressure, and on that account an effort should be made to discover a serum preservative which would not have the peculiarly toxic action of trikresol on the central nervous system. Failing in that, antimeningitis serum should be dispensed in sterile containers free from any preservative.

The practical outcome of the governmental investigation is found in the suggestion that blood-pressure observations should be made in every case in which cerebrospinal fluid is withdrawn or serum is introduced into the meninges. By this procedure, warning will be given of any possible danger either from increased intracranial tension or from the poisonous action of any of the serum preservatives. Further, also, it would seem much wiser to discard the syringe method of introducing serum in favor of the gravity method, which permits the use of much greater care and gentleness in making the administration.

As Hale and others have pointed out, the occasional undesirable effect of the serum treatment should not, however, be considered as militating against its regular and invariable use in all cases of the disease, for the dangers which may arise from the treatment are not to be feared in any such way as is the disease itself. The risk, as compared with that from the disease itself, is very small. Therefore too much emphasis cannot be laid on the advisability and importance of the early and free use of antimeningitis serum in all

1. Sophian, A.: A New Method for Controlling the Administration of Serum in Epidemic Meningitis, March 23, 1912, p. 843. Parmelee, A. H.: Epidemic Cerebrospinal Meningitis, March 1, 1913, p. 659. Kramer, S. P.: A Possible Source of Danger in the Use of Antimeningitis Serum, May 3, 1913, p. 1348. Flexner, S.: Accidents Following the Subdural Injection of the Antimeningitis Serum, June 21, 1913, p. 1937.

2. Flexner and Jobling: Jour. Exper. Med., 1908, x, 141.

3. Koplik: Med. Rec., New York, 1908, lxxiv, 557.

4. Hale, W.: The Cause of Death from Subdural Injection of Serum, Bull. 91, Hyg. Lab., U. S. P. H. S., 1914, p. 1.

cases of epidemic cerebrospinal meningitis, even though occasionally its administration may be followed by untoward effects. Physicians will be glad to learn that work in developing a suitable preservative for serum is under way in the government laboratories.

PELLAGRA AND INFECTION

Any one who reads the current medical literature would be rash, indeed, to look on the problem of the etiology of pellagra as solved in any sense. Those who adhere to the view that corn in the dietary is in some way involved in the production of the disease are in turn divided in opinion as to whether the pathogenetic factor is of the nature of a nutritive deficiency in the corn regimen or is some toxic product developed under unusual conditions by biologic agencies in the cereal before it is eaten. If the zeists are thus uncertain among themselves with respect to the cause of pellagra, no greater accord exists among the not inconsiderable number of thoughtful persons who adhere to the theory of an infectious or microbiotic etiologic agency. Several commissions have already begun an extensive survey of the pellagra situation in this country and an investigation of the possible causative or contributory influences at work. Among the more recent ones the Thompson-McFadden Pellagra Commission of the New York Post-Graduate Medical School and Hospital has already published a preliminary report of its undertaking.¹ In this the following tentative conclusions are reached: The supposition that the ingestion of good or spoiled maize is the essential cause of pellagra is not supported by their study. Pellagra is in all probability a specific infectious disease communicable from person to person by means at present unknown. The commission has discovered no evidence incriminating flies of the genus *Simulium* in the causation of pellagra, except their universal distribution throughout the area studied. If it is distributed by a blood-sucking insect, *Stomoxys calcitrans* would appear to be the most probable carrier. They are inclined to regard intimate association in the household and the contamination of food with the excretions of pellagrins as possible modes of distribution of the disease. No specific cause of pellagra has been recognized.

Further light is shed on the foregoing views by observations recently related by Drs. Siler, Garrison and MacNeal of the commission.² A statistical study of the foods used and of the occurrence of pellagra in six mill-villages, including about 5,000 persons, failed to reveal any consistent relationship between the use

of any particular food and the occurrence of pellagra. A somewhat similar statistical study of the location of domicile of old cases of pellagra in relation to domicile of the remaining population in these mill-villages has shown that new cases of pellagra developed almost exclusively in persons living in the same house in which such antecedent cases had occurred or in houses next door. In other words, the disease spread from a preceding or antecedent case as a center, a phenomenon which can be explained satisfactorily, in their opinion, only by assuming that pellagra is an infectious disease. Apparently, it is not readily transmitted to any considerable distance.

As was observed in the field studies, pellagra has spread most readily in communities in which unscreened surface-privies were in use. In those portions of the city of Spartanburg, S. C., equipped with a water-carriage system of sewage disposal, new cases of pellagra were relatively few. In two mill-villages completely equipped with a water-carriage sewer system, it was impossible to find cases of pellagra which had certainly originated there. Persons suffering from pellagra contracted elsewhere were not lacking in these communities.

With a further group of investigators from the United States Public Health Service in the field and other agencies at work on the problems of pellagra, it would be premature to issue a final verdict on a subject which has provoked such a diversity of opinion. Hence we merely present to our readers the latest contributions from reliable sources while awaiting that final accord of the findings which characterizes the successful result of scientific research.

SYMPTOMS IN CHRONIC MORPHINISM INDUCED BY WITHDRAWAL OF THE DRUG

Despite the interesting facts which have been developed in the past decade or more concerning the underlying features of chronic morphinism, a number of phenomena have been left unexplained. Our understanding of the remarkable tolerance to the alkaloid exhibited by the addict has especially been promoted by the researches of Faust,¹ who clearly demonstrated that the organism habituated to morphin develops an increasing capacity to destroy it. He found, for example, that after a single injection of this substance in animals, about 70 per cent. of it could be recovered through the usual channels of excretion—the stomach and intestine. With repeated and gradually increasing dosage, on the other hand, the quantity of morphin found in the feces lessens until finally, even when doses lethal to the unaccustomed subject are administered, no morphin whatever may appear in the excretions. Inasmuch as on analysis the organs were found under such circumstances to contain only very small amounts of the

1. Siler, J. F., Garrison, P. E., and MacNeal, W. J.: Pellagra, a Summary of the First Progress Report of the Thompson-McFadden Pellagra Commission, THE JOURNAL A. M. A., Jan. 3, 1914, p. 8.

2. Siler, J. F., Garrison, P. E., and MacNeal, W. J.: A Consideration of Certain Foods and of Proximity to a Previous Case as Factors in the Etiology of Pellagra, Proc. Soc. Exper. Biol. and Med., 1914, xi, 94; The Relation of Methods of Disposal of Sewage to the Spread of Pellagra, *ibid.*, p. 94.

1. Faust, E. S.: Arch. f. exper. Path. u. Pharmacol., 1900, xliv, 217.

alkaloid, Faust logically concluded that in developing a tolerance to it the organism acquires a capacity to destroy far greater quantities of morphin than it originally possessed.

This cannot completely explain the decreasing sensitiveness of the morphinomaniac to the drug. Even when morphin is subcutaneously administered and thus promptly reaches the blood-stream for distribution the addict is unduly tolerant to large doses. It cannot be assumed that this is due solely to an acquired power of rapid destruction (within a few minutes); for this would mean an almost inconceivably accelerated detoxication of the substance. Rübsamen² has observed that rats which are gradually immunized to large quantities of morphin and which can take double the usual lethal dose with impunity, may, at a given moment, show the presence in their bodies of an amount of the alkaloid sufficient in itself to produce toxic effects in an untreated animal of the same species. He therefore assumes that the body develops not only an increased power of destroying this drug, but also a greatly diminished cellular sensitiveness to its action.

Important as these aspects of the continued use of morphin doubtless are for an understanding of the altered physiologic conditions it produces, they furnish no clue to an added feature which must be taken into account in practice. The sudden withdrawal of the drug does not result merely in negative symptoms, but often produces such intense misery and depression as to indicate actual danger. There are positive manifestations which it is difficult to explain solely by the lack of the narcotic, so that something more than the mere staying of the craving appears to be necessary. These after-effects have been attributed variously to the presence of remaining derivatives of morphin which are assumed to be especially toxic.

Perhaps a step toward a final explanation of the depressive symptoms of the withdrawal stage after chronic morphinism is to be found in the recent work of Adriano Valenti³ at the institute for experimental pharmacology in the University of Pavia. When morphin administration to dogs is stopped after a period of developing immunity, the animals show marked circulatory disturbances—increased frequency of the pulse, severe arrhythmias, and arterial hypotension—which promptly disappear if morphin is again administered until the so-called morphin pulse manifests itself. More significant is the fact that when the serum of dogs habituated to large doses of morphin and then suddenly deprived of it is injected into normal animals of the same species, the foregoing syndrome is promptly produced. This is not due to a toxic influence of the serum as such; for the ill effects are not seen when the serum of unmorphinized dogs is intro-

duced. The severity of the symptoms stands in direct relation to the size of the morphin intake to which the donor of the serum has previously been accustomed. Such observations widen the field and open new avenues of approach to the cause of the withdrawal symptoms. Obviously the lack of morphin is not the sole determining factor.

THE SOURCE IN THE FLUIDS IN SYPHILIS OF THE SUBSTANCES WHICH GIVE THE WASSERMANN REACTION

The source and the nature of the substances in the blood and other fluids of syphilitics on which the Wassermann reaction depends are not determined. At first they were regarded as true antibodies, but when it became known that specific antigen (extract of congenitally luetic liver) is not essential in order to obtain the reaction, and that the *Spirochaeta pallida* cannot be used successfully as antigen in the reaction, there no longer was any good reason for regarding the reacting substances in syphilitic fluids as of necessity being antibodies.

To obtain some clue as to the source of these substances, Wassermann and Lange¹ have made some very interesting experiments with the cerebrospinal fluid of syphilitics. They selected this fluid for their work because it is much less complex in its composition than the blood-serum and consequently less liable to undergo physicochemical changes that may give rise to misleading results. Thus the action of cerebrospinal fluid which gives the Wassermann reaction remains constant for a much longer time than in the case of serum. Wassermann and Lange find by accurate quantitative determinations that one source at least of the reacting substances is the lymphocytes in the fluid. It will be recalled that when the cerebrospinal fluid gives the Wassermann reaction it invariably contains an increased number of these cells, and it was found that autolysis of the lymphocytes in positive cerebrospinal fluid from syphilitics in most cases would result in an increase, sometimes very marked, in the power of the fluid to fix complement in the presence of extracts of syphilitic liver. This increase could not be obtained by autolysis of the cells in other cellular cerebrospinal fluids (those from non-syphilitic meningitis, alcoholic dementia) than those from syphilitics; hence it would seem that the lymphocyte, which is a prominent element in all syphilitic lesions, constitutes a laboratory for the manufacture of the substances necessary for the Wassermann reaction.

Whether these substances are antibodies still remains an open question concerning which Wassermann and Lange indicate that they may have something to say before long.

2. Rübsamen: Arch. f. exper. Path. u. Pharmacol., 1908, lix, 227.

3. Valenti, A.: Experimentelle Untersuchungen über den chronischen Morphinismus; Kreislaufstörungen hervorgerufen durch das Serum morphinistischer Tiere in der Abstinenzperiode, Erste Mitteilung, Arch. f. exper. Path. u. Pharmacol., 1914, lxxv, 437.

1. Wassermann, A. von, and Lange, C.: Zur Frage des Entstehens der Reaktionsprodukte bei der Serodiagnostik auf Lues, Berl. klin. Wchnschr., March 16, 1914, p. 527.

Current Comment

PROSPECTIVE MEDICAL STUDENTS AND LOW-GRADE MEDICAL COLLEGES

One of the tables published this week¹ (Table D) shows the states in which the diplomas from certain colleges are not given unqualified recognition. The table indicates that in from fourteen to thirty-two states the diplomas issued by thirty medical schools are not recognized, and that in these states the graduates of these thirty schools are not admitted to the examinations for licenses to practice medicine. It is highly important that this information should receive wide publicity, particularly in the interests of prospective medical students. Before selecting a medical school the student should know whether the training furnished and the diploma given by that school will qualify him for examination and for a license to practice medicine in any state he may choose. This information, that is, the fact that recognition has been withdrawn or withheld from certain medical colleges, is not always given publicity by state boards and, of course, is not published in the announcements of the colleges affected. Some students, therefore, have not been aware of the conditions until they had matriculated, or even until the time they had applied for a license to practice. Hundreds of students, in fact, have enrolled in low-grade medical colleges, have spent large sums of money, and have devoted three or four years to study, or have graduated before they learned these facts: not only that they have not received a training in modern medicine, but also in many instances have received diplomas which in a large number of states are worthless. This is positively wrong and places a life-long handicap on these students. The important information regarding the non-recognition of low-grade medical colleges by state boards should be in the hands of every prospective medical student when he chooses his college. This knowledge will enable him to avoid the serious mistake of making a bad start on his life's work. The intelligent student, thus informed, would certainly not waste his time and money in a low-grade institution when in the same time and with perhaps even less money he could obtain a training in a thoroughly well-conducted medical school which would not only better equip him for his profession, but would also enable him to render better service to the people who will depend on him for medical attention or hygienic instruction.

THE PUBLIC AND LOW-GRADE MEDICAL COLLEGES

The information published in Table D is especially of importance to the public: it indicates the states that are not adequately protected against untrained doctors. The table shows that the boards of thirty-one states are making use of the legal power conferred on them to discriminate between medical colleges and to refuse recognition to those which are of low standard or are

not properly equipped to furnish their students a satisfactory training in modern medicine. Of the thirty-one state boards, seven¹ will not license the graduate of any medical college unless he had completed at least two years of work in an approved liberal arts college before taking up the study of medicine. There remain eighteen states in some of which the boards do not have legal authority to pass on the character or standing of the colleges whose graduates may be admitted to examination. In other states the boards are apparently given ample powers, but, so far as our information shows, are not using those powers. It is important to note, that since the graduates of these low-grade medical colleges cannot secure licenses in thirty-one states they will flock to those in which they are still eligible. These eighteen states, therefore, are certain to be the dumping-ground for the output of these inferior colleges just so long as the practice acts permit, or so long as the state licensing boards do not take action against them. The people have the right to expect that the state — on which the national constitution places the responsibility — will grant them proper legislation, and that the licensing board — the only legal body having these matters in charge — will take such action as is necessary to protect them against the ill-trained product of low-grade medical colleges.

STREPTOTRICHAL ORGANISMS IN THE SPLEEN IN CERTAIN CASES OF SPLENOMEGALY

Certain cases of splenomegaly, especially those which Osler classifies under the term of "splenic anemia," have many features suggestive of parasitic infection. The semblance to kala-azar and the beneficial effects following splenectomy and the administration of such remedies as salvarsan have frequently been noted, but thus far no specific etiologic factor has been determined. In an exhaustive study of the spleens from six patients A. G. Gibbons² found evidences of a streptothrix invasion in such relation to the tissues as to suggest this as the cause of the enlargement and fibrosis. These cases fall into two groups, four in the first group and two in the second suggesting that there might be two different varieties. In a typical case of Banti's disease representing the first group in which special attempts were made to find parasites, the spleen was greatly enlarged and its capsule irregularly thickened. Small recent infarcts were present. Throughout the spleen were areas with branches of yellowish but not calcified material. After staining by Wheal and Chown's method, which, briefly is a double stain, first by hematoxylin, then by carbol fuchsin, the decolorization being effected by equal parts of alcohol and saturated watery picric acid, black masses appeared in the trabeculae close to the veins corresponding to the yellow areas of the fresh specimen. Under high power these masses consisted of numerous threads, and individual fibers averaging

1. These states are Colorado, Iowa, Indiana, Kentucky, Minnesota, North Dakota and South Dakota.

2. Gibbons, A. G.: On the Infective Nature of Certain Cases of Splenomegaly and Banti's Disease, *Quart. Jour. Med.*, January, 1914, p. 153.

0.25 micron in thickness were seen only at the edges of the masses. The threads appeared segmented, in some places assuming a bacillary form with rounded ends; in other places where the threads were thicker and had undergone hyaline changes they were granular. A noticeable feature was the constancy with which the black masses were associated with the vessels. In some cases the walls were invaded and a beginning thrombosis was present, but the masses never penetrated into the lumen. The veins not affected were fibrous, suggesting a healed focus of previous invasion. In the second group of cases, stained sections showed a brilliant-red fine mycelium-like network occurring in round or oval masses. These masses formed a network of branches and threads varying in thickness and presenting different pictures, some ending in bulbous club-shaped extremities, others, separated from the network, appearing as cocci and short bacilli. By various stains the possibility that some tissue structures had simulated the parasites was eliminated. The masses were Gram-negative and were not acid-fast. Cultures were made on agar and blood-agar from the splenic pulp in only one case but without any results, the other spleens having been preserved some time before they were examined. These observations are hopeful as indicating progress in our knowledge of the conditions associated with splenomegaly; further evidence, however, must be obtained before definite conclusions can be drawn.

VARIATIONS IN THE PATHOGENIC AND OTHER CHARACTERISTICS OF SPIROCHAETA PALLIDA

Knowledge of the morphology and pathogenic characteristics of *Spirochaeta pallida* has reached the stage at which observers are attempting to classify distinct strains, the differentiation of which depends on definite variations in form, pathogenic power, virulence, etc. Noguchi¹ describes three types of the organism: the thick, thin and medium forms. Nichols² reviews the observations of others and contributes a study of a type of organism frequently found in syphilis of the central nervous system. The strain studied was isolated from the cerebrospinal fluid of a patient with nervous syphilis, and conformed to Noguchi's thick type in form. It produced in the testicles of rabbits a distinct lesion with raised indurated margins and necrotic centers, and localized constantly on the scrotal side of the tunica vaginalis. The incubation period averaged eighteen days, while that of the corresponding type of Noguchi averaged five weeks. What Nichols considers the most striking differential feature in this strain is its tendency to generalize, with lesions of the skin, eye and opposite testicle secondary to the inoculation lesion in the one testicle. These observations lead the author to conclude that he is dealing with a peculiar strain whose chief characteristic is its "invasive power" or what is described by others as high virulence and selective preference for certain

tissues. He cites *Spirochaeta pertenuis* as an example of an organism of low invasive power. This organism produces yaws, which is a non-venereal, non-hereditary skin disease, and is not known to invade other tissues. For this reason Nichols suggests a classification with the *S. pertenuis* at one extreme, and the highly invasive strain isolated by him at the opposite extreme of the series, other strains occupying intermediate positions according to their characteristics. We have recently commented³ on variations in the cultural, morphologic and pathogenic properties of certain bacteria, as observed by different workers, and it would seem that the same biologic principles there suggested might apply to organisms of the syphilis group, namely, that organisms of a given species may vary in their characteristics according to their environment either *in vitro* or *in vivo*, and with this variation may exercise a selective preference for different tissues and manifest varying grades of pathogenic power.

EFFECT OF THE VANDERBILT DECISION ON MEDICAL EDUCATION IN THE SOUTH

The Supreme Court has recently decided that the board of trustees of Vanderbilt University, and not the General Conference of the Methodist Church, has the authority to select those who are to fill vacancies on that board. As a result of this decision the medical department of Vanderbilt University has secured the gift of one million dollars offered about a year ago⁴ by Mr. Carnegie, and this, in turn, permits a continuation of the remarkable development already well begun in that school whereby it will continue to hold its place among the best medical schools in this country. Vanderbilt University Medical Department has had a long and difficult fight to uphold fair standards of preliminary and medical education against perhaps more numerous and embarrassing handicaps than have confronted any other medical school, and for that reason its recent good fortune is all the more gratifying. Even though it is located in the state which at present has the weakest legal requirements regulating the practice of medicine, it is now in position not only to maintain high standards in medical education in that state, but also, in the administration of its entrance standards, to exert a splendid influence in general education throughout the entire South.

3. Transmutations in Bacterial Species, editorial, THE JOURNAL A. M. A., March 28, 1914, p. 1021.

4. A Million Dollars for Medical Education, Current Comment, THE JOURNAL A. M. A., June 7, 1913, p. 1801.

Prevention of Drunkenness.—As long as intoxicating liquors or other intoxicating drugs are accessible to persons who are mentally defective, to persons of weak will, or to persons of normal mentality who suffer marked physical discomfort or pain because of overwork, undernourishment, unemployment, illness, or domestic and business worries, there is likelihood that any use of alcohol will lead to its abuse. In so far, therefore, as evil heredity, bad housing conditions, long hours of labor, poverty and other predisposing causes can be reduced gradually through preventive legislation, the sources of inebriety of the pathologic type will be correspondingly diminished.—Report of Commission to Investigate Drunkenness in Massachusetts.

1. Noguchi: Jour. Exper. Med., 1912, xv, 201.

2. Nichols, H. J.: A Strain of *Spirochaeta Pallida* Isolated from the Nervous System, Jour. Exper. Med., April 1, 1914, p. 362.

Medical News

ARIZONA

Personal.—Dr. Guillermo R. Servin, Tucson, has been appointed consul of the Republic of Mexico at Mexicali, Cal.

State Health Officers Elect.—At the third annual meeting of the Arizona Association of State and County Health Officers held in Tucson, April 24. Dr. George D. Troutman, Tucson, was elected president, Dr. Henry A. Hughes, Phoenix, vice-president, and Dr. Robert N. Looney, Prescott, secretary.

CALIFORNIA

Austrian Surgeon at Riverside.—At the annual meeting of the Southern California Medical Society, held at Riverside, May 7 and 8, Dr. Egon Renzi, Vienna, Austria, delivered an address on "Extirpation of the Spleen for Anemia."

The Foresters Sanatorium.—Among the sanatoriums established in the West by various benevolent and secret orders for the care of their members afflicted with tuberculosis, is that of the Foresters recently erected in Lopez Canyon near San Fernando, about 25 miles from Los Angeles. Dr. Clarence B. Dickson, Los Angeles, chief ranger of the order in California, has donated his services as physician for the first two years. The sanatorium has quarters for about fifty patients, and is arranged on the cottage plan, with separate living quarters for nurses, with power plant, dairy, etc.

CONNECTICUT

New Officers.—Litchfield County Medical Association at Winsted, April 28: president, Dr. Elias Pratt, Torrington; secretary, Dr. C. H. Turkington, Litchfield.

Board of Health Appointments.—The following roster of the New Britain Board of Health is announced: Drs. Arvid Anderson, George H. Bodley and Henry T. Bray; Messrs. M. W. Davenport, Herbert S. Tallard and Timothy E. Burns. Dr. Thomas E. Reeks has been appointed health officer of the city.

State Epileptic Colony Opened.—The Connecticut Colony for Epileptics at Mansfield opened for the reception of patients May 15. The colony is located on a tract of land 500 acres in extent on the summit of a slope overlooking the Willimantic River, and will have accommodation for eighty patients and the necessary attendants and workmen. Dr. Donald L. Ross has been in charge of the construction, and will be superintendent of the institution. Dr. Max Mailhouse, New Haven, is president, and Dr. John H. Mountain, Middletown, vice-president of the board of trustees of the institution.

ILLINOIS

New Clinical Laboratory.—The Illinois Valley Clinical Laboratory has been established at Ottawa under the supervision of Dr. Roswell T. Pettit, with J. B. Gookin, formerly of Chicago, as chemist and bacteriologist.

Consulting Staff for State Hospital.—Superintendent H. J. Gahagan of the Elgin State Hospital has appointed the following complementary medical staff: eye, ear, nose and throat, Dr. John R. Tobin; gynecology, Dr. Frederick C. Schurmeier; internal medicine, Dr. John F. Bell; dermatology, Dr. Edward H. Abbott, and pathology and bacteriology, Dr. Samuel L. Gabby.

Personal.—Dr. Oscar B. Edmundson, Clinton, has purchased an interest in the Sulphur Springs Sanitarium, Peoria. —Dr. James A. Rutledge, Woodmen, Colo., formerly of Elgin, has been elected state consul for the Colorado Woodmen of America. —Dr. A. M. Shaw has been appointed health commissioner of Clearing, and Dr. Orlando F. Scott, health commissioner of the villages of Summit, Argo, Justice and Gary.

Expense of State Charitable Institutions.—According to the statement of Frank D. Whipp, fiscal supervisor, State Board of Administration, the total expense of caring for the 20,000 inmates of the various state institutions for the year ended June 30, 1913, was \$4,445,815.93. Of this amount \$3,395,012.40 was for ordinary operating expenses, and \$1,050,803.53 was for the upkeep of buildings and plants, the erection of new buildings and for permanent improvements. The largest item was for salaries, \$1,492,853.75, which includes the wages of all employees. For medical supplies the sum expended was \$46,041.11. After deducting amounts paid to the state by relatives of inmates for support, sale of farm products and other income not from the state treasury, the

average net per capita cost of maintenance of the inmates of all classes of institutions was \$158.37. The average net per capita cost of maintaining the insane was \$142.24; feeble-minded, \$156.09; deaf, \$314.15; blind, \$308.09; industrial home for the blind, \$303.56; Soldiers' Home, \$157.87; Soldiers' Widows' Home, \$373.32; Soldiers' Orphans' Home, \$261.56; Eye and Ear Infirmary, \$273.77; school for girls, \$199.30, and for inmates of the boys' school, \$258.05.

Chicago

Personal.—Dr. and Mrs. Arthur W. Stillians sailed for Europe, April 25. —Dr. Otto L. Schmidt was reelected president of the Illinois State Historical Society at its meeting in Springfield, May 8. —Dr. Julia D. Merrill died May 17. Further notice will appear next week.

Infant Welfare Fund.—Great progress is being made in the collection of funds by the organizations interested in the infant welfare movement. One forenoon's work brought \$4,513.70 to the association. Mr. Julius Rosenwald has promised to add 25 per cent. of the total sum collected. The campaign will end May 23d, when a complete report will be made.

Pathological Society Elects.—At its annual meeting, May 11, the Chicago Pathological Society elected the following officers: president, Dr. Ernest E. Irons; vice-president, Dr. L. E. Day; secretary, George H. Weaver; treasurer, Alexander A. Goldsmith; censors, Drs. Evarts A. Graham, Walter W. Hamburger and Frederick R. Zeit; and publication committee, Drs. Ludvig Hektoen, H. Gideon Wells and Frederick R. Zeit.

Clean-Up Week.—The Chicago *Health Bulletin* in commenting on the annual clean-up week, through which Chicago has just passed, says that the good feature about it is that it inculcates not only the clean-up spirit, but the keep-clean spirit, and this is the spirit that counts. In this connection it is suggested that as one means of keeping the back yard in good condition, there should be enough gardens in Chicago to supply thousands of tables with fresh vegetables.

Nurses' Training School Renews Contract.—The county board has refused to pay for \$8,400 worth of nursing service supplied this year to the sick and injured in the county hospital. The service was supplied by the Illinois Training school. The board has renewed its contract with the school. A plan will be devised for financing the nursing until the county commissioners decide to pay and an appeal to the public for subscriptions is probable. The contract awarded provides the school shall have \$45.85 a nurse actually employed.

Deaths from Accident During 1913.—Falls were the source of the greatest number of deaths from accident in Chicago last year, according to figures compiled by the Health Department. The total number of deaths from accident was 1,925. The chief causes were as follows: falls, 333; burns, exclusive of those caused by blazes in buildings, 291; railway accidents (steam), 271, street, 157; illuminating gas, 133; drowning, 122; automobiles, 121; poisoning, 42; electricity, lightning excepted, 24; due to machinery, 62. Of the 216 homicides reported during the year 135 were caused by firearms and 27 by stabbing or cutting. There also were 497 cases of suicide investigated by the coroner's office.

Good Housing Organization Formed.—Incorporation papers were taken out May 19 for the Chicago Housing Association. The first meeting of the new association will be held May 21, when a dinner will be given for Robert W. de Forest of the Russell Sage Foundation, president of the Housing Association of the United States.

The speakers will be Mr. de Forest, Mrs. Emmons Blaine, Dr. Charles R. Henderson, Dr. W. A. Evans, Miss Jane Addams, Miss Mary McDowell and others.

The association was formed of the housing committees working toward better housing conditions in Chicago of all organizations. The object was to get one organization with a concentrated effort, eliminating all duplication. The Chicago Association of Commerce, the City Club, the Woman's City Club, the Chicago Woman's Club and other civic organizations are represented in the board of directors of the association.

Clean Water Bill Offered for Protection of Chicago.—It is likely that pollution of the water-supply of Chicago and other lake cities by the sewage discharged from vessels will be prohibited in the near future. A bill, approved by the United States Public Health Service, was introduced in the House of Representatives, May 19, by Representative Mann of Illinois.

The bill provides: That no common carrier operating vessels, craft, or other vehicles or structures for the purpose of navigation shall discharge or cause to be discharged sewage or any other noxious material into the waters of the great lakes so as to pollute water-supplies of cities or towns or of other vessels plying on the great lakes; that no common carrier operating on the great lakes shall provide on steam vessels for the use of their crews and passengers water-supplies containing organisms or materials likely to cause disease of man.

For violation of the law an offender may be fined not more than \$500 or imprisoned for not more than two years, or given both penalties.

IOWA

Personal.—Dr. George H. Stanger, Boone, who has been seriously ill, is improving and has resumed practice.—Dr. Cora Williams Choate has been elected president of the library board of Marshalltown.

New Officers.—Tama County Medical Society at Toledo, May 1: president, Dr. Albert A. Crabbe, Traer; secretary-treasurer, Dr. Frederick W. Gessner, Dysart.—Clayton County Medical Society at McGregor, April 29: president, Dr. Charles W. Duffin, Guttenberg; secretary-treasurer, Dr. William H. Thomas, McGregor.—Crawford County Medical Society at Denison, April 20: vice-president, Dr. William A. Garner, Kiron.—Harrison County Medical Association at Logan, May 7: president, Dr. John L. Tamsiea, Missouri Valley; secretary, Dr. H. Hansen, Logan.—Fremont County Medical Society, April 30, at Sidney: president, Dr. Theodore C. Harris, Tabor; secretary-treasurer, Dr. Ambrose E. Wanamaker, Hamburg.

KANSAS

New Officers.—Seventh District Medical Association at Hutchinson, April 24: president, Dr. William F. Fee, Meade; secretary-treasurer, Dr. William F. Schoor, Hutchinson.

Joint Meeting of Societies.—The joint meeting of the McPerson and Salina Counties Medical Societies held at Lindsburg, April 22, was so successful that it was voted to hold joint meetings every two months in that city.

Personal.—Dr. John De M. Miller, Leavenworth, returned from Europe, May 3.—Fire at Richmond, April 29, destroyed the office of Dr. Delmar H. Smith.—Dr. Lewis A. Ryder, Topeka, has been reelected medical director of the Home Mutual Life Insurance Company.

State Society Meeting.—At the annual meeting of the Kansas Medical Society, held in Wichita, May 5-7, the following officers were elected: president, Dr. William F. Sawhill, Concordia; vice-presidents, Drs. Jacob F. Gsell, Wichita; John F. Hassig, Kansas City, and Jacob L. Everhardy, Leavenworth; secretary, Dr. Charles F. Huffman, Columbus (reelected), and treasurer, Dr. Lewis H. Munn, Topeka (reelected). The society adopted a resolution asking the governor to appoint a commission to prepare a bill to be brought before the next legislature, defining the practice of medicine, and the requirement for practicing "the art of treatment of disease." Kansas City was selected as the place of meeting for 1915.

MARYLAND

Medal to Dr. Remsen.—Dr. Ira Remsen, formerly president of Johns Hopkins University and chairman of the Remsen Referee Board, was given a banquet by the Chicago section of the American Chemical Society, May 15, at which he was presented with the Willard Gibbs medal. This is the fourth award of the medal, and the third time it has been awarded to an American chemist. The presentation address was by Professor Noyes of the University of Illinois, and Dr. Remsen, in his response, spoke on "The Development of Chemical Research in America."

Physicians' Jubilee.—The Carroll County Medical Society gave a dinner on May 13 in honor of four of its members who have been in active practice for fifty years—Drs. George H. Brown, New Windsor; James H. Billingslea, Westminster; James Watt, Union Bridge, and John F. B. Weaver, Manchester. The first three of these physicians are graduates of the Maryland University, class of 1864. Dr. Daniel E. Stone of Mt. Pleasant, Frederick County, of the same class, was also present. Dr. Daniel B. Sprecher, Sykesville, president of the society, presided and acted as toastmaster.

Convention of Societies for Mental Hygiene.—The first convention of the societies for mental hygiene to be held

under the auspices of the National Committee for Mental Hygiene will take place in Baltimore, May 25. The opening address will be delivered by Dr. Lewellys F. Barker, President of the National Committee for Mental Hygiene. Miss Julia Lathrop, Chief of the Children's Bureau, will speak on "What the Mental Hygiene Societies Ought to Do for Children." Hon. George P. McLean, U. S. Senator from Connecticut, will address the congress on "The Conservation of Mental Health—a National Problem," and Dr. William H. Welch, Vice-President of the National Committee, will speak on "Some Opportunities for the National Committee for Mental Hygiene."

Personal.—After serving as surgeon of Troop "A" Maryland National Guard, since its organization sixteen years ago, Dr. Charles G. Hill, Baltimore, has been placed on the retired list.—Dr. John H. Drach of Butler, Baltimore County, has been appointed health officer of the eighth district of Baltimore County to fill the vacancy caused by the resignation of Dr. William C. Ensor of Cockeysville.—Dr. Nathan R. Gorter, Commissioner of Health, has appointed Dr. Wilbur P. Stubbs, who has been examiner of throats for the department for a number of years, medical examiner of schools, to fill the vacancy caused by the death of Dr. Richard A. Urquhart.—Dr. Winford H. Smith, superintendent of Johns Hopkins Hospital, will return next week from California, where for the last two months he has been supervising the planning of the million dollar hospital for the University of California.

For Accurate Medical News.—At a meeting of the Baltimore City Medical Society held May 15, announcement was made of an agreement between the members of the publicity committee of the society and the press of the city relative to the publication of medical news. The agreement provides that in the future the representatives of the medical societies of the city cooperate with the representatives of the newspapers in communicating medical news accurately. The committee urges that wherever possible physicians give reliable information on important discoveries, the condition of patients of prominence and on other medical subjects in which the public is interested or which will tend to the public welfare. The names of no medical men are to be used by the newspaper unless written permission is given by the men whose names are used in the news items. Nothing is to be done that will be prejudicial to the interests of the patient or to other parties concerned in the items. The newspaper men agree to seek their information from the proper sources, that accurate information may be obtained. The agreement was adopted by members of the societies and committees were appointed on the various subjects of medical interest on which the newspapers may seek information.

MASSACHUSETTS

Anti-Vaccine Bill Defeated.—The bill passed by the Senate for eliminating the present requirement that children must be vaccinated before they are admitted to the public schools has been defeated by a vote of 132 to 53.

Personal.—Drs. James J. Minot and John F. O'Brien have been elected members of the building committee of the Boston Consumptives Hospital.—The action of the Boston Board of Health in removing Dr. William H. Davis, its vital statistician, has been rescinded.

New Officers.—Essex North District Medical Society at Lawrence, May 6: president, Dr. Israel J. Clarke, Haverhill; secretary-treasurer, Dr. J. Forrest Burnham, Lawrence.—Berkshire District Medical Society at Pittsfield, April 30: president, Dr. Franklin C. Downing, Lanesboro; secretary, Dr. Oliver L. Bartlett, Pittsfield.

Governor Approves State Health Office.—A special message was sent to the legislature by Governor Walsh, May 4, together with a bill which provides for the reorganization of the State Board of Health with one paid official, to be state health commissioner, and six unpaid assistants, including two engineers, two physicians, one sanitary expert and one lawyer.

MICHIGAN

Clinic for Babies and Young Children.—A free clinic for the treatment of babies and young children was opened at the Salvation Army Citadel, Flint, May 2. The clinic is to be held Wednesdays and Saturdays, and deserving cases will be cared for free of charge.

Changes in State Board.—Dr. John L. Burkart has succeeded Dr. Robert L. Dixon as secretary of the State Board

of Health. Dr. Dixon has been appointed superintendent of the Michigan Epileptic Farm Colony, Wahjamego.—Dr. Marinus L. Holm is continued as bacteriologist of the State Health Department.

Personal.—Dr. Harry A. Wilson, Lansing, who has been ill at his home, has recovered and resumed practice.—Dr. Bret Nottingham, Lansing, is reported to be critically ill with cancer of the stomach at Harper Hospital, Detroit.—Dr. Edmund M. Pease, of the staff of the Michigan State Hospital, Kalamazoo, has accepted a similar position at the Massachusetts State Hospital, Boston.

State Medical Inspectors Appointed.—Dr. John L. Burkart, Lansing, secretary of the State Board of Health, announces the following list of medical inspectors for the State of Michigan, to conform to the recent congressional redistricting: First district, Dr. Guy L. Kiefer, Detroit; Second district, Dr. James F. Breakey, Ann Arbor; Third district, Drs. Alvin H. Rockwell, Kalamazoo, and Walter H. Sawyer, Hinsdale; Fourth district, Drs. Charles N. Sowers, Benton Harbor, and Dr. John McGuffin, Hastings; Fifth district, Dr. Thomas M. Koon, Grand Rapids; Sixth district, Dr. Henry S. Bartholomew, Lansing, and Dr. Don D. Knapp, Flint; Seventh district, Drs. William H. Smith, St. Clair, and Charles B. Morden, Bad Axe; Eighth district, Drs. Harold A. Hume, Owosso, and Fred A. Johnson, Greenville; Ninth district, Drs. George S. Williams, Muskegon, Julius M. Wilhelm, Traverse City, and George O. Switzer, Ludington; Tenth district, Drs. Edward Goodwin, Bay City, S. Elston Hooper, West Branch, and William T. Dodge, Big Rapids; Eleventh district, Drs. William H. Marshall, Boyne City, Clarence M. Williams, Alpena, and Earl V. McComb, Menominee; Twelfth district, Drs. Edward T. Abrams, Hancock, Henry E. Perry, Newberry, and Frederick M. Harkin, Marquette. The duties of these inspectors are to investigate, on advice from the state office, all outbreaks of communicable diseases, all matters pertaining to water-supply and sewage disposal, and to see that all local authorities attend to their duties in times of epidemic.

MINNESOTA

Personal.—Dr. George T. Baskett, assistant superintendent of the St. Peter State Hospital, was stabbed in the arm, May 8, by an insane patient who had improvised a dagger from heavy galvanized iron wire.—Dr. Leonard E. Claydon, Red Wing, has returned from abroad.

Medical Building Burns.—The two upper floors of the Medical Building, Minneapolis, including the offices of many physicians and dentists, were burned, May 5, with a loss estimated to be from \$50,000 to \$100,000. The fire is believed to have been of incendiary origin.

Iron Range Physicians to Organize.—At a meeting of the physicians of Mesaba Range held in Virginia, May 11, at the call of Dr. Charles B. Lenont, Virginia, Dr. John C. Farmer, McKinley, and others, it was agreed that an organization should be formed for the mutual benefit of physicians of that portion of Minnesota.

Railroad Water Supplies in Minnesota.—Following the promulgation by the Secretary of the Treasury of the regulation regarding water and ice furnished to passengers by common carriers in interstate traffic, the Minnesota State Board of Health undertook to examine the water supplies for passengers used by the railroads of that state, not only in interstate traffic, but in intrastate traffic as well. This examination was made by R. H. Mullon, H. A. Whittaker and B. M. Mohler of the Minnesota Board and a report made to the Surgeon General of the U. S. Public Health Service, whose aid and approval the Minnesota board had in prosecuting this work. It consisted of field and laboratory examinations and is summarized as follows: Over 50 per cent. (52.45 per cent.) of the supplies investigated could not be recommended in their present state as drinking water supplies. Of the 32 supplies on which recommendation was refused, 31 were pronounced unsafe by the field investigation and of these but 16 showed analytical evidence of pollution. In one instance only did the analytical results alone constitute the refusal for recommendation. A careful and adequate field investigation in addition to the analytical determinations is required before a satisfactory opinion should be ventured concerning the safety of a given water supply. The owners of practically all the condemned water supplies can convert these into safe supplies at a relatively small cost by following in detail the recommendations given each locality.

MISSOURI

Last Graduation from Ensworth.—On April 30, Ensworth Medical School, St. Joseph, graduated its last class and permanently closed its doors. This action is in accordance with the decision of a few years ago that the school would continue only until the class then enrolled had graduated. Nine students received degrees at the graduating exercises.

Personal.—Dr. Clarence B. Francisco, Kansas City, sailed for Europe, May 2.—Dr. Benjamin Y. Jaudon, Palmyra, has been appointed assistant medical director of the Missouri State Life Insurance Company, St. Louis, and will make his home in that city.—In a fire in the office of Dr. Arthur R. McComas, Sturgeon, April 15, his entire office equipment was destroyed.

New Officers.—Fourteenth District Medical Society at Marshall, April 23: president, Dr. Robert L. Evans, Boonville; secretary-treasurer, Dr. John R. Hall, Napton.—Southwestern Missouri Medical Society at Springfield, April 30 to May 1: president, Dr. Charles M. N. Rogers, Mansfield; secretary, Dr. Herbert S. Hill, Springfield, (reelected).—Fifth District Medical Association at Memphis, April 30: president, Dr. Byron B. Potter, Lancaster; secretary-treasurer, Dr. Edward E. Parish, Memphis.—Linton District Medical Society, May 5: president, Dr. Chambers B. Clapp; secretary, Dr. J. Curtis Lyter, both of Moberly.—Harrison County Medical Society at Bethany, May 1: president, Dr. Leslie R. Webb; secretary-treasurer, Dr. W. Worthington Vandivert, both of Bethany.

NEBRASKA

New Officers.—Dixon, Decatur, Cedar, Thurston and Wayne Counties Medical Society at Wakefield, April 27: president, Dr. Charles H. Maxwell, Dakota; secretary-treasurer, Dr. Buis Tender.

Personal.—Dr. A. J. Edstrom has succeeded Dr. C. B. Foltz as police surgeon of Omaha.—Dr. Elmer J. Updegraff, Omaha, who was operated on for disease of the stomach at the Methodist Hospital, May 2, is reported to be in a serious condition.—Dr. Charles F. Moon has been appointed house physician of the Douglas County Hospital, Omaha.

Impostor Faring Westward.—A physician of Lincoln warns physicians against a young man about 5 feet 4 inches tall, blond, blue eyes, who dresses neatly, speaks English fluently, and is aggressive, and who claims to be a medical student of the University of Heidelberg, but that through misfortune and the death of his father he has been obliged to discontinue his studies, and that he expects to enter a Chicago medical school this fall. He calls on professional men, and especially German physicians, telling hard-luck stories, and asking for assistance. He calls himself William Kahlkoff, but his right name is supposed to be L. Hofer. He has some knowledge of drugs, which he obtained by clerking in a German grocery. His name does not appear on the list of students of the University of Heidelberg. He has been heard from thus far in New York, Buffalo, Pittsburgh, Chicago, Milwaukee, Omaha, Kansas City and Lincoln.

NEW JERSEY

New Medical Institution.—A Philadelphia architect has prepared revised plans for a two-story brick municipal hospital for Millville, N. J., 32 x 100 feet, and to cost \$20,000.

Contract for Sanatorium Awarded.—The contract for the construction of the new tuberculosis sanatorium pavilion for the Essex County Hospital at Cedar Grove has been awarded for \$116,112. This is nearly \$4,000 below the estimated cost.

Personal.—Dr. Arley I. Munson, Red Bank, has passed an examination for physician of a state institution, and will receive her appointment so that she may assume charge in the fall.—Dr. Samuel E. Weiner, Atlantic City, was shot at by a man said to be a paranoiac, April 27, but was not injured.

Alumni Meeting.—At the conclusion of the banquet July 1 which will close the annual meeting of the Medical Society of the State of New Jersey at Spring Lake, the New Jersey medical alumni of the University of Pennsylvania will hold their annual smoker. Dr. Alexander MacAlister is chairman, and Dr. Hyman I. Goldstein secretary of the committee on arrangements, both of Camden.

Campaign Against Mosquitoes.—Although Atlantic County can never be entirely free from the mosquito so long as conditions remain as they are in the Cape May County swamp, still with \$26,000 to be spent in a campaign against the

mosquitoes, this county will be greatly improved. Chief Inspector Eaton, who was for four years in the Canal Zone, will have the services of fourteen inspectors, five of whom will be engaged in a campaign against the fresh-water mosquitoes.

NEW YORK

Vaccinate State Hospital Patients.—Pursuant to orders of the Lunacy Commission, patients at the Hudson River State Hospital, numbering more than 3,000, have been vaccinated by the asylum staff.

A New Dispensary.—Plans have been filed with the Building Department for a four-story dispensary building to be erected at the north-east corner of Gouverneur Slip and Front Street. This will be known as the Gouverneur Dispensary and will be maintained by the city. The estimated cost is \$200,000.

Protests Against Bronx Hospital Fail.—The protests of the residents of Seton Falls Park against the construction of a hospital for the treatment of contagious diseases has failed to move the Board of Estimate, which was authorized by the Comptroller to buy a site of 32 acres in the park at a price not to exceed \$32,000.

Memorial for Dr. Le Fevre.—Mrs. Helen H. Le Fevre, the widow of the late dean of the New York University and Bellevue Medical College, Dr. Egbert Le Fevre, has made a donation of \$10,000, the income of which is to be applied toward the salary of the person who from time to time may accept the office of dean of the Medical College of the University. The trust is to be known as the Dr. Egbert Le Fevre Deanship Fund.

Centenary of Edward Mott Moore.—The Committee of One Hundred of Rochester, appointed to arrange a fitting celebration of the 100th anniversary of the birth of Dr. Edward Mott Moore, and to erect a monument to his memory, has arranged that the celebration shall be held on July 15. The park board has contributed \$2,000 toward the expenses of the celebration, and the committee has adopted resolutions asking the city to erect a life-size statue of Dr. Moore, to be placed in Genesee Valley Park.

Civil Prosecutions by Health Department.—Heretofore violations of the Sanitary Code or of the rules and regulations of the Health Department have been prosecuted for criminal action in such violations, but now the department has determined to prosecute such cases as civil actions, since it is frequently difficult to establish criminal intent in such violations. Five such cases have already been terminated and in each instance a judgment for \$50 and costs has been obtained. This procedure was inaugurated in connection with the work of the Bureau of Food Inspection.

Asks Aid for Defectives.—An attempt is being made by the State Charities Aid Association and the Association for Improving the Condition of the Poor to induce the legislature at its special session to appropriate \$500,000 for additional beds at Letchworth Village, Craig Colony, and Rome. Each legislator has been sent a list of 1,000 feeble-minded persons who experts believe should be cared for by an institution, and the Clearing House for Defectives in New York City has on file 3,000 additional names of persons who need institutional care. If no appropriation is made, it is probable that a bond issue will be authorized.

Friedmann's Tuberculosis Treatment in City Hospitals.—Requests for information in regard to the results of the Friedmann tuberculosis treatment have led the Department of Health to ascertain the recent status of seventy-seven cases treated at the time of Dr. Friedmann's visit to this city. Of the seventy-seven patients treated, nineteen could not be found, while eleven were reported to have moved out of town permanently. The department was therefore able to obtain reports on but forty-seven of the cases in question. These reports show that there are at present five of these patients at home; twenty-two are in hospitals or sanatoria (indicating failure to cure); seven are attending clinics (showing the need of further treatment); one is attended by a private physician, and twelve have died.

Bad Food at State Hospitals.—Inspectors of the Department of Efficiency and Economy together with experts from the Bureau of Animal Industry of the United States Department of Agriculture have completed an inspection of the fourteen state hospitals and made their report to the state hospital commission. This report describes unbelievable conditions in nearly all of the state institutions. According to the report the Hudson River State Hospital at Poughkeepsie

has been using the milk from a herd of tuberculous cattle for the past eighteen months. Large quantities of meat and eggs were ordered destroyed at several of the other hospitals. It is stated that at the Utica State Hospital the sanitary condition of the bakery was intolerable and a menace to both patients and employees. In the Willard State Hospital 3,200 pounds of pork was found spoiling for lack of care. It is stated further that the state is losing from \$30,000 to \$35,000 annually because of the loose construction of the law regarding the maintenance of the families of the employees.

Health Matters and the Chamber of Commerce.—The Rochester Chamber of Commerce, in addition to the attention given to the welfare of Rochester in commercial affairs, has a Public Health Committee to look after health and sanitary matters, which is one of the most valuable divisions of the body. The *Official Bulletin* for May 15 says that the Chamber of Commerce has appointed a physician to examine all its employees with reference to their general health and the presence of transmissible diseases which might be spread among themselves or those with whom they come in contact. It also approves and encourages the plan now adopted by many employers of having their employees examined and followed up by regular inspections. Among the other health and welfare subjects mentioned in the *Bulletin* are the matter of smoke-prevention, clean-up week, the prevention of street accidents and legislation concerning the restriction of the employment of women and children in mercantile establishments. The Chamber in this way proves a valuable ally to the health department in improving health conditions in the city.

New York City

Typhoid and Vacationists.—The weekly *Bulletin of the New York Board of Health* warns persons who take vacations this summer of the danger of contracting typhoid fever, and urges them to be vaccinated against the disease. Antityphoid vaccine can be obtained without charge from the Department of Health. The product is prepared after the formula of the vaccine used in the United States Army.

Facilitating the Distribution of Health Information.—The health department has arranged with two of the large industrial insurance companies of the cities to distribute through their agents and collectors public health bulletins, circulars and health literature of all sorts. Three thousand agents visit the homes of 750,000 families weekly. A new brief folder giving information about typhoid fever and its prevention, printed in a number of different languages, is being prepared for distribution by this means.

Trade School for Cardiac Convalescents.—A report has just been made on an experiment undertaken last year in the care of cardiac convalescents. A home was opened at Sharon, Conn., where patients from the wards and dispensaries of New York hospitals receive care and treatment for several months and at the same time are taught a trade in which they can engage without danger to their crippled hearts. Provision is also being made to provide employment for the patients when their term of treatment in the home is completed. Among the directors of the organization are Drs. John Winters Brannan, Frederick Brush, Hubert V. Guile, John H. Huddleston and Warren Coleman.

NORTH CAROLINA

Tribute to McBrayer.—The Asheville Board of Health pays Dr. L. B. McBrayer, who recently resigned to accept the medical directorship of the State Sanatorium for Tuberculosis, at Montrose, N. C., a fine tribute by devoting the whole of the May issue of its monthly public health bulletin to an account of the banquet tendered Dr. McBrayer last month when leaving Asheville for the taking up of his new duties. The issue contains his portrait and a detailed account of the speeches at the banquet with Dr. McBrayer's response.

Meetings to Come.—The Medical Society of the State of North Carolina meets for its sixty-first annual session, in Raleigh, June 16, under the presidency of Dr. J. M. Parrott, Kinston, N. C.—The North Carolina State Health Officers' Association will hold its annual meeting June 15, 1914.—The annual joint session of the State Medical Society and the State Board of Health will be held June 17. The session of the Board of Examiners will probably conclude on the second day of the State Society's.—This grouping of meetings of state organizations should be most helpful and interesting to all. It also tends to conserve and further develop the cause of medical solidarity and further unite the various medical bodies of the state. This holding of the various

medical meetings at the same time and place is rather a peculiar North Carolina custom originating in 1859, the year the State Board of Medical Examiners held its first meeting, and as the needs of the profession and people have developed the other allied societies and boards, they naturally follow the established precedent of meeting at the same time and place with the parent organization, the State Medical Society. Besides conserving and holding most closely together the different professional bodies, the custom is a great time-saver to the busy physician in that he is enabled to take part in the various meetings, thus keeping in close touch with all the organized professional interests of his state, with the minimum expenditure of time and expense.

OHIO

Dinner to Women Physicians.—The Women's Medical Club of Columbus gave a dinner, May 3, in honor of women physicians attending the Ohio State Medical Association.

Personal.—Dr. Johann F. Dolina has succeeded Dr. Henry D. Rienhart as laryngologist and rhinologist on the medical staff of the Miami Valley Hospital, Dayton.—Dr. George Goodhue, Dayton, is reported to be seriously ill at his home.—Dr. Esmond A. Childs, Geneva, who was operated on for appendicitis at Cleveland recently, has returned home convalescent.—Dr. John H. Axline, Lancaster, suffered a slight cerebral hemorrhage at the Zanesville Hospital, May 6.—Dr. William M. Calhoun has resigned as president of the training school of the East Liverpool City Hospital.

PENNSYLVANIA

Gift to Abington Hospital.—On May 15, the new Abington Memorial Hospital was open to public inspection, and the Board of Trustees announced a gift of \$250,000 to the endowment fund, by George W. Elkins of Elkins Park. The gift is in memory of his wife, Stella McIntire Elkins. Mr. Elkins had already given \$100,000 in memory of his wife. The hospital will start a training school for nurses immediately. The new buildings, located at York and Woodland Roads, were used for hospital purposes May 18.

Philadelphia

Baby Saving Show.—The Baby Saving Show of the Child Federation in the City Hall Court Yard, was officially opened by Mayor Blankenburg, May 12. Exhibits of proper food, clothing, toys, bottles, tubs, towels and numerous things used for babies, were shown in small booths. The exhibit designed as a preventive, not a curative, measure will be open to the public every day, except Sunday, from 9 a. m. to 5 p. m., until October 1.

Personals.—The Elliott Cresson Gold Medal of the Franklin Institute was presented to Provost Edgar Fahs Smith of the University of Pennsylvania, May 20, in recognition of his work in the field of Electro Chemistry, and in view of his many contributions to the literature of chemical science. Dr. Harry F. Keller, head of the Department of Science, made the presentation address, and the medal was presented by Dr. Walton Clark, President of the Institute.—Ex-Surgeon General Charles F. Stokes, U. S. N., was a guest of honor of the West Branch of the Philadelphia County Medical Society, at its "social night," May 18.

City Milk to be Pasteurized.—Following a meeting of the Board of Health, May 11, Chief Vogelson, of the Bureau of Health, announced that the new regulations regarding the pasteurization of milk will go into effect July 1. Under these rules all milk from non-certified dairies must be pasteurized. A vigorous campaign against compulsory pasteurization of milk was planned by the members of the Independent Milk Dealers' Association, at a mass meeting held on the plaza of City Hall, May 15. This meeting was a direct protest against the recent order from the Board of Health. More than 2,000 persons were present and resolutions were adopted to the effect that the pasteurization of fresh milk was detrimental to the value of the product.

VIRGINIA

Donation to Hospital.—Rockingham Memorial Hospital, Harrisonburg, has been presented by Mr. R. G. Alexander of New York with an elevator, the installation of which cost \$1,000.

Raises Milk Standard of Richmond.—Dr. E. C. Levy, health officer of Richmond, announces that the City Board of Health has passed an ordinance, effective September 1, which requires that all milk and cream in the Richmond markets shall be obtained from cows that have passed the tuberculin test.

Personal.—Dr. Julian F. Ward has been elected mayor of Winchester.—Dr. George Ben Johnston, Richmond, has been appointed a member of the Board of Visitors of the Medical College of Virginia, the commission to last for life. This appointment renders it necessary that Dr. Johnston resign from the faculty of the college.—Dr. Herbert Old, Norfolk, has been appointed assistant medical director of the Provident Life and Trust Company, Philadelphia, with headquarters at Philadelphia.

GENERAL

American Pediatric Society.—This society will hold its twenty-sixth annual meeting at Stockbridge, Mass., May 26-28. The preliminary program includes addresses on almost every phase of the diseases of children and their care.

Central Railway Surgeons Hold Meeting.—The annual meeting of the Central of Georgia Railway Surgeons' Association met in Savannah, May 5 and 6, and elected the following officers: president, Dr. Henry B. Disharoon, Roanoke, Ala.; vice-president, Dr. William C. Howell, Dothan, Ala.; and secretary-treasurer, Dr. Walter E. Saunders, Arlington, Ga.

Medical Jurisprudence Association Elects.—The second annual meeting of the American Association of Medical Jurisprudence was held in New York City, May 2. The following officers were elected: president, Charles A. Boston; vice-presidents, Oscar W. Ehrhorn and Dr. D. Percy Hickling, Washington, D. C.; secretary, Charles P. Blaney, and treasurer, John C. West.

Meeting of the American Medico-Psychological Association.—The seventieth annual meeting of the American Medico-Psychological Association will be held in Baltimore May 26 to 29, inclusive. A symposium on "Paresis" will be held May 26. On the second day the annual address will be delivered by Dr. Lewellys F. Barker on "The Relation of Internal Medicine to Psychiatry," and on the fourth day there will be a symposium on "Eugenics."

To Study Tropical Diseases.—The foundation stone of the new School of Tropical Medicine at Calcutta, for the site and laboratory of which the government of India has appropriated \$195,000, was laid recently by the governor of Bengal. The institute will accept students from all over the world, and it is hoped that students of medical research institutions of the United States may be sent to the school for study. Communications regarding the school should be addressed to Lieut.-Col. Leonard Rogers, I. M. S., Medical School, Calcutta.

Bequests and Donations.—The following bequests and donations have recently been announced:

Kings Daughters' Hospital, Shelbyville, Ky., donations of \$4,000 for an additional building.

Jewish Hospital, Philadelphia, a donation of \$5,000 for a perpetual free bed, in memory of the family of Joseph and Amelia Nevil, by George Nevil.

Medical School of the University of Cincinnati, an endowment fund of \$31,500, from the estate of Frances Gibson; \$1,000 annually for the establishment of six medical school scholarships, a gift from Julius Fleischmann.

American Physicians' Association Meets.—At the closing session of the Association of American Physicians, held at Atlantic City, May 13, the following officers were elected: president, Dr. Samuel J. Meltzer of the Rockefeller Institute, New York; vice-president, Dr. Henry Sewall, Denver; secretary, Dr. George M. Kober, Washington, D. C.; recorder, Dr. Thomas McCrae, Philadelphia; treasurer, Dr. J. P. Crozer Griffith, Philadelphia, and representative on Executive Committee of the Congress of American Physicians and Surgeons, Dr. Theodore C. Janeway, Brooklyn.

American Dermatological Society.—At its annual session held in Chicago, May 14-16, the American Dermatological Society adopted resolutions to the effect that a memorial be presented to the President of the United States and Congress setting forth the dangers of the leper at large and urging detention in a place under national control. A permanent committee on leprosy was appointed, consisting of Drs. Martin F. Engman, St. Louis, chairman; Charles J. White, Boston, and Dr. James McFarlane Winfield, Brooklyn. The following officers were elected: president, Dr. Sigmund Pollitzer, New York City; vice-president, Dr. Martin F. Engman, St. Louis, and secretary and treasurer, Dr. Oliver S. Ormsby, Chicago.

Appropriations for National Children's Bureau.—The Committee of the House of Representatives in acting on the appropriation of \$164,000 asked for by Miss Julia C. Lathrop, head of the National Children's Bureau, reduced the amount to \$25,000, but the House raised this to the original sum.

asked. The Senate has now confirmed this and the Bureau will get the full appropriation. Concerning this the Chicago *Tribune* says:

If any expenditure is justified from the point of view of constructive statecraft it is an expenditure which conserves the sources of citizenship. Sound manhood and sound womanhood make a state, and these no state can have unless it protects the soundness of childhood in body and mind.

Hearing on the Palmer-Owen Bill.—Friday, May 23, the third public hearing was held on the Palmer-Owen bill, which forbids the shipment in interstate commerce of goods produced in establishments not conforming to the age requirements of the bill in the employment of child labor. Among the many organizations supporting the bill are the Child Labor Committee of Virginia, the Executive Council of the Massachusetts Board of Trade, and the Los Angeles Chamber of Commerce. According to the National Child Labor Committee, of 78,000,000 people who live in mining states, 41,000,000 have forbidden children under 16 to work in mines; 45,000,000 have placed on the statute books of their states an eight-hour day for children, 58,000,000 people have prohibited night work for children under 16.

Tropical and Parasitic Diseases Among Immigrants.—Surgeon-General Blue (*Pub. Health Rep.*, May 15) directs medical officers of the Public Health Service engaged in the medical examination of aliens to give especial attention to the detection of the following diseases:

Kala-azar. Reported in China, Egypt, Arabia, Tunis, Algiers, Greece, Malta, and generally in the region surrounding the Mediterranean Sea.

Schistosoma Haematobium. Blood fluke infection. Found in South Africa, Egypt and Cuba.

A group of infections found especially in China and Japan as follows: *Clonorchis*. Formerly *Opisthorchis sinensis*, also called Japanese liver fluke. It is stated to be as common in some parts of Japan as hookworm is in Africa. *Paragonimus Westermanii*. Japanese and Chinese lung fluke. The disease caused by this parasite is extremely chronic and is accompanied by more or less serious hemorrhage and is often mistaken for consumption. *Diplogonoporus Grandis*. Japanese tapeworm. Resembles Russian tapeworm. *Schistosoma Japonicum*. Blood flukes of China and Japan.

Guiteras Called to Tampico.—It has been announced that Dr. G. M. Guiteras of the Public Health Service has been called to Tampico, Mexico, with the consent of the constitutional forces, now in control of that place, to "clean up" the city. Tampico is believed to be a breeding ground for many tropical conditions, especially yellow fever, small-pox and malaria. Dr. Guiteras will investigate the sanitary situation fully and make recommendations to remedy the many evils he will no doubt discover. His absence from Vera Cruz will place in charge of health conditions there Dr. Von Ezdorf, the next officer in charge under the temporary United States control. This movement on the part of the constitutionalists is significant of the power for good which the United States possesses in its public health service, and shows again the recognition now being accorded to these workers by foreign nations.

Dr. Theobald Smith Becomes Director of New Institute.—Announcement has been made by the Rockefeller Institute for Medical Research that Dr. Theobald Smith, now professor of comparative pathology in the Harvard Medical School, has accepted the position of director of its new department of animal pathology. This department has but recently been established, and the fact that Mr. Rockefeller has added \$1,000,000 to the endowment of the institute for the support of this department, and that Mr. James J. Hill has pledged \$50,000 for its use in the study of hog cholera became known only a few weeks ago. The department is not yet organized or equipped, but it is expected to begin active work within a year. In the meantime, Professor Smith will continue his connection with Harvard University so long as may be necessary to complete work on which he is now engaged at its medical school. He has had a distinguished career as a pathologist and bacteriologist and is considered as one of the world's foremost bacteriologists.

Safety Campaign Lessens Personal Injury Cases.—During the last four years the leading industries of the country have paid a great deal of attention to the question of safety to the end that the number of personal injury cases might be lessened. Since the movement was started, the Chicago & Northwestern Railway has reduced the number of accidents nearly 30 per cent. During the four years 10,000 fewer persons were injured on this system than in the preceding four years. On the Great Lakes the Lake Carriers' Association has conducted a systematic campaign for the elimination of the avoidable accident by distinctly marking dangerous places and by appointing safety committees from among the crew on

each ship. In addition, the association has begun a campaign on sanitation to promote the physical well-being of the men. The initial steps in the campaign have to do with the care and preparation of food supplies. Every dealer on the whole chain of lakes supplying meats, milk, groceries and ice to the boats has received a circular from the Welfare Plan Committee of the Lake Carriers' Association outlining certain simple rules to be observed in the care of foodstuffs. In addition, the sanitary committee of the Lake Carriers' Association has defined the areas on the Great Lakes from which drinking water may be drawn for the vessels.

CANADA

Typhoid Abated.—The outbreak of typhoid fever in the province of Quebec along the Richelieu River has abated. The water-supply of numerous towns is being treated with hypochlorite.

Adami Gold Medalist.—John George Adami, professor of pathology at McGill University, Montreal, has been awarded the Fothergill gold medal by the Medical Society of London, England, for 1914, for his work on pathology and its application to practical medicine and surgery.

Medical Act Amended.—The New Brunswick Medical Act has been amended. The matriculation fee has been advanced from \$5 to \$10; examination in medicine from \$10 to \$30; registration from \$10 to \$40. Registered physicians are now required to pay an annual fee of \$1, or a single life payment of \$20.

Vaccination at McGill.—The Corporation of McGill University at Montreal has adopted a regulation that all students entering the university shall be required to present a certificate or other satisfactory evidence of successful vaccination, or at once be vaccinated in a manner satisfactory to the medical examiner.

Tuberculosis Experts to Meet.—The fourteenth annual meeting of the Canadian Association for the Prevention of Tuberculosis, of which the governor-general is honorary president, will be held in Halifax, N. S., July 13 and 14. Dr. S. Adolphus Knopf, New York City, will deliver the oration on "The Modern Warfare Against Tuberculosis as a Disease of the Masses."

Personals.—Dr. Max O. Klotz, President of the Ontario College of Physicians and Surgeons, has sailed for Europe.—Dr. J. Price Brown, a well-known rhinologist and laryngologist of Toronto, has been forced to retire from active practice on account of glaucoma.—Dr. Charles F. Martin, Montreal, has returned from a trip round the world.—Dr. Francis R. Gow, Halifax, N. S., has been appointed chief medical officer and inspector for immigration at that port.

University News.—The annual instruction for the benefit of postgraduate students conducted by the medical faculty of McGill University, Montreal, will commence June 1.—Lectures in the medical department of McGill University ceased April 30. The examinations will be held May 4 and succeeding days. The graduating class this year numbers seventy-five.—Examiners at Toronto University will take part this year at the examinations of McGill University, while those from McGill will go to Toronto. This will be done this year only in anatomy and pathology, but in future years this is expected to be extended to embrace many subjects.

Hospital News.—The municipal grant to the Prince Rupert (B. C.) Hospital has been reduced from \$10,000 to \$7,000. The British Columbia government has made a grant of \$100,000 to the Vancouver General Hospital; next year the amount will be \$125,000.—A grant of \$2,000 has been made by the provincial government of British Columbia for a new hospital at Masset.—The Medicine Hat General Hospital has received a municipal grant of \$19,000. Of this amount, \$5,000 will be devoted to current expenses and \$14,000 for property purchase.—A sanatorium for the treatment of tuberculosis cases is to be built at once at Calgary. A year ago the sum of \$30,000 was voted by the Calgary Council for the purpose.—The Brandon (Man.) Hospital is to expend \$100,000 on a maternity home and extend the mission building and nurses' home.—In the province of Ontario there are eighty-nine public hospitals, fifty-seven private hospitals, thirty-seven refuges, eight sanatoria for consumptives, thirty-three orphanages, three homes for incurables and thirty-one county houses of refuge. During the year ended Sept. 30, 1913, 68,738 patients received treatment in the hospitals, and 4,058 deaths occurred. The total amount expended during the year on hospitals was \$3,155,340, of which amount the Ontario government granted \$232,276.

LONDON LETTER

LONDON, May 8, 1914.

The Royal Commission on Venereal Diseases

The Society of Medical Officers of Health has called the attention of the commission to the lack of exact information regarding the present prevalence of syphilis and other venereal diseases either as causing illness or death; the misleading or incomplete character of certified causes of death, particularly of the remote causes in fatal diseases of the nervous or circulatory systems; the absence of any systematic provision for the recognition of the diseases in question, and the relation of syphilis to miscarriage, stillbirths and deaths among infants in the first year of life, especially the first four weeks.

Sir Victor Horsley insisted on the importance of education of the public in regard to venereal diseases and of children in sex matters. If the nature study part of elementary education were extended and every child taught the groundwork of hygiene, instruction in sex matters could gradually be brought into its mind. In secondary schools full instruction could be given. Sir Victor dwelt with the difficulty with which physicians are faced in public health matters by reason of the law of libel. They ought to be able to warn any one who, to their knowledge was likely to be infected, but at present they were liable to an action for libel. He was in favor of notification to the health officer. This would probably be resented both by physicians and by the public, but the history of notification showed that objections had been made in regard to even the simplest diseases. The notification of scarlet fever was violently resisted at first. The notification should be confidential. He was in favor of treatment in special wards of general hospitals.

Suggested Prohibition of Marriage of Neurotics

In a lecture at the Institute of Hygiene, a leading neurologist, Dr. J. S. Risien Russell, spoke of the congenital defects of the brain and consequent idiocy that tend to follow intermarriage, while to the mating of neurotics, especially epileptics, he said, could be traced a large proportion of neuroses. The rather remarkable fact that neurotics actually tend to marry neurotics called from him the expression, "Would that neurotics could be attracted by the phlegmatic, as the offspring would be much less likely to be productive of so many unstable individuals prone to various mental and nervous disorders." On the facts, however, most authorities are in agreement. The question of prevention is the difficulty. Dr. Russell advocated the full policy of prohibition of marriage of persons "known to be affected by some malady of the nervous system that is hereditarily transmissible, even when it is proposed that they should mate with some one of strong nervous organization who comes of a stock free from any suspicion of nerve degeneracy." Neurotic parents should be made to recognize the importance of having their children brought up away from the neurotic atmosphere in which they are usually steeped and which cannot fail to be productive of the most harmful effect.

The Struggle Between the Profession and Friendly Societies in Australia

The relations between the profession and the friendly societies at the antipodes are of the same strained nature as in this country. At a conference of friendly societies held in Sydney considerable discussion took place on this subject. A paper read by Mr. Robert Clark of South Australia shows very well the friendly societies' point of view. The antipathy of the profession in this country to "medical institutes" (organizations for the employment of whole-time physicians to attend the members) has been described in a previous letter to THE JOURNAL. In Australia there is the same antipathy. Mr. Clark said that through the establishment of medical institutes, many members of the profession had ceased to entertain that friendly feeling toward societies that formerly contributed to the welfare of all concerned. The institutes, as agencies in friendly society work, had proved of considerable value in some localities, but, owing to the hostile attitude of the British Medical Association, the choice of medical officers was now practically confined to what might be termed "non-union" doctors, and it seemed probable that in the near future the institutes would have trouble in procuring the necessary professional assistance. The friendly society practice had assisted a large number of physicians to attain eminence in

the profession. The extent of benefits to members' wives and families had been extremely irritating to the profession, but lack of organization and keenness of competition had enabled the societies to make far-reaching contracts. Clark denied that the societies had sweated the profession. Invariably the doctor had quoted the terms which the society had accepted. That the societies had had the best of the bargain during recent years was generally admitted by leading representatives, and that the profession earned and deserved higher rates of remuneration was freely acknowledged at the 1912 Sydney conference, which agreed, without demur, to increased rates. The organization of the medical profession during the past eight or ten years had been truly marvelous. It was asserted that 98 per cent. of the profession were in the British Medical Association. They were in a position to dictate terms, and it was improbable that societies would be able to supply in the near future the existing medical benefits. The public hospitals were practically closed to lodge members, largely through the influence exerted by the profession. Until very recently a member was admitted on order, and, if he was in a position to pay for attention, he was called on to do so. No objection could be urged to this, and the amount was usually fixed at \$5 per week. Now only the indigent were eligible for prolonged treatment. The lodge and family doctor was disappearing, and the mutual confidence which, true to the traditions of each side, existed for generations, was rapidly being dissolved in the commercial atmosphere of the present.

PARIS LETTER

PARIS, May 1, 1914.

The Prophylaxis of Leprosy

At its session, April 28, the Académie de médecine terminated the open discussion on the action of the Minister of the Interior (THE JOURNAL, Feb. 28, 1914, p. 711) on leprosy, its dangers, and the preventive measures which should be taken against it. The members of the academy passed the following resolutions: (1) leprosy should be included among reportable diseases; (2) lepers should be submitted either to oversight or to isolation, as the case may demand; (3) foreigners suffering from leprosy should be excluded from French territory; (4) a special commission should consider each case. Furthermore, the academy emphasized the fact that to work for the prevention of leprosy in France would be useless unless the public officials could be impressed with the need of rigorous measures against the diffusion of leprosy in the colonies and the countries under the French protectorate, in which the danger is far greater than in the metropolis.

Death of Professor Van Tieghem

French science has suffered a great loss in the recent death of the famous botanist, M. Philippe Van Tieghem who recently died, aged 75. He had been a member of the Académie des Sciences for about forty years and was one of the first of Pasteur's collaborators. At that time he prepared for his doctor's degree in physical sciences, his thesis on the subject of ammoniacal fermentations, which is still considered authoritative. It was in botany, however, that his influence was most important; his "Traité de botanique" completely altered the method of studying that science, at home as well as abroad. The classification of plants has been, one might say, revolutionized by the works of Van Tieghem.

Peritoneal Tuberculosis in Infants

At the last session of the Académie de médecine, Dr. Marfan, professor of therapeutics at the Faculté de médecine de Paris, gave an interesting address on this subject. Tuberculous peritonitis is observed most frequently in advanced childhood, from 6 to 15 years of age; below the age of 6 it is infrequent and appears less often in early infancy. Before the age of 2 years the disease is rarely seen, and has clinical aspects quite unlike the usual symptoms, so that its diagnosis is ordinarily very difficult. Without doubt, some ascitic and fibrocaceous conditions may be observed in infants as well as in older subjects. More often ascites and "peritoneal nodules" are absent; the clinical picture lacks clearness; the diagnosis long remains uncertain. Tuberculous peritonitis is much more dangerous in infants than in older children; below the age of one year it seems invariably to result in death. Its progress is also rapid; instead of lasting for years, the disease develops in some months or even in weeks. One of the conditions which renders the

prognosis more grave is the difficulty of recognizing the disease in time; to recognize it sooner would, perhaps, mean its more successful treatment. Without doubt the skin reaction to tuberculin has greatly favored the early recognition of the disease. In spite of the great value of this test, however, the evidence which it furnishes is not sufficient to establish a diagnosis in every case; when the test is positive it indicates that there is a tuberculous lesion in the organism, but it does not show the location nor does it tell us whether the lesion is active or dormant. For these reasons the clinical examination retains its value.

For guidance in diagnosis, Marfan attaches great importance to the diverse forms of "protuberant abdomen" in the infant. Beside the swelling due to ascites, or to a liquid or solid tumor, two varieties of enlarged abdomen remain: the flaccid, and the tympanitic. The flaccid variety is due to relaxation of the gastric, intestinal and abdominal muscles, and almost always accompanies rachitis, of which it is one of the elements. The tympanitic enlarged abdomen has a varying significance according to its transitory, intermittent, or chronic nature. Transitory tympanites is caused by acute gastro-enteritis or acute peritonitis; intermittent tympanites, whether slight or general, is caused by nervous affections of the stomach or intestines, and perhaps results from the production of gas. As for chronic generalized tympanites, its significance varies according to whether or not it is accompanied by digestive disturbances with diarrhea or constipation. Chronic tympanites with chronic diarrhea is due to intestinal ulcerations; with obstinate constipation and dating from birth or very early life, it is indicative of those forms of congenital constipation which are related to intestinal malformation, and are still grouped under the name of Hirschsprung's disease; without diarrhea and without obstinate constipation, it appears to result from tuberculosis either of the peritoneum, or of the mesenteric ganglions in which the intestine is not involved.

BERLIN LETTER

BERLIN, April 24, 1914.

Annual Meeting of the German Surgical Society

The most important subject for discussion at the meeting of the Deutsche Gesellschaft für Chirurgie, which was held as usual at Berlin, in the middle of April, was the cause and treatment of postoperative ventral hernia, the discussion of which was introduced by Sprengel of Brunswick.

POSTOPERATIVE VENTRAL HERNIA

The speaker distinguished, in addition to the hernia of the abdominal wall in its proper sense, paralysis of the abdominal wall (following section of the nerves supplying the rectus), and stretching of the abdominal wall. The causes of these conditions are the tamponade, wound infection, inaccurate suture and improper suture material and serious postoperative injury, as from vomiting, etc. To these four factors, which have been long known, may be added a fifth, which has been brought out by recent investigation, namely, the use of a physiologically incorrect method of abdominal incision. In view of the fact that not only the technic of tamponing but also the indication for its application have been modified in the course of time and that, on the other hand, a more correct plan of incision is possible, the speaker recommended the following: When it is possible, an alternate incision is to be used, such as is applicable for most gynecologic laparotomies, in almost all appendix operations, in most operations on the kidneys and finally for the treatment of all intraperitoneal and retroperitoneal abscesses. For all severe cases, that is, in general, cases in which a simple suture by layers is not sufficient with a physiologically correct incision, Sprengel recommends the mattress-suture with catgut and a fine linen thread superposed (the material in suppurative cases should be boiled catgut, otherwise fine linen).

Drainage and tamponade he regards as supplementary to the discharge from the abdomen obtained by the operation. By limiting these and fixing more exactly the indications, the prognosis of cases treated by tampons has been improved, although the number of cases has become greater. The method of incision appears not to have the same importance for cases treated with tampons, at least in the upper part of the abdomen, as for the cases which are sutured immediately and the abdomen completely closed. It may be shown by statistics that in the upper part of the abdomen, hernia formation is less frequent than in the lower part,

probably because the demands on the abdominal wall are less. The important question, whether or not the attempt to limit the use of tampons also involves danger, was answered in the affirmative and thoroughly discussed. The indication requiring a secondary operation to close the abdomen from fear of a postoperative hernia, the speaker could not endorse. The operative measures for the treatment of an extensive ventral hernia were discussed on the basis of whether the muscular and fascial tissue present (1) is sufficient for a satisfactory closure, or (2) is not sufficient for a satisfactory closure, or (3) is quite insufficient. The speaker advocated an extensive application of transplantation of fascia and condemned the use of material foreign to the body. The autoplasmic use of muscle in the sense of the bridge plastic method of Pfannstiel-Menge should be considered as a last resort in extensive hernia. A modification of the last method was recommended.

In the discussion, Perthes of Tübingen recommended the overlapping method of Mayo not only for operations on hernias which have already occurred, but also to prevent them. He had observed only two hernias as a result of infection among thirty-nine cases in which operation had been performed by this method.

Völcker of Heidelberg laid great stress on the preparation of patients who are to be operated on for hernia (reduction of obesity, massage). In the operation itself, he tries to avoid, as much as possible, the opening of the hernia.

Menge of Heidelberg emphasized the fact that the musculature plays a much more important rôle in preventing hernia than the fascia and the aponeuroses. It must be well sutured and anchored by means of a cross-suture of the fascia. In sixty cases which were examined after the operation, he found no hernia. He opposes the wearing of a bandage after the operation.

König of Marburg emphasizes the importance of gymnastic exercises of the abdominal muscles and believes that the earlier demands made on these muscles in children, in whose cases drainage is more frequently employed than in those of adults, protects them from hernia. He employs periosteum from the tibia in cases in which he can get a piece wide enough; in other cases he uses fascia.

Wullstein of Bochum laid stress on the importance not only of the muscles but also of every single layer of the abdominal wall. He uses the principle of doubling in all the layers. He has never found it necessary to use foreign material. He does not agree with Sprengel that a prophylactic operation is not indicated. In case of large incisions and corpulent persons, Wullstein regards this as indicated. In order to obtain a good result, the pendulous abdomen, which is usually present, should be corrected.

Küttner of Breslau, in contrast to the plan of Sprengel, has always sutured with silk and moistened the line of suture with 0.1 per cent. mercuric chlorid, refraining from running sutures. He has remained faithful to the longitudinal incision.

TREATMENT OF MALIGNANT TUMORS

The reports of von Eiselsberg of Vienna on his experience in the treatment of malignant tumors with radium and the Roentgen rays also excited an extensive debate. The speaker first considered the radium treatment and distinguished the prophylactic and the curative treatment. In the first class he has seen good effect in a number of cases, especially a case of carcinoma of the upper jaw (in which operation was performed in 1910) but, on the other hand, he also had injurious effects, as in one case of carcinoma of the tongue. With a view to cure, he has treated only inoperable cases and has seen healing in a number of cases in which, however, a sufficient time has not elapsed to permit him to speak of a permanent cure. Cases of basal-celled carcinoma have shown especially favorable results (seven cures in nine cases). In some cases, by the rays he was able to make operable tumors which were otherwise apparently inoperable. A malignant tumor of the thyroid was healed, but the patient acquired a large radium ulcer which made a plastic operation necessary. Eiselsberg lays stress on the fact that in such cases one must accept this accident as a lesser evil. In a large number of cases, only temporary improvement was obtained. In four cases of carcinoma of the esophagus with much stenosis, dilatation occurred very quickly; but in some of these a new stenosis developed above the tumor as a result of radium burns. Aside from these lesions, however, cases were observed in which the treatment had a directly unfavorable effect. When healthy vessels traverse the area irradiated, there is a direct

danger of erosion and consequent hemorrhage. In some cases, also, a rapidly increasing cachexia was observed as a result of the absorption of the tumor material destroyed by the radium. The same is true of the Roentgen rays as of radium. As yet there have been no permanent successes, but remarkable improvement has resulted. Here also, one must not be deterred by burns of the skin if there can be obtained thereby a cure of the patient from his malignant disease. From his experience, Eiselsberg would give the preference to radium in carcinoma of the esophagus and rectum, but, on the other hand, in a large part of other cases, he prefers the Roentgen rays. Operation should still be performed in operable cases; inoperable cases should receive radiotherapy, and prophylactic irradiation should be undertaken.

In the discussion, Wilms of Heidelberg emphasized the importance of prophylactic irradiation, especially for carcinoma of the breast. In twenty cases of carcinoma of the breast which he irradiated after the operation, the patients suffered no relapse. He was inclined to believe that one might be content with extirpation of the tumor in carcinoma of the breast if an energetic postoperative treatment with the rays was carried out. The regional lymph-nodes were particularly influenced. He explains this by the fact that the autolytic processes which are going on ordinarily in the glands are increased still more by the action of the rays. Carcinomas of the lips and tongue are especially suited to radiotherapy.

Spaltzer of Vienna made a special report on cases treated with the Roentgen rays at the Vienna clinic. Of sixty-four cases, twelve were healed, seventeen remarkably and thirteen slightly improved. Five were aggravated and seventeen showed no effect. These results can be obtained only with modern apparatus by using thoroughly filtered high doses and hard tubes. In the previous use of radium an ulcer occurred more readily. Operable tumors belong to the knife.

Tilmann of Cologne emphasized the slight penetration into carcinomatous tissue and the variable effect of the rays on various tumors which for the present make radiotherapy so uncertain that operable tumors should not be submitted to it. On the other hand, Krönig of Freiburg, in view of the unfavorable statistics of operation, would have operable tumors treated with the rays and that not only in case of carcinoma of the female generative organs but also carcinoma of the breast. Müller of Rostock protested against this proposition, saying that we do not know whether we can secure a final cure of carcinoma with the rays (that is, over five years). On the other hand, we do know that this is attained by surgery.

Werner of Heidelberg also had permanent cures to report; 286 cases were treated with mesothorium. Of thirty-seven carcinomas of the stomach, a distinct retrogression was observed in eight cases. Of nineteen cases of cancer of the esophagus, ten were maintained in good condition for six months, but only one longer than a year.

Heymann of Breslau reported that in the gynecologic clinic of that place operable tumors were surgically treated, but a preliminary treatment with the rays was undertaken for the removal of fetor and hemorrhage. The prophylactic postoperative treatment had been successful, but it must be carried on energetically for many months. The combination of the Roentgen rays with mesothorium has given good results.

Krause of Berlin reported the successful treatment of small relapses by the Roentgen rays and the value of prophylactic treatment after operation on the breast. In two cases, in which it could be shown that a definite part of the breast had not been irradiated, relapses occurred in these places. The rays must be filtered and tubes under ten We. (this refers to Wehnelt's penetrometer) must not be used.

Perthes of Tübingen referred to a case of carcinoma of the lips treated by him by radiotherapy which had remained cured for more than six years.

Fritsch of Breslau discussed Abderhalden's method of serodiagnosis of cancer. He had tried to test its value as an indication for operation. By the use of numerous parallel tests and frequent repetitions of the reaction, it is possible to exclude the principal sources of error, but even then it had only the value of probability and was useful only in connection with the clinical picture. Fritsch believed, however, that even if the scope of application of the reaction is very small, there are cases in which the test can be of service to the clinician, and one is not justified for that reason in rejecting it completely.

Marriages

CARYL ASHBY POTTER, M.D., St. Joseph, Mo., to Miss Marie Whitney of Brooklyn, N. Y., at Hubbard Woods, Ill., April 4.

CHARLES HENRY DEAN, M.D., Northampton, Mass., to Miss Martha Gertrude Jones of Salisbury, Vt., May 6.

PHINEAS HILHOUSE ADAMS, M.D., to Miss Marguerite La Wall Janvrin, both of New York City, May 5.

DAVID RALSTON, M.D., to Mrs. Alice Daly, both of Cadillac, Mich., at Grand Rapids, April 30.

GEORGE ENOS MILLER, M.D., Hammond, Ind., to Miss Eda L. Flasher of Chicago, April 22.

ALFORD JAY FARNHAM, M.D., Reinbeck, Ia., to Miss Jean Brown of Traer, Ia., April 29.

Deaths

David William Bulluck, M.D. University of Maryland, Baltimore 1873; a member and once vice-president of the Medical Society of the State of North Carolina; formerly president of the Atlantic Coast Line Surgeons' Association; and at the time of his death president of the Onslow Medical Society; local surgeon at Wilmington, N.C., for the Atlantic Coast Line; a member of the Board of Directors of the Eastern Hospital for the Insane, Goldsboro; and for many years a member of the Board of Health of New Hanover County; died at his home in Wilmington, May 6, from typhoid fever, aged 60.

John Benjamin Lewis, M.D. New York University, New York City, 1853; medical director of the Travelers' Insurance Company, Hartford, for nearly forty-five years; a member of the Connecticut State Medical Society and Association of Life Insurance Medical Directors; surgeon of the Fifth Connecticut Volunteer Infantry, later Brigade Surgeon and medical director of the department of West Virginia during the Civil War; brevetted lieutenant colonel in 1865 for 'faithful and meritorious service'; died at his home in Hartford, April 26, aged 82.

Charles N. Field, M.D. College of Physicians and Surgeons in the State of New York, 1870; a Fellow of the American Medical Association, and American Academy of Ophthalmology and Laryngology; a member of the American Association for the Advancement of Science, and the American Association of Railway Surgeons; a veteran of the Civil War, in which he served in the Hospital Corps of the First New York Volunteer Infantry; a practitioner of Jefferson, Ia., since 1871; died at his home in that place, May 7, from pneumonia, aged 71.

Samuel G. Gray, M.D. University of Pennsylvania, Philadelphia, 1863; a member of the Medical Society of the State of Pennsylvania; and once vice-president of the Lancaster County Medical Society; assistant surgeon of the Twenty-Ninth Pennsylvania Volunteer Infantry and surgeon of the Twentieth Pennsylvania Cavalry during the Civil War; from 1875 to 1878, a surgeon on Atlantic liners; died at his home in Landisville, May 2, from heart disease, aged 76.

William Edmond Weber, M.D. College of Physicians and Surgeons, in the city of New York, 1894; a Fellow of the American Medical Association; chief inspector of the milk department of the New York Board of Health; attending physician to the German Hospital; and lecturer on pediatrics in the New York Polyclinic; died suddenly in a subway station in New York City, May 7, aged 46.

Thomas Corwin McCaughey, M.D. Rush Medical College, 1868; one of the most prominent practitioners of central Illinois; a Fellow of the American Medical Association; and once president of the Vermilion County (Ill.) Medical Society; a veteran of the Civil War; died at his home in Hoopeston, Ill., May 6, from heart disease, aged 73.

Archie Eli Brimmer, M.D. Rush Medical College, 1910; of Minneapolis; a Fellow of the American Medical Association; died in the Eitel Hospital, Minneapolis, May 4, from meningitis, a week after a surgical operation, aged 31.

Lucius Lavoisier Lamar, M.D. University of Texas, Galveston, 1903; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; died at his home in Florence, Texas, May 2, aged 35.

Henry Cabell Tabb, M.D. Medical College of Virginia, Richmond, 1860; surgeon in the confederate service throughout the Civil War; for twenty years medical director of the Life Insurance Company of Virginia; died at his home in Richmond, Va., May 7, aged 75.

Patrick J. McKeown, M.D. Bellevue Hospital Medical College, 1890; a Fellow of the American Medical Association; formerly health officer of Long Island City; and a member of the staff of St. John's Hospital; died at his home in Long Island City, May 3, aged 53.

Frederick W. Meddaugh, M.D. Jefferson Medical College, 1909; of Williamsport, Pa.; a member of the Medical Society of the State of Pennsylvania, aged 26, was killed in an automobile accident on the Lycoming state road near Williamsport, May 5.

John A. Brobst, M.D. College of Physicians and Surgeons, Baltimore, 1885; secretary to Secretary of the Navy Thompson, at the time of the settlement of the Nova Scotia fisheries claim; died at his home in Allentown, Pa., May 4, from septicemia, aged 61.

Elmore Y. Munsell, M.D. Starling Medical College, Columbus, Ohio, 1869; for twenty-one years a practitioner of Portland, Ore., but for the last four years a resident of Ocean Park, Wash.; died in the Good Samaritan Hospital, Portland, April 28, aged 75.

James Ney Wright, Jr., M.D. University of Michigan, Ann Arbor, 1882; a member of the board of liquor license commissioners of Licking County, Ohio; formerly county auditor; died at his home in Newark, Ohio, about May 5, aged 55.

William H. Minnich, M.D. College of Physicians and Surgeons, Baltimore, 1890; a member of the Medical Society of the State of Pennsylvania; for eight years jail physician of York County; died at his home in Dallastown, Pa., May 1, aged 49.

James S. Black, M.D. For sixty-three years a practitioner of Ohio; died at the home of his son in McConnellsville, Ohio, February 6, from uremia, aged 87.

James O. Stewart, M.D. McGill University, Montreal, 1880; for many years a practitioner of Cazaville, Que.; died at his home in Montreal, February 20.

Elva M. Thornberry, M.D. Western Pennsylvania Medical College, Pittsburgh, 1887; died at his home in Barnesville, Ohio, March 13, aged 49.

Norman Glenn Parker, M.D. Cleveland University of Medicine and Surgery, 1897; formerly of Onawa, Iowa; died in Port Royal, Pa., March 15.

Oliver L. Blachly, M.D. Jefferson Medical College, 1887; formerly of Sparta and Wilkesburg, Pa.; died at his home in Pasadena, Cal., April 18.

Nelson Loar, M.D. Physio-Medical College, Cincinnati, 1867; died at his home in Bloomington, Ill., April 29, from senile debility, aged 74.

Annie M. Brown, M.D. Women's Medical College of the New York Infirmary, 1880; died at her home in Brooklyn, N. Y., April 30, aged 72.

Harry Atherton Smith, M.D. Medical School of Maine, Brunswick, 1890; died at his home in West Roxbury, Boston, April 27, aged 47.

Eugene Frederick Pearce, M.D. Long Island College Hospital, Brooklyn, 1883; died at his home in Brooklyn, April 30, aged 55.

George H. W. Ryan, M.D. McGill University, Montreal, 1899; died at his home in Vermillion, Alta., February 21, aged 40.

John C. Peyton, M.D. Jefferson Medical College, 1866; of Winter Garden, Fla.; died in Orlando, Fla.; February 27, aged 72.

James W. Long, M.D. Meharry Medical College, Nashville, 1899; died at his home in Texarkana, Texas, April 25, aged 41.

James J. Brown, M.D. University of Toronto, Ont., 1887; died at his home in Owen Sound, Ont., February 24, aged 53.

George B. Loring, (license, Utah, five years' practice, 1894); died at his home in Monroe, Utah, April 25, aged 49.

Walter Cartier, M.D. Laval University, Montreal, 1905; of Coteau Station, Que.; died in Montreal, January 28.

T. R. Dice, M.D. St. Louis Eclectic Medical College, 1876; died at his home in Utica, Mo., April 19.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE TURNOCK MEDICAL COMPANY

The Lynott-Katz-Read Mail-Order Medical Concern Declared Fraudulent by the Federal Authorities

The Turnock Medical Company was a fraudulent mail-order concern operating from Chicago. May 6, 1914, the Postmaster-General issued a fraud order against the Turnock Medical Company and Dr. T. Frank Lynott, the medical employee who is described in the Turnock "literature" as the "specialist in charge." At the time the federal authorities put the quietus on this fraud, the Turnock Medical Company was receiving about four thousand letters a day from the gullible sick, and its income is said to have been approximately \$350,000 in the last year of its existence. It has been doing business eight years.

For some years past, the Propaganda Department has been keeping itself informed on the methods of the Turnock Medical Company and T. Frank Lynott. Until comparatively recently, the men behind the Turnock Medical Company are said to have been:

EUGENE KATZ, President and Treasurer.
GEORGE J. KATZ, Vice-President.
SAM D. KATZ, Secretary and Manager.

In the operation of a mail-order medical concern a knowledge of medicine is not necessary. A due appreciation of the gullibility of the sick; an absence of moral sense; an utter disregard for truthfulness and common honesty—these are the essential requirements to make a commercial success of concerns like the Turnock Medical Company. And the Turnock concern apparently fulfilled these requirements.

THE PERSONNEL

Eugene Katz is said to have been a professional advertisement writer before he went into the fraudulent medical mail-order business. George J. Katz and Sam D. Katz were indicted by a federal grand jury in January, 1914, on the charge of operating a fraudulent mail-order concern under the style of "Dr. G. B. Abbott." The "Sam Katz Oxygen Catarrh Treatment" is another fraud operated from the same address as the Abbott swindle.

THE COMMERCIAL VALUE OF URIC ACID

The Turnock Medical Company sometimes advertised under its own name and sometimes under the name of Dr. T. Frank Lynott. Its advertising slogan was "Uric Acid." All diseases, according to the Lynott-Turnock theory, are due directly or indirectly to uric acid. During the past three or four years letters have been sent to the Turnock Medical Company under various names and from widely separated places, describing various hypothetical cases. One letter was sent in describing a well-advanced case of cancer of the rectum. According to Lynott's "diagnosis," this unfortunate individual had an "excess of uric acid." Wrote the quack:

"I am positively certain in my own mind that I have the method to cure you. The suffering that you have undergone in the past must convince you that there is no time to be lost. . . . A person at your age has still a long and happy life ahead if the disease can be gotten rid of now."

A letter mailed from another part of the country contained one of Lynott's "symptom blanks" on which check marks had been placed against the following symptoms: (1) "Too frequent desire to urinate;" (2) "Pain or soreness in the bladder;" (3) "Pain or soreness in the kidneys." This hypothetical party, according to Lynott's "diagnosis," also suffered from an "excess of uric acid," and Lynott wrote, per stock letter "A":

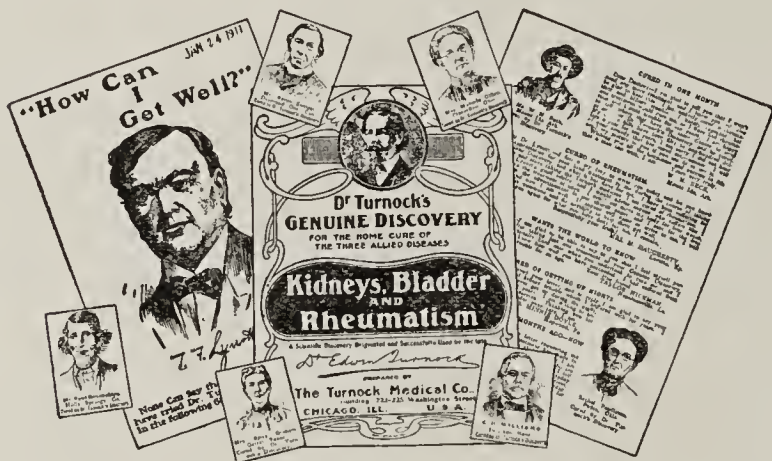
"I am positively certain in my own mind that I have the method to cure you. The suffering that you have undergone in the past must convince you that there is no time to be lost. . . . A person at your age has still a long and happy life ahead if the disease can be gotten rid of now."

A third letter, sent from still another address, merely asked about the Turnock Medical Company's "treatment." Its writer, too, was told he had excessive uric acid!

During the past three or four years, physicians have sent us letters received by some of their patients who had "fallen for" the Turnock advertisements, and in every instance, no matter what the ailment of the patient, Lynott was "positively certain" in his "own mind" that he could cure the patient. This merely meant, of course, that in common with all mail-order medical concerns, the Turnock Medical Company had an elaborate series of "form letters" that were sent out to the prospective victims that answer advertisements. The much vaunted "individual treatment" received by people who write to such concerns consists in turning the letter over to mailing clerks who see that a given stock letter is sent to the unfortunate sufferer and dupe—prospective or present.

THE FREE TRIAL TREATMENT

The scheme of the Turnock Medical Company was to advertise a free treatment, "I am giving away \$10,000 worth of medicine," declared Dr. T. Frank Lynott. The Turnock advertisements also contained a list of eighteen "symptoms" which "uric acid sufferers" might be expected to have. Symptom 1 was "Pain in the Back." As this symptom bears



Some pages and clippings from the book "How Can I Get Well," sent out by the Turnock Medical Company.

about as much relation to "excessive uric acid" as it does to that equally vague and uncertain condition known as "female trouble," it might be counted on to catch many "suckers." Symptom 5 was "Prostatic Trouble"—also, we are asked to believe, the result of "excessive uric acid." Symptom 8 was "Pain or Soreness under the Right Rib," Symptom 10, "Constipation or Liver Trouble" and Symptom 13, "Pain in the Neck or Head." The all-inclusive character of these symptoms made it easy to impress the general public with the idea that "excessive uric acid" was the *bête noire* of existence; hence, send for a "free trial treatment" of Dr. Turnock's Genuine Discovery!

THE "FOLLOW-UP" SYSTEM

Possibly the best way of describing the methods pursued by the Turnock Medical Company will be to give in some detail one of a number of cases that have been followed up by THE JOURNAL.

A postal card was written by a man we will call Mr. Blank, from a town in North Carolina. It asked the Turnock Medical Company for information regarding its "treatment," but gave no description of a case, either real or hypothetical. By return mail back came form-letter, "T. F. L. 2," reading in part as follows:

"My dear Mr. Blank:—Your request came duly to hand, and knowing that you must be anxious to hear from me, I hasten to reply enclosing the promised free matter. But I want to give your case careful and conscientious study, as it presents many interesting phases to me, and rather than give a hasty diagnosis, I prefer to give the symptoms, etc.,

complete thought for a few days, and then let you hear from me in detail with confidential facts.

"In the meantime, in order that you should not be kept waiting, and so that you may have your system nicely prepared for treatment, I enclose herewith a free supply of Dr. Turnock's Genuine Discovery in the form of general specific Uric Acid medication, which will apply to your case for the present in a general way. I will then have completed my regular and confidential diagnosis and found out just exactly what you need in every particular as to ingredients, medications, diet, special advice, etc., so that I can then recommend with sincerity a reliable and accurate personal specific for your cure. I am also anxious to compare your case with others I have treated in the past 25 years."

The "free" matter referred to in the letter consisted of a book entitled, "How Can I Get Well?" and a small cardboard box containing a number of small sugar-coated tablets. Four days later came form-letter, "T. F. L. 3," reading in part as follows:

"My dear Friend:—You were expecting to hear from me before this, but several points came up that required attention and delayed me. I have now completed a most careful personal examination of your case and can say with all truth that I feel absolutely sure you are curable. In the short space of a letter a full and detailed description of your symptoms, or the causes and effects of your afflictions could not be given. But in the pictorial pamphlet "How Can I Get Well?" that I sent you with the free trial treatment, I have more fully described your diseases, which are *Kidney Trouble and Excess of Uric Acid*, on pages, 14 & 15, 32 & 36 & 33 & 49.

"I am positively certain in my own mind that I can cure you. The suffering that you have undergone in the past must convince you that there is no time to be lost. The older a disease like yours gets the more misery and pain it causes. The sooner it is cured the more days you have to enjoy life, and the longer your life will last. A person at your age has still a long and happy life ahead if the disease can be gotten rid of now.

"Realizing how necessary it is that you shall begin your cure at once, I have sent the full course of home treatment direct to your address to-day by mail at our expense. This will give you a chance to see what you are getting. Most doctors would ask you for the money first, but that takes time, and you have no time to lose; other doctors send treatment by Express C. O. D., but this is neither honorable nor fair, as you can't see what you are getting and it adds to your expense. So I thought that the Direct Delivery would be the better way, and I know you will agree with me and appreciate it."

PLEASE REMIT THREE DOLLARS

For the "full course of home treatment" the victim thus has foisted on him unasked, he is requested to remit \$3. Should he not care to take the treatment, he is told: "Do not return it until I send postage as it may get lost." The reason for this warning is twofold: First, it permits the victim to retain the pills during a period in which he will be bombarded with insistent follow-up letters from Lynott urging him to take the "treatment" and in time reducing the price asked for it; second, as it costs four cents postage to send these pills, it would be a losing game for Lynott to request their return as the "\$3 treatment" was not worth four cents. As a matter of fact, of all the cases THE JOURNAL has investigated—and they are many—in not one did the Turnock Medical Company ever send the four cents for the return of their "treatment" for which they asked \$3.

The "full course of home treatment" came in a cardboard box about 4 inches square and 1 inch deep. In this box were three other boxes; one of them contained about 30 oblong, sugar-coated tablets, colored a vivid vermilion; box 2 contained about the same number of tablets of the same size colored a rich purple; box 3 contained two kinds of tablets, one labeled "Constitutional Remedy," and the other, "Vitalizer Remedy." The "Constitutional Remedy" consisted of twenty-three small chocolate-coated tablets, laxative in character and apparently nothing more than the common aloin, belladonna and strychnin pill. The "Vitalizer Remedy" consisted of fourteen sugar-coated tablets bright orange in color. No matter what the case, the victims all received the same purple, scarlet, orange and chocolate-coated tablets and the same set of follow-up letters.

If no notice was taken of the letters or pills, form-letter "T. F. L. 4" came in due time. Dr. Lynott was feeling pained at the patient's indifference. He wrote:

"My dear Mr. Blank:—Excuse me for writing you so soon again, but it seems strange I have not had a definite answer from you since sending the special treatment. I ask you is this fair? Is this treating me as kindly as I treated you? I want you to consider the 101 names of cured people, covering every Uric Acid disease that I guarantee to cure. Now could I have so many testimonials from total strangers if Dr.

Turnock's Genuine Discovery were not a wonderfully curative home treatment?

"I have made you the lowest price I can possible make you. It is lower than you can get such treatment for anywhere else in the world. It is less than one-half what thousands of others have paid in the past. It is simply the price of one visit to any reputable physician. And I include a whole treatment of medicine and I charge nothing extra for my professional services. What more can you ask?"

"I have given you endless proof of what the treatment will do for you, have legally guaranteed to cure you and have offered you a treatment that has always sold for five dollars for just three dollars, and if you now want to know about my own and the Company's responsibility—its financial ability to carry out guarantees—then write to the Colonial Trust and Savings Bank, to Chas. J. Grady, or A. E. Fechter, his successor, one of the most prominent druggists in Chicago, to Roberts & MacAvinche, among the best known concerns of its kind in the world, and to your friends who live in Chicago."

Thus, and much more; closing with the statement: "I look for your order just as fast as the mails can bring it." Continued silence brought "T. F. L. 5," in which Lynott says:

"My dear Mr. Blank:—I enclose herewith a copy of a letter I addressed to you some days ago, as I have not heard from you regarding the matter. Whether the other letter reached you or not, do me the

three dollars just at this time, and yet you do not feel like writing me about it and asking for a reduction.

"If that is so I will at once put you in a position where you can easily get the treatment. I know that sick people have many expenses, and I want to help them in every way I can and do all in my power to lighten their burdens. So by following the advice contained in this letter you will be safe. It is this:

"Send me one dollar and a half and take the treatment. This is a reduction of one-half, or fifty per cent. I do this because I believe you need the treatment, and I hope you will appreciate the reduction."

Then another wait, and a printed form comes offering the "treatment" for "Only One Dollar." If this, too, fails to bring results, the Turnock Medical Company charges the form-letters and pills up to profit and loss, drops the name from its mailing list and presumably rents or sells it to other concerns in similar fraudulent businesses.

In the memorandum of Assistant Attorney-General Lamar to the postmaster-general recommending the issuance of a fraud order against the Turnock Medical Company and Dr. T. Frank Lynott, most of the facts already given were brought out. In addition, the following came to light:

THE READ-KATZ ARRANGEMENT

The individual claiming to be the sole owner of the Turnock Medical Company at the time the case was brought up for trial was one George H. Read. He was represented in this case by Attorney W. Knox Haynes of Chicago, the same lawyer, by the way, that appeared in defense of the Marjorie Hamilton and Texas Guinan frauds. Doctors Frederick A. Jefferson and James W. Hall of Chicago



Some of the numerous letterheads used at different times by the Lynott-Turnock outfit.

favor to read the attached letter over again. I believe it will convince you that you ought to pay for the treatment and begin to use it at once.

"This is no trifling matter, and that is why I took it upon myself to send you the treatment without loss of time. That proves my sincerity and friendship to you.

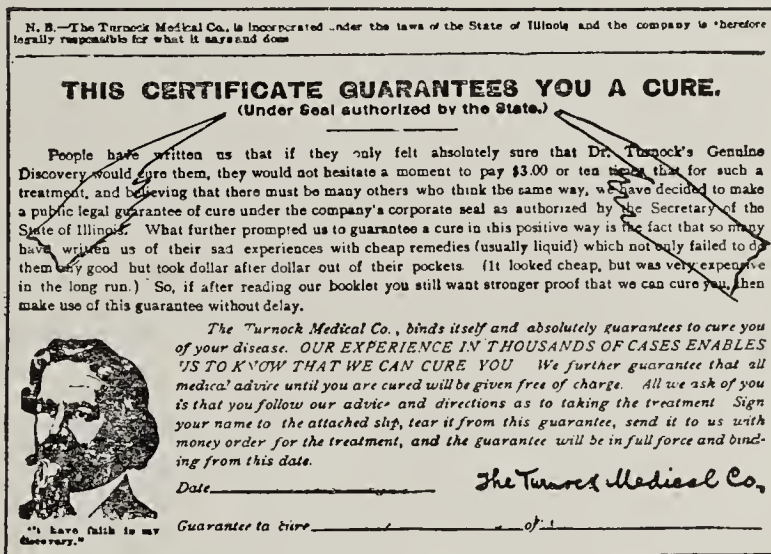
"This treatment is suited to your case. I feel positive it will cure you. I have successfully cured hundreds upon hundreds of people, so why should you doubt that I know how to cure you?"

"I specialize in uric acid ailments such as yours and their complications. I specialize therefore in the very disease that you have. Why should I not be able to cure you? Are the tens of thousands I have treated no advantage in my favor?"

NOW OFFERED AT HALF PRICE

"Do not ignore this matter," continues Dr. Lynott. "It may be that the span of your life depends on my treatment." In form-letter "T. F. L. 6," Turnock cuts the price in half.

"My dear Mr. Blank:—Have been trying to find a reason why you have not yet accepted the treatment recently sent you at my expense. Have come to the conclusion that perhaps you cannot afford to pay out



Every fraudulent mail-order concern issues a certificate guaranteeing either a cure or a return of your money; the Turnock Company was no exception. Here is a reduced reproduction of the Turnock Medical Company's "guarantee certificate." Note the impression the concern attempted to give that the guarantee was authorized by the State.

appeared as expert witnesses for the Turnock fakery. While Eugene Katz was alleged to have withdrawn from the Turnock business, the following quotation from the assistant attorney-general's memorandum throws an interesting light on the real facts of the case:

"Mr. Read claims that he purchased the business from Katz in May for a consideration of \$125,000, represented by twenty-five notes payable over a period of about one year. Mr. Read admitted that the net receipts of the business for the year preceding the alleged sale were approximately \$70,000, that the stock is on deposit as security for the notes; that there was an understanding that the notes were to be allowed to run at interest after maturity if not paid at that time; that a report is made each month relative to the business by Read to Katz, and that they have had a number of interviews since the alleged transfer although Katz has since then been a resident of New York. On the advice of counsel, Mr. Read declined to produce any of the monthly reports which he has made to Katz. Read admitted further that he draws from the business as a salary, \$10,000 a year. It is apparent that Katz has retained more or less of an influence and interest in the conduct of the business."

ALL "TREATMENTS" THE SAME

The postal inspectors who investigated the Lynott fraud submitted under assumed names a number of the symptom

coupons from the Turnock advertisements checking different symptoms. They, in common with others who answered advertisements, received the regular follow-up letters, the "free trial treatment" of pills and the unasked for, "full course of home treatment." On this point the assistant attorney-general said:

"The evidence shows that the treatment sent in all of these cases was the same, and consisted of well-known drugs which are sometimes prescribed by physicians as diuretics, expectorants, stimulants and cathartics, dependent on the conditions present in each individual case. The 'free treatment' consisted of the same medicine, but in smaller quantity. The medicine thus sent out is intended for the elimination of excessive uric acid from the system, and is of some value for this purpose when prescribed in accordance with the individual requirements of each case.

"That the symptoms set forth above may arise from a number of causes is such a well-recognized fact as hardly to require expert testimony to prove. However, the physicians who were present at the hearing were examined on this point, and they agreed that none of these symptoms, taken alone or in combination with any or all of the others

this system is entirely a matter of chance. I am satisfied from the evidence that all of the above facts were at all times well known to the respondents.

REPRESENTATIONS FALSE AND FRAUDULENT

"I therefore find that the above representations calculated to lead the reader to believe that, if he is suffering from any of the symptoms set forth in the advertisement, he is in need of the medicine offered by this company; that the company can and will diagnose the disease from which the addressee of the form-letters is suffering, by this system; that it has determined the disease or diseases from which the addressee is suffering; that it has determined that the addressee is curable, and that it knows that the medicine is suited to the case—are all false and fraudulent. I also find that the representations contained in the advertisement calculated to lead the reader to believe that he may obtain free a remedy for his disease is a fraudulent device intended to induce the sending to the company of names and addresses without making the promised return therefor, but instead thereafter advising the writer in effect that the remedy necessary for his cure must be paid for. I also find from the evidence that this treatment prescribed in this way is not of the efficacy represented in the advertising matter of this concern, and that it is in fact not different from, or better than, other treatments used for the same purpose."

NOT A MATTER OF OPINION

Like every quack and every exploiter of fraudulent "patent medicines" when caught in the net of the law the argument was advanced that the curative value of the Turnock Treatment was a matter of "opinion." To quote again from the attorney-general's memorandum:

"In argument and in his brief, Mr. Haynes insists that the question in this case is a question of opinion, and therefore not a proper question for the Postmaster-General to determine one way or the other. The question in the case is not, however, as he assumes, whether or not this medicine will cure or benefit conditions due to excess of uric acid, but whether or not the company makes false and fraudulent representations of fact in order to accomplish the sale of the medicine; and that it does so is, in my opinion, clearly shown by the evidence. The inevitable result of the system followed by this company in its treatment of disease is the defrauding of a large number of people out of money which they can ill afford to lose for drugs for which they have no need, and in a great many cases a resultant postponement of proper treatment, in some instances until too late."

In view of these facts Judge Lamar reported to Postmaster-General Burleson:

"I find that this is a scheme for obtaining money and property through the mails by means of false and fraudulent pretenses, representations and promises, in violation of Sections 3929 and 4041 of the Revised Statutes, as amended; and therefore recommend that a fraud order be issued against the parties named in the caption of this memorandum."

As previously stated, the mails were closed to the Turnock Medical Company and Dr. T. Frank Lynott on May 6, 1914.

[A business that brings in \$350,000 a year is, it seems, not one to be abandoned without a fight. The Chicago papers announce, as we go to press, that the Turnock Medical Company has filed a petition for injunction to prevent the enforcement of the fraud order.]



Send Me a Dollar!

When you wrote us for treatment we sent you some free. Then when your symptom blank came, we decided that you urgently needed regular treatment. What did we do? Keep writing you letters about it asking for money in advance, and wasting your time and postage, while giving your disease a chance to get worse?

NO!

We sent you the treatment you needed and prepaid the charges. The company took the chances, not you. How did we come out of the transaction? Very badly. We lost all around. We went to great expense and got nothing for it. Now we ask you kindly to

Help Pay Expenses

It is costly to send out remedies the way we do. And yet we believe it is the only way to do it in justice to those who are sick. It gives them a "square deal" in seeing what they are getting. All we ask is a square deal.

The symptom blank you filled out showed clearly that you needed the kind of treatment I sent you. Then why not take it? It is as good today as it ever was. Take it, and send the company only one dollar and thus help pay expenses, while at the same time helping yourself to be cured. Or, if you know of a friend who needs such a treatment, make them a present of it. How can you spend a dollar to better advantage?

I won't say another word. Send the dollar and take the treatment. Make your remittance to

DR. T. FRANK LYNOTT
of THE TURNOCK MEDICAL CO.

Photographic reproduction, greatly reduced, of the last of the follow-up series in which Lynott offered to take one dollar for the treatment for which he first asked three dollars. If this offer were not accepted it did not pay Lynott to send the four cents postage necessary for the return of the pills.

necessarily indicated an excess of uric acid in the system but might be due to other conditions requiring treatment of another kind. On this point there was no contrariety of evidence. While the physicians who appeared voluntarily at the request of this office asserted that there were many other causes of these symptoms just as common, if not more so, than excessive uric acid, the experts employed by the respondents stated that, although there were many other causes, excessive uric acid was the most common. In view of their admission, however, that there are many other causes, it follows that even on this theory, excessive uric acid is the cause in only a small percentage of the cases. The physicians called by this office also testified that some of the diseases represented by these symptoms were incurable and others curable only by a surgical operation, and that the applicability of this medicine in any case where the symptoms were in fact due to excess of uric acid was dependent on the conditions present in each individual case. Whether, then, this treatment would be of any value whatsoever in any case where prescribed in accordance with

The Average Mind.—The perfect physical form in man or woman is much more sought than found. The perfect mental form is even more rare. The best to hope for in the average man, from nature and nurture, is to have a right judgment in all things. In how few of us is this consummation reached! One philosopher made the comforting remark that "every man has a sane spot somewhere." Burton, in his survey of humanity in the famous "Anatomy of Melancholy," concludes that the whole world is mad, and needs a journey to Anticyra (where the best hellebore, a specific against madness, was grown).—Osler: Specialism in the General Hospital.

Correspondence

Some Statistics Concerning the Academic Careers of Medical Students

To the Editor:—The records of state board examinations, while they give an excellent idea of certain end-results obtained in the medical schools of this country, convey no hint of what might be termed the academic morbidity and mortality. Like a case of well-developed chronic disease, they represent merely the terminal stages, and there is no way of tracing through them the various metamorphoses that resulted in the finished product. The following figures are based on the records of the students entering the Yale Medical School from 1896 to 1908. They cover a period during which the requirements for admission were changing, and this gives an opportunity to compare students who were prepared to enter the medical school under different systems as to their capacity to grasp the subject of medicine and to pass through the medical school with or without conditions. Of the 518 students whose records were analyzed, 52.8 per cent. were graduates of high or preparatory schools; 16.2 per cent. entered on examination; 14.6 per cent. had spent from one to three years in colleges or scientific schools, and 16.2 per cent. were graduates of colleges or scientific schools.

Of this entire number, 58.8 per cent. graduated from the Yale Medical School, 85.9 per cent. of them in the minimum required period; 11.8 per cent. in one year more, and 2.2 per cent. in two years more than the minimum required period. These figures possess a certain interest on account of the different attitude toward graduation which is taken in European countries and in the United States. In Great Britain—if we may judge from the report of Mr. Hallett—it is expected that a considerable proportion of medical students will not graduate in the minimum required period of study. On the Continent of Europe, too, it does not appear to be regarded as disgraceful for a student to fail in his first attempt to obtain a degree, and the course may be voluntarily extended beyond the minimum required period. In this country, however, a certain stigma seems to attach to the individual who fails to obtain his degree in the minimum time of study required. It is a grave question whether this is not a distinctly fallacious attitude, largely because it fails to take into account the fact that there is a marked disparity in the capabilities of different men, even though they have equivalent preliminary training, to master in a fixed time the essentials of a difficult subject like medicine. On the other hand, it seems possible that the European attitude of allowing a man to continue studying year after year, even though he appears to lack the mental attainments necessary for the mastery of medicine, is perhaps too liberal an attitude, and not conducive to the best interests of the students or of the profession.

STATISTICS REGARDING 305 GRADUATES OF YALE MEDICAL SCHOOL

| Preliminary Qualifications | Time Required to Graduate | | | Honor Winners | | | | Completed Course Without Conditions |
|----------------------------|---------------------------|---------|---------|---------------|-----------|------------|-------------|-------------------------------------|
| | 4 Years | 5 Years | 6 Years | All Kinds | Cum Laude | Gold Medal | Keese Prize | |
| Grads. of High Schools. | 81.6 | 15.0 | 3.4 | 12.6 | 8.6 | 5.4 | 2.8 | 44.8 |
| Entered on Examination | 86.0 | 11.7 | 2.3 | 18.6 | 18.6 | 6.9 | 2.3 | 46.5 |
| 1 to 3 Years of College. | 89.2 | 10.8 | ... | 28.5 | 25.0 | 14.8 | 7.1 | 53.5 |
| College Graduates..... | 96.7 | 3.3 | ... | 42.6 | 36.0 | 11.8 | 9.8 | 65.5 |

Comparing the four groups of students with regard to their ability to complete their medical course in the minimum required time, it is found that 81.6 per cent. of the high-school graduates, 86 per cent. of those entering on examination, 89.2 per cent. of the college undergraduates, and 96.7 per cent. of the college graduates completed the course in the minimum

amount of time. None of the college undergraduates or graduates took more than an extra year to obtain a degree, while 3.4 per cent. of the high-school graduates, and 2.3 per cent. of the students entering on examination took two extra years to do so.

It is interesting to compare the record of the different types of entrants with regard to the obtaining of honors, prizes or honorable mention. Of the total number of graduates, 20.9 per cent. obtained one of these forms of distinction, and of this group 12.6 per cent. were entrants from high schools; 18.6 per cent. entrants on examination; 28.5 per cent. undergraduates of colleges, and 42.6 per cent. graduates of colleges. The distinction awarded in this school are the *cum laude* degree, the conferring of which is based on the entire record of the student; the Campbell gold medal, which is given the student having the highest marks for the complete course, and the Keese prize for the best thesis, which is not usually awarded unless theses containing original work are submitted. So far as the *cum laude* awards are concerned, 8.6 per cent. of the high-school entrants who graduated received the *cum laude*, 18.6 per cent. of those entering on examination, 25 per cent. of the college undergraduates, and 36 per cent. of the college graduates. The Campbell gold medal was won by high-school entrants in 5.4 per cent., by those entering on examination in 6.9 per cent., by college undergraduates in 14.8 per cent., and by college graduates in 11.8 per cent. The Keese prize was won by high-school entrants in 2.8 per cent., by those entering on examination in 2.3 per cent., by college undergraduates in 7.1 per cent., and by college graduates in 9.8 per cent. These figures bring out several suggestive points, of which two stand out rather prominently: (1) the success of men entering on examination over the high-school entrants in obtaining the *cum laude* degree, and (2) the great preponderance of college undergraduates and college graduates among those who won the Keese prize, which, as stated, is based on evidence of ability to do research work. The success of the examination entrants is probably due to the fact that many of them were unusually earnest students who had overcome their defects in preliminary education by determined work and who exhibited the same quality of determination in their work as medical students.

Of the total number of students who graduated from the institution, only 50.1 per cent. passed through their entire course without conditions, and here, again, the college undergraduates and college graduates furnished the largest percentage of successful students; 65.5 per cent. of the college graduates and 53.5 per cent. of the college undergraduates passed through without conditions, while only 44.8 per cent. of the high-school graduates, and 46.5 per cent. of those entering on examination were able to do this.

The migration of students who had no conditions to other schools was comparatively small among the high-school and examination entrants, and large among the college undergraduates and graduates. Only 2.5 per cent. of the unconditioned high-school entrants, and 4.7 per cent. of the unconditioned examination entrants went to other schools, while 38.1 per cent. of the college undergraduates, and 14.2 per cent. of the college graduates went elsewhere. This state of affairs is largely due to local conditions, more especially to the existence of the so-called "combined course" in connection with Yale College. As a result of the existence of this course, many men who entered Yale College with the idea of studying medicine, or who resolved to study medicine during their college course, elected the first two years of medicine during their third and fourth college years, and received the A.B. degree at the end of their second year in medicine. Having already spent four years in New Haven, and doubtless influenced to some extent by the supposed paucity of clinical material here as compared to the larger centers, these college men migrated in considerable numbers at the end of their preclinical years.

The number of students who originally entered this institution but subsequently obtained their M.D. degree elsewhere, was 14.8 per cent. of the total entrants, and of this number 46.7 per cent. left here with either past or existing conditions. The number who failed to obtain the M.D. degree elsewhere—so far as can be discovered from an examination of the

medical directories—was 25.2 per cent. of the total number of entrants. It would appear from these figures that, roughly speaking, three-fourths of those men who attempt to obtain a medical degree succeed in doing so. This percentage of success, however, is obtained only by the migration of a considerable number of poor students to schools with low standards. It is probable that in many of the poorer medical schools almost all of the student immigrants are of this class. The fact that a considerable proportion of the emigration from this school has not been of this type is due entirely to the local conditions which have already been discussed.

In a general way, these statistics show that the man with college training has a very decided advantage in the study of medicine. It hardly needed figures to show this, but it is of interest to note that figures bear it out. They also suggest that some provision should still be made so that the unusual man, whose preliminary education has not conformed to the set standards, may have opportunity to study medicine without being forced into the low-grade medical school. They suggest that satisfactory provision for the freer migration of medical students is desirable. From experience with a very considerable number of migrants, I believe that a free interchange—at any rate among schools rated in the same class—should be encouraged in the case of good students. These should be allowed to pass from school to school without having to submit to harassing red tape. On the other hand, the migration of lame ducks from one school to another should be discouraged. It is true that the state board examinations weed out the incompetents, but it hardly seems right to allow a person who is obviously unable to meet the requirements of an exacting profession like medicine to spend years in costly preparation only to find himself disbarred from practicing his profession at the end of his period of preparation. It is both kinder and juster to such persons to discourage them during their career as medical students, and while such a policy must of necessity result in occasional mistakes and injustice, it is, we believe, the most desirable one both from the points of view of the medical student, the profession and the public.

GEORGE BLUMER, M.D., New Haven, Conn.,
Dean, Medical Faculty, Yale University.

A Plea for Certain Medical Officers of the U. S. Army

To the Editor:—The act of Congress approved April 23, 1908, provides for a Medical Reserve Corps of the U. S. Army, and the appointment thereto of the contract surgeons who were then in the service and received the recommendation of the Surgeon-General. The officers so appointed are debarred by this law from retirement, and by various decisions of the War Department and the Attorney-General of the U. S., from receiving credit for their former service as contract surgeons in reckoning longevity pay.

By the act approved March 3, 1911, Congress has granted to the dental surgeons the right to retirement on account of age or disability, as in the case of other officers and credit for time served as contract dental surgeon in computing increased service pay.

The functions of the Medical Corps and the Medical Reserve Corps are one and the same, and the many varied and complex duties which the officers in each corps are required to perform are alike. In spite of the status of the officer in the Medical Reserve Corps, he has the same spirit and pride to uphold the honor and dignity of the profession, to render to his country service of a high standard of excellence and to maintain social consideration; and to the performance of his duties he dedicates himself with the same zeal, industry and faithfulness as his colleagues in the Medical Corps.

The law under which the medical department of the U. S. Army was reorganized in 1908 does the greatest injustice to the officers of the Medical Reserve Corps. They are the only commissioned officers in the Army denied the privilege of retirement. The law relative to the dental surgeon is a good one, a step in advance. He does not get more than he deserves. But comparing service, it is believed that a longer

stride should have been made by Congress, with the same effort, and equal provision made for the officer in the Medical Reserve Corps, as he surely is entitled to and should receive the same privileges of retirement for disability or age as the dental surgeon and other officers of the Army.

Do the distinguished gentlemen on the inactive list of the Medical Reserve Corps realize that when they are called to active duty and respond (as they will do), they may be wounded in battle or be incapacitated from disease and rendered physically unable to resume the lucrative practice which they have patriotically relinquished to serve their country, and if such an unfortunate event should occur, the most they could hope for is a meager pension?

The existing law specifically states that no officer of the Medical Reserve Corps shall be entitled to retirement pay (Section 9, Act of April 23, 1908); yet their colleagues in the regular Medical Corps, and dental surgeons, even though just commissioned, are entitled to and will receive retirement under such conditions.

It is believed that the officers of the Medical Reserve Corps, when on the active list, should be accorded the right to retirement on account of age or disability, as in the case of other officers, including dental surgeons, chaplains, veterinarians and pay-clerks; and credit for former services as acting assistant surgeon and contract surgeon in computing increased service pay, the same as is now authorized by law for the dental surgeons.

The following form of a bill should, it is thought, meet the approval of all medical reserve corps officers, whether or not on the active list, as being a fair and justifiable request for the necessary legislation, to place the M. R. C. officer on equality with the dental surgeon.

A BILL TO PROVIDE FOR THE RETIREMENT AND LONGEVITY PAY FOR CERTAIN MEDICAL OFFICERS OF THE U. S. ARMY

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, That hereafter officers of the Medical Reserve Corps, U. S. Army, on the active list, shall have the right to retirement for age or disability as in the case of other officers.

SEC. 2. That former service as acting assistant surgeon or contract surgeon shall be reckoned in computing the increased service pay of officers on the active list of the Medical Reserve Corps of the Army.

SEC. 3. That all acts or parts of acts in conflict with the provisions of this act are hereby repealed,

F. M. WALL, M.D., Fort Lawton, Wash.

Housing and Sanitation

To the Editor:—Permit me as a member of the American Public Health Association to congratulate you on the editorial which appeared in THE JOURNAL, May 9, 1914, p. 1479, on this subject. As the medical adviser of the Canadian Commission of Conservation, I believe most fully in the importance of public health work being carried into the homes of our people. We as sanitarians have been devoting too much work to "the outside of the platter" and must get busy on the inside. Both fields must be worked, but the inside of the home is as an untrodden field. It is, however, the one in which our best work can and should be done.

We have pushed forward medical inspection of school children, which in the main simply is curative of the ills consequent on the neglect by health authorities of home sanitation in its widest sphere. I am convinced that if health authorities would but enter into this domain, the result would be that the cost of school inspection would be minimized and healthier children would be sent to our schools when the age of tuition begins. This is the proper kind of medical inspection of children.

From a public health point of view, such factors as race, influence, eugenics, occupation, poverty, high cost of living and many others have to be considered; but the health of the home and all that it means for life and death is an outstanding factor which seems to have been lost sight of because it has been neglected.

CHARLES A. HODGETTS, M.D., Ottawa, Canada.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

RECIPROCAL RELATIONS OF PENNSYLVANIA

To the Editor:—With what states does Pennsylvania have reciprocal relations?
C. L. N.

ANSWER.—Arkansas, California, Colorado, Delaware, District of Columbia, Georgia, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Jersey, New Mexico, North Carolina, Ohio, Vermont, Virginia, West Virginia, Wisconsin and Wyoming.

MASTITIS IN MUMPS—INFLUENCE OF DRUGS ON THE MAMMARY GLANDS

To the Editor:—If mastitis develops as a complication of mumps, does it usually impair the function of the glands later?

2. If so, what is the best treatment?
3. What preparations or measures will stimulate the glandular activity of the mammary glands?

C. B. CREECH, M.D., Middleburg, Ky.

ANSWER.—1. No. We find no reference to such effects and conclude that they must be unknown or extremely rare.

2. Ordinarily symptomatic treatment for ordinary mastitis.
3. It is doubtful whether any drugs have an influence on the mammary glands. The extract of the pituitary gland has been recommended as a stimulant to the secretion of milk, but the evidence as to this is not conclusive.

THE PLACENTIN SKIN REACTION IN PREGNANCY

To the Editor:—Can you give me the technic for Engelhorn and Wintz's skin reaction in pregnancy as abstracted in THE JOURNAL, May 9, 1914, p. 1514? The method of preparation of placentin is particularly wished.
KENNETH M. LYNCH, M.D., Charleston, S. C.

ANSWER.—The method of preparation of placentin is not given in the paper abstracted, which is the only publication on this subject. The authors assert that they wish to perfect the method before giving a complete description. Inoculation is made in the same way as is the tuberculin reaction of von Pirquet, and the reaction is most completely developed by thirty-six hours after the inoculation. It consists of inflammatory swelling and reddening with a light-brown discoloration of the surrounding skin.

BOOKS ON HYGIENE AND SANITATION

To the Editor:—Can you recommend a good practical book on hygiene and sanitation that would cover the duties of a medical officer in a semitropical town of 15,000 population?
CHARLES HARDWICKE, M.D., Hospital "El Aguila," Minatitlan, V. C., Mexico.

ANSWER.—Harrington's "Practical Hygiene," published by Lea & Febiger, Philadelphia, price \$4.50, and Rosenau's "Preventive Medicine and Hygiene," published by D. Appleton & Co., New York, price \$6, are excellent works. Readers of German may consult R. V. L. Abel's "Handbuch der Praktischen Hygiene," published by G. Fiseher, Jena, 1913, two volumes.

DOSAGE OF TYPHOID VACCINE FOR CHILDREN

To the Editor:—Please give me the accepted dose of typhoid vaccine for children.
C. A. SHORE, M.D., Raleigh, N. C.

ANSWER.—The dosage of typhoid vaccine for children is given by Frederiek F. Russell in THE JOURNAL, Feb. 1, 1913, page 344, as follows:

"The dosage is based altogether on body-weight and not on age. The child is given that portion of the adult dose which his weight bears to the average adult weight, 150 pounds. If the fraction proves inconvenient, a little more, rather than less, is administered. As with adults, the best time for inoculation is 4 o'clock, or later, in the afternoon, since any reaction will then come after bedtime."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: Los Angeles, June 16. Sec., Dr. C. B. Pinkham, 135 Stockton St., San Francisco.

DELAWARE: Dover and Wilmington, June 16-18. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Palatka, June 17-18. Sec., Dr. E. W. Warren, Palatka.

GEORGIA: Atlanta and Augusta, June 3. Sec., Dr. C. T. Nolan, Marietta.

IOWA: Iowa City, June 11-13. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

KANSAS: Kansas City, June 9-12. Sec., Dr. H. A. Dykes, Lebanon.

KENTUCKY: Louisville, June 3-5. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, June 4-6. Sec., Dr. E. L. Leckert, Macheca Bldg., New Orleans.

MARYLAND: Baltimore, June 15. Regular Board: Sec., Dr. J. McP. Scott, Hagerstown. Homeopathic: Baltimore, June 15. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.

MICHIGAN: Ann Arbor, June 9. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, June 2-5. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.

MISSISSIPPI: Jackson, June 16-17. Sec., Dr. E. H. Galloway, Jackson.

MISSOURI: St. Louis, June 15-17. Sec., Dr. J. A. B. Adcock, Jefferson City.

MONTANA: Helena, June 30-July 2. Sec., Dr. Wm. C. Riddell, Helena.

NEBRASKA: Lincoln, May 27. Sec., Dr. H. B. Cummins, Seward.

NEW HAMPSHIRE: Concord, July 1-2. Regent, Mr. H. C. Morrison, Concord.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.

NEW YORK: June 23-26. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

NORTH CAROLINA: Raleigh, June 9. Sec., Dr. Benj. K. Hays, Oxford.

OHIO: Columbus, June 2-5. Sec., Dr. George H. Matson, State House, Columbus.

PENNSYLVANIA: Philadelphia, June 1-3. Sec., Mr. Nathan C. Schaeffer, Harrisburg.

RHODE ISLAND: Providence, July 2-3. Sec., Dr. Gardner T. Swarts, State House, Providence.

SOUTH CAROLINA: Columbia, June 9. Sec., Dr. A. Earle Boozer, 1802 Hampton Ave., Columbia.

TEXAS: Austin, June 23-25. Sec., Dr. W. L. Crosthwait, Waco.

VIRGINIA: Richmond, June 23-26. Sec., Dr. Herbert Old, Norfolk.

WEST VIRGINIA: Elkins, July 1. Sec., Dr. S. L. Jepson, Wheeling.

WISCONSIN: Milwaukee, June 29. Sec., Dr. John M. Beffel, 3200 Clybourn St., Milwaukee.

Wisconsin Reciprocity Report

Dr. John M. Beffel, secretary of the Wisconsin State Board of Medical Examiners, reports that 51 candidates were licensed through reciprocity from June 24 to Oct. 1, 1913. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

| College | Year | Reciprocity |
|---|--|-------------|
| | Grad. | with |
| Howard University | (1910) | Oklahoma |
| Bennett Medical College (1911) Illinois; (1912) Illinois; (1912) Illinois. | (1910) Illinois; (1912) Illinois; (1912) Illinois. | |
| Chicago Coll. of Med. and Surg....(1912) Illinois; (1912) Illinois | (1910) Illinois; (1911) Illinois. | |
| Chicago College of Phys. and Surgs (1902) Illinois; (1910) Illinois; (1910) Illinois; (1911) Illinois. | (1908) Illinois; (1910) Illinois; (1912) Illinois. | |
| Hahnemann Med. Coll. and Hosp. of Chicago (1908) Illinois; (1910) Illinois; (1912) Illinois. | (1904) Illinois; (1905) Illinois; (1907) Illinois; (1912) Illinois. | |
| Northwestern Univ. Med. School (1904) Illinois; (1905) Illinois; (1907) Illinois; (1912) Illinois. | (1885) Minnesota; (1898) Minnesota; (1908) Illinois; (1909) Illinois; (1910) Minnesota; (1912) Illinois. | |
| Rush Medical College (1885) Minnesota; (1898) Minnesota; (1908) Illinois; (1909) Illinois; (1910) Minnesota; (1912) Illinois. | (1907) Illinois | |
| University of Illinois.....(1907) Illinois | (1911) Indiana | |
| Indiana University.....(1911) Indiana | (1907) Kentucky | |
| Louisville Medical College.....(1907) Kentucky | (1900) Kentucky | |
| University of Louisville.....(1900) Kentucky | (1905) Maryland | |
| Johns Hopkins University.....(1905) Maryland | (1906) Maryland; (1906) Connecticut | |
| University of Maryland.....(1906) Maryland; (1906) Connecticut | (1908) Ohio | |
| Tufts College Medical School.....(1908) Ohio | (1893) Michigan | |
| Detroit College of Medicine.....(1893) Michigan | (1909) Michigan; (1909) Michigan; (1912) Michigan. | |
| University of Michigan, Dept. of M. & S. (1909) Michigan; (1909) Michigan; (1912) Michigan. | (1901) Minnesota; (1901) Minnesota | |
| Hamline University.....(1901) Minnesota; (1901) Minnesota | (1892) Minnesota; (1904) Minnesota | |
| University of Minnesota.....(1892) Minnesota; (1904) Minnesota | (1897) Colorado | |
| Barnes Medical College.....(1897) Colorado | (1902) Missouri; (1909) Arkansas | |
| St. Louis Coll. of P. & S. ....(1902) Missouri; (1909) Arkansas | (1878) Minnesota | |
| Columbia University, College of P. and S. ....(1878) Minnesota | (1901) Illinois | |
| Miami Medical College.....(1901) Illinois | (1899) Pennsylvania; (1895) Pennsylvania; (1895) Pennsylvania; | |
| University of Pennsylvania (1895) Pennsylvania; (1895) Pennsylvania; | (1909) Penna. | |
| Woman's Medical College of Pennsylvania.....(1909) Penna. | (1910) Tennessee | |
| Meharry Medical College.....(1910) Tennessee | (1911) Wyoming | |
| Marquette University .....(1911) Wyoming | | |

Book Notices

COMMUNICABLE DISEASES: AN ANALYSIS OF THE LAWS AND REGULATIONS FOR THE CONTROL THEREOF IN FORCE IN THE UNITED STATES. By J. W. Kerr, Assistant Surgeon-General, and A. A. Moll. Paper. Price, 50 cents. Pp. 699. Public Health Bulletin No. 62. Washington: Government Printing Office, 1914.

This is a compilation and analysis of federal and state laws and health board regulations of the United States concerning communicable diseases. The report says that, using the United States census figures as a basis, it may be estimated conservatively that at least 25 per cent. of the deaths in this country are due to communicable diseases. This means 300,000 deaths and over 3,000,000 cases. The importance of having proper laws and regulations, efficiently enforced, for preventing to the greatest possible extent these diseases is therefore apparent. The report is highly valuable as showing what has already been accomplished by the national and state governments in providing these laws and also the need for further legislation, for uniformity and for enacting into laws many measures for disease prevention which are now only the regulations of health boards. It is said that while in many states authority is conferred on state boards of health to establish regulations for disease prevention, yet it is undeniable that there are advantages in having the sanitary policy of a state expressed in unmistakable form by the legislature. Although health board regulations may represent the best sanitary principles, they embody knowledge not common to the general mass of the people, while the acts of the legislature are adopted after more or less general discussion by the public and are, therefore, more popularly understood. The *Bulletin* contains a brief analysis of federal laws with regard to quarantine and the management of communicable diseases and then analyzes the laws of the various states with reference to each contagious or infectious disease, showing what states have laws covering these diseases and what the laws actually mean. Following this there is an appendix containing court decisions concerning the enforcement of health regulations and laws, and extracts bearing on communicable diseases from the laws of the various states and the national government. A study of the *Bulletin* by the various state authorities would reveal their own shortcomings and assist them in efforts to secure better and more uniform regulations, better organizations for their enforcement and for cooperation with the health authorities of other states. Efficient disease prevention largely depends on such cooperation.

It is a great convenience to have this material brought together into one volume and Public Health Bulletin 62 is, therefore, a most valuable publication. It may be procured from the superintendent of documents at the government printing office, Washington, D. C., at 50 cents per copy.

PATHOGENIC MICRO-ORGANISMS. A Text-Book of Microbiology for Physicians and Students of Medicine. (Based on Williams' Bacteriology.) By Ward J. MacNeal, Ph.D., M.D., Professor of Pathology and Bacteriology in the New York Post-Graduate Medical School. Cloth. Price, \$2.25. Pp. 462, with 213 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

This work is brought out as a successor to the well-known book of Williams. The arrangement has been changed, most of the text rewritten, and molds, bacteria, protozoa and filterable viruses are included. The work is divided into three sections, on bacteriologic technic, general biology of pathogenic micro-organisms, and specific micro-organisms. The descriptions are clear and the book is amply illustrated. The relations of bacteria to disease, and the theories of immunity and pathogenic action are thoroughly considered. The manual ought to be of service to practical physicians wishing to review the subject as well as to students. That it has been brought quite up to date is shown by the inclusion of the latest communications of Flexner and Noguchi on the virus of epidemic poliomyelitis.

Miscellany

Experience of United States Medical Officer with Mexican Wounded

Although war has not been declared between the United States and Mexico, and no fighting has taken place between the troops of the two nations except at Vera Cruz, some United States Medical Corps men have had experience in taking care of the wounded Mexican soldiers of both sides as the result of battles along the border. Captain Louis C. Duncan of the Medical Corps, U. S. Army, in the *Military Surgeon*, gives a graphic account of his experience in taking care of the wounded of both sides at the battle of Ojinaga, a town on the Rio Grande opposite Presidio, Tex. Between three and five thousand men on each side were engaged in this battle, and there were about fifteen hundred camp-followers, including men, women and children, many of whom were wounded or sick and had to be given attention. The medical organizations of the Federals was not adequate, the rebels perhaps having the better. The Red Cross organization was early on the ground at Presidio with a small force, and the United States forces furnished a few men in charge of Captain Duncan. With the meager facilities at hand on the part of both, and with much hurried and strenuous work, those needing attention were cared for. The wounds were of all sorts. Out of 200, 25 per cent. were serious, involving gunshot wounds of the head and face, perforations of chest and abdomen and fractures of the femur and other long bones, as well as spinal injuries. Of these the wounds of the spine, of the femur and of the cranium in the order named were regarded as most serious, considering the facilities for handling them. Wounds of the chest were not regarded as particularly serious, and perforating wounds of the abdomen were all treated on the expectant plan and did astonishingly well. Serious hemorrhage was rare in any case. From his experience Captain Duncan draws the following conclusions with reference to the handling of the wounded in battle:

1. No case is non-transportable — as far as a field-hospital.
2. Hemorrhage seldom has to be treated at dressing-station or field-hospital.
3. A white tent, sheltering from thirty to forty-five wounded, is far preferable to our present dark, heavy, cumbersome hospital tent. A tent weighing 600 pounds will take the place of five hospital tents weighing 1,200 pounds, and be far more convenient.
4. Tincture of iodine, dressings, soap, some antiseptic, like compound solution of cresol, a few splints and a pocket-case are all the things needed for 99 per cent. of the wounded in the field.
5. A dressing-station for slightly wounded is entirely unnecessary. The regimental aid stations should dress all these men and send them back to the firing-line. A separate divisional station divides the personnel and confuses the wounded.
6. Gunshot wounds of the spine are the most difficult of all cases to care for and the most fatal.
7. Perforating wounds of the cranium are very serious, require much care and in nearly 50 per cent. of cases result in death.
8. Perforating wounds of the thorax by small-caliber bullets are not usually serious. They are generally easy to handle and about 90 per cent. of them will end in recovery.
9. Perforating wounds of the abdomen are not so fatal as has been believed. With the minute modern missile, nearly always at long range, the abdomen is often perforated without serious damage. These cases require little attention and 50 per cent. of the patients will recover — if not meddled with.
10. Fractures of the femur are very difficult to treat in the field. Many will become infected and the ultimate results will be bad. They should not be treated in the field but should be removed early before the bone begins to unite. Wounds of the knee are also serious. Fractures of the bones of the leg give little trouble.

11. Wounds of the upper extremities are usually unimportant. The patients walk about and take care of themselves; even assist in caring for others. This is a very important item in the field. One wound of the spine, or fracture of the femur, makes more work than twenty of the arm.

12. The keeping of records in a field-hospital, with wounded coming by the ten or twenty, and at all hours, is a very difficult matter.

13. The organization of a field-hospital into wards, etc., with responsible surgeons and nurses, is absolutely necessary to good work.

14. An army wagon will carry as many patients as an ambulance, and, if properly bedded, with as much comfort; but litters cannot be used and the loading and unloading are very difficult. For all patients able to sit up they are superior to ambulances.

Schedule for Health Survey

W. H. Deadrick, in the *American Journal of Tropical Diseases and Preventive Medicine*, March, 1914, says that the most significant evidence of the results of the modern municipal efficiency movement is the wide-spread consideration of health matters. Public health departments are deservedly being investigated with a view to improvement through constructive criticism. Cities formerly advertising low tax-rates, good railroad facilities and other trade-inducing advantages now call attention to low death- and morbidity-rates, child-welfare and other health functions as commercial assets. Popular ignorance of sanitary principles is still one of the most serious impediments to sanitary progress, and publicity is the remedy. The health survey is the gateway to this publicity, and many cities are having sanitary surveys made. Deadrick has constructed a scheme for such a survey which he believes should prove useful in cities in which an expert is not employed. Such a survey should be under the following heads: organization of the health department; contagious and communicable diseases; tuberculosis; sanitary inspections; street-cleaning; food inspections; meat inspection; water-supply; sewerage and sewage disposal; housing conditions; child welfare; medical inspection of schools; hospitals and clinics; laboratories; vital statistics; death, birth and marriage records and health education, etc. Information collected under each of these departments of municipal health housekeeping should afford a thorough survey of conditions and a basis for improvement.

Intradermal Test for Tuberculosis in Cattle and Hogs

In Bulletin 243 of the University of California, Haring and Bell consider the intradermal method of tuberculin testing of cattle which is said to have many advantages over the usual method. The reaction depends on a swelling at the point of injection and not on a rise of temperature, though the rise may take place at the same time as the swelling, modified, however, by unusual surroundings, such as very hot weather, fatigue from a long journey, etc. The test can be successfully applied to young calves and range cattle, and during the hot season in the interior valleys under conditions that would render the subcutaneous method unsatisfactory. In applying 4,926 intradermal tests and retests to 4,001 head of cattle, 1,614 of which reacted, and checking the results by 1,000 subcutaneous tests and 341 necropsies, Haring and Bell conclude that under average dairy conditions the intradermal test equals the subcutaneous method in accuracy provided a 5 per cent. or stronger solution of alcoholic precipitated tuberculin is used, and the test is performed by an experienced operator. Since none of the tests will detect all the cases of tuberculosis, the combined intradermal and subcutaneous or ophthalmic test is recommended. The intradermal test is especially adapted to the testing of swine. In applying the test it is preferable to use a short needle, not over $\frac{1}{4}$ inch in length, and in cattle the injection should be made in the fold at the root of the tail. The size of the swelling produced indicates the extent of the reaction.

Medicolegal

Responsibility for Malpractice of Partners and Substitutes (*Lee vs. Moore (Tex.)*, 162 S. W. R. 437)

The Court of Civil Appeals of Texas in reversing a judgment obtained by the defendant and ordering a new trial, says that if a physician makes provision for the attendance of a competent physician on his patient, he may leave temporarily, but for the unwarranted abandonment of a case at a critical period resulting in increased pain and suffering on the part of the patient, he will be held liable in damages. In this case the question was as to the liability of a physician for the malpractice of a substitute furnished by him.

The plaintiff had arranged with the defendant to attend his wife in childbirth. One night the defendant was summoned, pronounced the pains false, and went home. When called again next morning by telephone, he replied that he could not come, but would send another physician, a Dr. Hardin. The court is of the opinion that, even though it should be conceded that common carriers in furnishing a physician to treat injured passengers, etc., and persons rendering gratuitous services in employing a physician to attend on a sick or injured person are only required to exercise ordinary care to select a skilful and competent physician, yet, under the facts of this case, the duty of the defendant to furnish the plaintiff a physician to attend on his wife possessing that degree of knowledge, skill, and care which physicians practicing in that city and vicinity possessed, was absolute. If it could be said that Dr. Hardin was not an assistant of the defendant in the treatment of the plaintiff's wife, and was not a general partner of the defendant in the practice of medicine, yet that he was a special partner in the treatment of the case, or was acting under his employment to do so, could not very well be gainsaid. At any rate, the defendant, being a physician himself, and having by contract undertaken the treatment of Mrs. Lee, and having secured the services of Dr. Hardin to relieve himself of the necessity of attending her himself and to serve his own interests, the defendant would not be allowed to say that, in such case, the duty resting on him in the selection of a substitute physician was simply that of ordinary care.

Whether the plaintiff was under the influence of intoxicating liquors and exhibited a pistol in such a threatening manner towards Dr. Hardin while he was waiting on the plaintiff's wife as to alarm or excite Dr. Hardin to such an extent as that the same contributed to the failure, if any, of the physician to use ordinary care and skill in the treatment of the plaintiff's wife, was an issue made by the evidence, which should have been submitted to the jury for their determination, with instructions that an affirmative finding on it would entitle the defendant to a verdict in his favor.

Preliminary Proof Required for Roentgenograms

(*Ligon vs. Allen (Ky.)*, 162 S. W. R. 536)

The Court of Appeals of Kentucky reverses a judgment for alleged malpractice in the treatment of a fractured humerus because of error in the admission of certain roentgenograms when the necessary preliminary requirements had not been established. The court says that the witness merely stated that he took the photographs. He did not state that they correctly represented what he saw, or how they were taken, or that he had ever taken a roentgenogram before, or knew anything about how they ought to be taken. No assurance was given as to the character or accuracy of the Roentgen-ray machine, or its condition or working order. While it may not be necessary to establish all of these facts in order to make roentgenograms admissible in evidence, the accuracy of the photographs must be established, for, if they do not show what the witness saw, they have no place in the case. The rule is recognized by all the authorities that when the witness fails to make a roentgenogram admissible by testifying to its accuracy, it is not admissible and should be rejected.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.
 American Academy of Medicine, Atlantic City, June 19-21.
 American Climatological Association, Atlantic City, June 19-20.
 American Gastro-Enterological Association, Atlantic City, June 22-23.
 American Laryngological Association, Atlantic City, May 25-27.
 American Laryn., Rhin., and Otol. Society, Atlantic City, June 19-20.
 American Medico-Psychological Association, Baltimore, May 26-29.
 American Orthopedic Association, Philadelphia, June 18-20.
 American Otological Association, Atlantic City, May 27-28.
 American Pediatric Society, New London, Conn., May 26.
 American Proctologic Society, Atlantic City, June 22-23.
 American Society of Tropical Medicine, Boston, May 29-30.
 American Therapeutic Society, Albany, May 29-30.
 American Urological Association, Philadelphia, June 18-20.
 Conf. of State and Prov. Boards of N. America, Washington, June 19-20.
 Maine Medical Association, Portland, June 10-11.
 Massachusetts Medical Society, Boston, June 9-10.
 National Association for the Study of Epilepsy, Baltimore, May 25.
 New Jersey Medical Society, Spring Lake, June 29.
 North Carolina Medical Society, Raleigh, June 16.
 Rhode Island Medical Society, Providence, June 4.
 South Dakota State Medical Association, Watertown, May 26-28.

MISSISSIPPI STATE MEDICAL ASSOCIATION

Forty-Seventh Annual Meeting, held at Columbus, April 14-16, 1914

The President, DR. L. C. FEEMSTER of Tupelo, in the Chair

Acute and Chronic Arthritis

DR. JOHN B. ELLIOTT, JR., New Orleans: I have found the classification of Barker of great value in the differential diagnosis of the arthritides. Briefly, it is as follows: (a) Arthritis of the severe nervous diseases. (b) Arthritis due to gout. (c) Arthritis Deformans. (d) Arthritis due to infections. (e) Chronic primary progressive arthritis (rheumatoid arthritis).

DISCUSSION

DR. J. S. ULLMAN, Natchez: Acute rheumatic fever is something we hear a great deal about but rarely see. I think a great many cases spoken of as acute rheumatism or chronic rheumatism, are simply the manifestations of trouble in some other part of the body.

Diagnosis of Early Pulmonary Tuberculosis

DR. C. H. COCKE, Asheville, N. C.: The means of diagnosis are within the reach of all. We should treat each suspect as though he were tuberculous until we have proved the contrary. Physical examination is all-important. The von Pirquet test is of no great value after the second year of life, unless it be negative.

DISCUSSION

DR. A. J. WILLIAMS, Gulfport: For the past few years, physicians living in the small towns have been in the habit of relying on microscopic examination in order to make a diagnosis. I have often had patients go to another doctor, who would tell them that they did not have tuberculosis. Had the other doctors stripped these patients, I am sure they would not have differed with me.

Public Health or Preventive Medicine

DR. J. H. PORTWOOD, Kosciusko: Physicians should all serve as the advance-guard of the sanitary army. They should preach the prophylaxis of tuberculosis, typhoid and malaria. They should teach that there is a real danger in measles and that not every patient recovers. They should encourage a general campaign for sexual purity and teach the possibility of physiologic continence.

DISCUSSION

DR. W. S. LEATHERS, University: I want to emphasize the paramount importance of proper sewage disposal at the country house. A great deal has been said this afternoon with regard to the prevention of different diseases, typhoid, tuberculosis, etc., and yet we find out in the country that over 50 per cent. of the homes have no proper provision for

disposing of the waste from the home. In many counties, over 40 per cent. of the schools have no conveniences.

Technic for Operation for Ovarian Cysts

DR. F. D. SMYTHE, Memphis, Tenn.: The incision should be a long one. In cases in which the cyst is very large, the patient weak and anemic, with embarrassed respiration and heart action, the operation should be done in two steps: the abdomen should be incised down to the tumor and gauze inserted between the tumor and parietal peritoneum to produce union of surfaces; the cyst may be evacuated a few days later.

DISCUSSION

DR. J. C. CULLEY, Oxford: There is one thing which I always advise a beginner to do and that is to make a long incision, because you can see better how to remove the cyst without fear of doing damage. Sometimes the peritoneum is adherent to the cyst, and if you are not careful you will go right on into the peritoneum and are apt to have a recurrence. The removal of the cyst is better accomplished by the use of the trocar, and that very slowly. Also, in removal of the cyst intact, the fluid often slips back into the abdominal cavity, and that should be protected with gauze.

Pellagra a Curable Disease

DR. M. O. SHIVERS, Colorado Springs, Colo.: Put the patient to bed in a cool, dark room. Diet, climate and arsenic (hypodermatically or intravenously) are our weapons. Remember that the pellagrin, no matter how slight the attack, is seriously ill.

DISCUSSION

DR. W. L. LITTLE, Wesson: Last summer I treated about fifteen cases. I used sodium cacodylate. Not a patient died.

DR. A. J. CARTER, Ellisville: When shall we be able to say that the patient is cured?

DR. M. O. SHIVERS, Colorado Springs, Colo.: My first patients were treated three years ago. So far, out of this first series, I have had no recurrences. They were of the bad class—persons that were vomiting, and had mental symptoms.

Diseases Transmitted by Milk and Milk Products

DR. W. H. ROWAN, Jackson: Milk may be a source of disease by carrying it from cow to man or from man to man, or it may act as a factor because of a diminution or an increase in its inherent qualities. A large percentage of Mississippi dairy cows are tuberculous. When cows respond to the tuberculin test, 41 per cent. will show the bacilli in the milk. Typhoid and scarlet fever and diphtheria are transmitted by milk. Our fly-infested towns, with their notorious disregard of the sanitary privy, are in a bad way. The amount of human excreta drunk and eaten in the average Mississippi town is amazing.

DISCUSSION

DR. D. M. MALLOY, Sulligent, Ala.: Dr. Rowan has stated that bovine tuberculosis can be transmitted from cow to man. This is proved particularly in the Philippine Islands, where the milk-supply is derived almost entirely from the carabao, the water-buffalo. Tuberculosis is almost unknown among these animals. The only cow's milk which reaches the Philippines is the condensed milk which is sterilized and contains no organisms. The fact that the carabao is not susceptible to tuberculosis, the fact that bone tuberculosis is due almost entirely to bovine infection, and the further fact that bone tuberculosis is unknown in the Philippines, would seem to establish that it is transmitted in the milk-supply from cow to man.

Tumors of the Breast

DR. W. G. GILL, Newton: All tumors of the breast are suspicious and should be treated as cancerous until a competent pathologist has pronounced them benign. The best procedure is to remove them and send them to a pathologist; then it does not make any difference in the prognosis what sort of a report he sends you.

DISCUSSION

DR. M. O. SHIVERS, Colorado Springs, Colo.: It is a mistake to remove any tumor and send it to a pathologist. Statistics have shown that in cases in which the tumor was taken out and the breast left four or five days to be removed, the secondary operation is of no value—that few of these women live; so few that it seems absolutely unnecessary to go back after a pathologist has stated that it is carcinoma. So, if there is anything in a woman's breast to require operation at all, that breast should be removed.

(To be continued)

MEDICAL SOCIETY OF THE STATE OF NEW YORK

*One Hundred and Eighth Annual Meeting, held in New York City,
April 28-30, 1914*

The President, DR. WILLIAM FRANCIS CAMPBELL,
Brooklyn, in the Chair

Officers Elected

The following officers were elected: President, Dr. Grover Wende, Buffalo, N. Y.; vice-presidents, Dr. Myron B. Palmer, Rochester; Dr. S. W. S. Toms, Nyack, and Dr. Robert M. Elliott, Willard; secretary, Dr. Wisner R. Townsend, New York, reelected; treasurer, Dr. Alexander Lambert, New York, reelected.

Next place of meeting, Buffalo, April 27, 28 and 29, 1915.

DR. WISNER R. TOWNSEND, the secretary, recommended that the delegates to the American Medical Association be requested to favor the passage of a resolution calling on the Trustees to pay the traveling expenses of the delegates to the meetings of the American Medical Association.

Oration on Surgery: Kinetic Chain for Transformation of Latent Energy

DR. GEORGE W. CRILE, Cleveland, Ohio: If our conclusions are sound, then in the kinetic system we should find an explanation of many diseases, and having found an explanation we may find new methods of combating disease. The organs of the kinetic system are the brain, adrenals, liver, muscles and thyroid. Energy is appropriated by the body from the physical forces of nature that constitute the environment, and this energy is stored in the body in quantities in excess of the need of the moment. It is the function of the organs of the kinetic system to transform the surplus so stored into action and heat as needed. This mechanism of organs produces fever as well as muscular activity, fever being heat generated to combat disease.

Deficiency in one of the organs of the kinetic chain causes alike loss of heat, loss of muscular and emotional action, of mental power, and of the power of combating infection. From this we are able to understand the muscular weakness following fever; we can understand why the senile have neither muscular power nor strong feverish reaction; why long-continued infections produce pathologic changes in the organs constituting the kinetic system. Physical or mental shock caused by pain, fear, rage or exercise causes an impairment of the kinetic system because shock means the transformation of potential energy into heat or action. It is desirable, therefore, that unnecessary or too severe shocks be avoided, and the first step in the avoidance of shocks has been made possible by the knowledge of the kinetic system.

Exophthalmic Goiter and Its Treatment

DR. JOHN ROGERS, New York: The first stage is simple hypertrophy; the second stage is that of more or less hypothyroidism; the third stage is that of hyperthyroidism. After hyperthyroidism comes exophthalmic goiter. If the disease lasts long enough the exophthalmic goiter is followed by a fifth stage, a myxedematous condition. The irregular types of exophthalmic goiter can be grouped into different stages which are prolonged in a given case. As to the prognosis in exophthalmic goiter, over 80 per cent. of deaths occur in the exophthalmic stage rather than in the stage of hyper-

thyroidism. The apparent cause of thyroid abnormalities is fatigue, a simple hypertrophy which is so common, with multiplication of glandular elements in response to demands put on the thyroid which are greater than the normal organ can supply. The antithyroid serum seems to be the best conservative medical treatment. It should not be preserved in except for a short time. The "hyper" cases can be cured much better by ligation of the vessels. I ligate all four of the thyroid arteries and tie off the tip of each upper pole.

DISCUSSION

DR. MARTIN B. TINKER, Ithaca: The diseased condition is limited chiefly to the thyroid in the early stages of the disease. In many cases physicians allow patients to go on with thyroid trouble until they get a dilated heart or are on the verge of insanity, until they have cirrhotic changes in the kidney and liver and other secondary results, and they are confused by the secondary conditions which arise as the result of the thyroid poisoning. If the disease were recognized early many lives might be saved. I have urged on many occasions that the treatment of hyperthyroidism should be undertaken early before serious trouble has occurred in other parts of the body. Within a year two patients came to me who have since gone to insane asylums. Whether or not the insanity could have been prevented in the early stages if treatment had been undertaken, no one can tell, but there is good reason to believe that if patients were taken early enough they might be saved many of the results which occur later.

DR. T. B. BARRINGER, New York: I generally find in these cases that there has been a history of overwork. In 196 cases the history of overwork has doubled a history of fright in those sudden cases that have developed within a few weeks or a few months. These patients faint without the slightest provocation. In this group there have been various disorders of menstruation, such as delayed menstruation and too frequent menstruation; sometimes profuse menstruation has been complained of more than amenorrhea. A large percentage of this group have had the infectious diseases. A proportion of them have had adenoids and enlarged tonsils, and appendicitis. A high percentage of them are anemic. The early cases can be cured by prescribing prolonged rest.

Value of the Various Tests for Determining Functional Activity of Kidney

DR. JAMES N. VANDER VEER, Albany: The so-called phlorizin test is too sensitive. Phlorizin indicates the amount of kidney parenchyma which is capable of functioning. As to the methylene-blue test, only 50 per cent. of the drug is excreted, and it appears as chromogen in the urine, requiring the use of acetic acid and boiling to demonstrate it at this time. This test is too prolonged to be used advantageously. Letters received from 150 surgeons show that from 60 to 70 per cent. use the phenolsulphonephthalein test when they operate on patients. Others use various tests. No more striking evidence of the keen desire for increased accuracy in diagnosis and prognosis in surgical work is to be found than in the persistent and laborious attempts made in order to arrive at a trustworthy method of estimating the functional value of the kidney. Failure of renal function is responsible for a certain proportion of the death-rate.

DISCUSSION

DR. M. W. WARE, New York: The statistics of Young and Freyer when there were no functional tests of the urinary tract were just as good then as now. I recall years ago when Young reported 100 prostatectomies with no deaths, and he did not make use of functional tests.

DR. GIBBONS, New York: I have operated in a great many cases of cancer of the breast without making use of functional tests of the kidney, and none of the patients died on the table or as the result of the operation; but I packed all around the chest with hot towels. It is a matter of having sense not to operate on dying patients. A friend of mine used to say that if the pathologist said cancer, the patient would live; if he said the disease was not malignant the patient would die.

DR. PAUL PILCHER, Brooklyn: I believe in the value of the phenolsulphonephthalein test. During the past year or so we have lost patients by operating when it seemed to us that if we had been warned beforehand that there was something wrong with the kidneys, we might not have operated, or if we had waited and prepared the patients properly, and operated some time later, life might have been saved. Many a patient will be saved by our knowing which of the kidneys is doing the better work.

DR. EDWIN BEER, New York: I agree with Dr. Vander Veer and Dr. Pilcher that functional tests, properly interpreted, will save a great many lives. I am convinced that practically all these tests have their indications and are of value, and by carrying them out we shall prevent a great many deaths which would otherwise follow operations.

Transfusion of Blood, Direct and Indirect

DR. JOHN A. HARTWELL, New York: In hemorrhage transfusion is of value, provided it is done properly. Transfusion in cases of ectopic gestation in which rupture has occurred, in gastroduodenal ulcers and in typhoid is indicated and is valuable. I encourage transfusion in the more advanced cases of splenic anemia, pernicious anemia and the severe grades of anemia of unknown origin. Transfusion as a therapeutic agent in pernicious anemia has been of only temporary value. Transfusion is a valuable aid in the treatment of septic conditions, although the results reported by some have been disappointing.

DISCUSSION

DR. GEORGE W. CRILE, Cleveland: Dr. Hartwell did not refer to transfusion of blood in acute surgical shock, or in those patients on whom, through emergency, it is necessary to perform a major operation. There is no question whatever but that in acute surgical shock direct transfusion of blood has given the greatest amount of relief and will revive a patient better than any other method. I have used it many times in acute traumatic cases.

DR. DAVID J. KALISKI, New York: It has been our practice to make preliminary blood-tests in all cases before transfusion, and by this means we have been able to rule out all accidents during transfusion which might occur from hemolysis, from agglutination or from both. A Wassermann test is made in every case to rule out syphilis.

DR. ROBERT H. M. DAWBARN, New York: I have recently obtained remarkable results in this class of cases by the addition of large doses of ergot to the saline solution. There is not a single case on record of death from an overdose of ergot, and it has been given in large doses in cases of congestive headaches. The dose is half an ounce of ergotol with from about 1,800 to 2,000 c.c. of normal saline.

(To be continued)

LOUISIANA STATE MEDICAL SOCIETY

Thirty-Fifth Annual Meeting, held at New Orleans, April 20-23, 1914

The President, DR. FRED J. MAYER, Opelousas, in the Chair

Diseases of Aorta, with Special Reference to Aneurysm

DR. GEORGE S. BEL, New Orleans: Almost all aneurysms of the aorta are the result of syphilis. The lesion is primarily in the outer muscular wall and consists of a gummatoid infarction. We do not know what percentage of patients who have syphilis develop syphilitic aortitis, but undoubtedly it is quite common and frequently unrecognized, as shown by necropsy. The essential signs and symptoms of syphilitic aortitis are precordial pain, paroxysmal dyspnea, tachycardia, increased pulsations of vessels of neck, dilatation of aorta and positive Wassermann. It is important to treat all cases early and properly in order to avoid the formation of aneurysm. Weeks and often months precede the actual aneurysmal formation after the syphilitic aortitis began, which, in most of the cases, affords an opportunity for the clinician to recognize

the specificity of the aortic disease, and thereby anticipate the formation of aneurysm by instituting syphilitic treatment.

DISCUSSION

DR. J. B. GUTHRIE, New Orleans: Without careful percussion of the base of the heart in the first interspace, the practitioner is going to fail to diagnose aneurysm. I cannot agree that percussion is the most valuable of all means of physical examination. The importance of percussing the base of the heart in the region of the manubrium sternum cannot be emphasized too much from a diagnostic point of view. We must institute treatment, if possible, in the prophylactic stage. When a certain amount of aortitis exists, with manifest arteriosclerosis in the peripheral arteries, we are not doing our duty to these patients unless we investigate them fully from the point of view of syphilitic disease.

DR. ADOLPH HENRIQUES, New Orleans: Undoubtedly we get more information with the Roentgen ray than by any other single means, but in order to secure this information we have to make a proper examination with the fluoroscope and from several directions, front, back, side and the oblique position. If this is done with a knowledge of what constitutes the normal appearance of the aorta, we can recognize 90 per cent. of aneurysms.

Cerebrospinal Meningitis

DR. RANDOLPH LYONS, New Orleans: In my twenty-two cases there were eleven deaths. One of the fatal cases did not receive any serum, and hence it is omitted. The mortality for the twenty-one cases treated with serum was 47.6 per cent. If three patients who were practically moribund and died in less than forty hours are excluded, the death-rate may be reduced to 38.8 per cent. Of the remaining seven fatal cases, two had complicating pneumonias, and a third acute nephritis. Five of the patients died of uncomplicated meningitis. Unfortunately no post-mortems were obtainable. In the eleven fatal cases, nine patients died in the first week of admission. Even barring the moribund cases, a mortality-rate of 38 per cent. may be considered rather high under serum therapy. The disease, however, was in many of the cases unusually severe. Another factor which may play a part in the mortality-rate is race. Statistics gathered from the recent epidemics in the South and Southwest have uniformly shown a higher death-rate in the negroes than in the whites, though both races had the benefit of the serum. Galveston was the only exception to this rule. This apparent lessened resistance to the disease among negroes may be due less to radical qualities than to insanitary living and ignorance. The negro usually waits until the disease is well advanced before coming to a hospital. Of the eleven patients who recovered, only two showed any after-effects of the disease. One patient was totally deaf and the other partially deaf.

DISCUSSION

DR. M. L. GRAVES, Galveston: The mortality mentioned by Dr. Lyons is entirely too high and must be explained on the ground that the patients received the serum treatment either after the disease had progressed too far or other conditions were present that I am unable to account for. The reduction of mortality by the prompt, efficient and repeated serum therapy is very great.

DR. M. J. CAROUSE, Point Coupee: I would like to ask the author what he considers a large dose of the meningococcic serum injected into a child or an adult.

DR. RANDOLPH LYONS, New Orleans: In my series of cases we had to deal with adults. I consider large doses of the serum anything over 40 c.c., but it depends on the amount of spinal fluid withdrawn.

Pellagra and Its Treatment

DR. E. H. MARTIN, Hot Springs, Ark.: In the large majority of cases the salvarsan treatment of pellagra leads to an uninterrupted recovery without unpleasant symptoms. In some cases the intense pains in the lower extremities, and occasionally in the arms, may be very persistent, and such neuritis may continue for a time after the treatment has

been completed. This is strictly a pellagrous symptom, as it does not occur in cases of cerebrospinal lues similarly treated. A few cases will be met in which the infection is so intense, although the symptoms may not be correspondingly severe, that little impression seems to be made and the patient finally dies of the disease. If specific treatment is used in all cases you may confidently expect to cure permanently over 80 per cent.

Fisher's Alkaline-Saline Therapy

DR. J. T. HALSEY, New Orleans: Many cases of general edema and of nephritis are not benefited by this alkaline-saline therapy, and a certain proportion of such cases will be unfavorably influenced by it. In spite of my own lack of success in applying this treatment in one case, I shall continue to try it out cautiously but fairly. It should be tried in cases of general edema or nephritis which do not respond to our usual methods of treatment.

Institutional Treatment of Nervous and Mental Diseases

DR. CHARLES V. UNSWORTH, New Orleans: Of paramount importance in institutional treatment is the educational, industrial and moral training. Industrial training should be directed toward encouraging contentment and industry by occupations suitably selected according to individual tastes. Patients should be assisted to lead well-regulated lives, in order that they may be led to forget the irksomeness of confinement, and helped to believe that they are taking some part in the work of the world. In the Louisiana Retreat the results secured from industrial training have been most gratifying.

Summary of Present Status of Osteogenesis

DR. ISADORE COHN, New Orleans: I have operated on more than sixty animals. Periosteal transplants or flaps have not reproduced bone in a single instance. I do not believe that periosteum is essential to the life and growth of the transplant, nor do I believe that it is essential to the repair of the defects in bone. Periosteum is not an osteogenetic agent. It serves to protect, to guide the growth of and nourish bone. Bone transplants live and grow; they have an inherent osteogenetic function. In the light of our present evidence, there should be a revision in our teaching in regard to the repair of fractures. Callus is not a product of the periosteum, but of the cortex and endosteum. The autogenous bone graft or transplant is destined to a greater field of usefulness.

(To be continued)

NEW YORK NEUROLOGICAL SOCIETY

Meeting held April 7, 1914

The President, DR. SMITH ELY JELLIFFE, in the Chair

Chronic Progressive Cerebellar Tremor

DR. J. RAMSAY-HUNT: Three cases of this affection have come under my observation, two were advanced cases; the third was of more recent date. In the former the disease had been progressive over a period of six years. It was characterized by a chronic, gradually progressive tremor, coarse and irregular in character, associated with symptoms of asynergia, hypotonia, adiadokokinesis, and the *intermittent asthenia*, an inability to sustain fixed or continuous muscle contractions. All of these symptoms were referred to disturbance of the cerebellar function. The question of multiple sclerosis was an important one in the interpretation of this group of cases. As, however, all the symptoms indicated a disturbance of the cerebellar function, and were slowly progressive, I would regard these cases as representing a well defined and progressive disease of some portion of the cerebellar mechanism. The clinical type I would designate as the *chronic progressive cerebellar tremor*. Such cases have probably been variously classified as hereditary or essential tremor, multiple sclerosis, hysterical tremor, traumatic neurosis and atypical paralysis agitans. The reports of three cases were given.

Insanity among Jews

DR. A. A. BRILL and DR. M. J. KARPAS: From the figures available in literature one could readily see that the sweeping statement made by so many that the Jew was disproportionately afflicted with insanity had never been confirmed by careful statistical data. We examined the statistical data of the admissions to the Manhattan State Hospital for four consecutive years, beginning Oct. 1, 1908, and ending Sept. 30, 1912. The total number of admissions was 5,710 (2,803 men and 2,907 women), of which there were 1,203 Jews, (588 men and 615 women). The Jews thus constituted 21 per cent. of the total admissions. The predominating psychoses among Jewish patients were of the functional type. The highest percentage was found in the manic-depressive group, and second in order was the undifferentiated depressions, the greatest majority of which belonged to the manic-depressive class, and third in order was the dementia praecox group. The relatively high percentage of the imbecility and constitutional inferiority groups might be explained by the fact that these diagnoses were made only too often when a foreign Jew was examined by a physician who was unfamiliar with his language and racial characteristics. The relatively high percentage of the infective exhaustive groups in men may be partially attributed to the poor hygienic conditions at home and in sweat-shops. The general paresis group showed a comparatively high percentage. The Russians, however, found a very low percentage of general paresis among Jews. The explanation lay in the fact that in Russia the orthodox Jews were in the majority, and owing to their rigid religious tenets and early marriages, they led a pure sexual life. The senile and epileptic insanities and psychoses accompanying organic brain diseases showed a relatively low figure, and the alcoholic psychoses represented only 2.5 per cent. of the male alcoholics: there were none among the female admissions.

DISCUSSION

DR. GEORGE H. KIRBY: It is important to know that the Italians are bringing in more epilepsy than any other race; that the Irish supply an enormously disproportionate number of alcoholic psychoses, and that the recently arrived Jews furnish a high percentage of dementia praecox, manic-depressive insanity and feeble-mindedness. To determine the incidence of insanity, one should not compare an essentially immigrant population (such as the Jews in New York with the native born population. An immigrant population may be variously constituted. It usually contains a disproportionate number of young adults, and the two sexes might exist in unusual proportions. On the other hand, the native born population contains from one-sixth to one-fifth of children, and has a much larger proportion of middle aged and old people than an immigrant population. One reason why dementia praecox and manic-depressive insanity are relatively more frequent among Jews admitted to the hospitals than the native born is because there were relatively more young adults in the Jew population. As the average age of the immigrant population increases, there will be more cases of paresis, and, later still, more cases of arteriosclerosis and senile dementia among the Jews.

In regard to feeble-mindedness the data available indicates that it is proportionately higher among Hebrews than other races. Among all the cases of imbecility admitted to the Manhattan State Hospital during the past four years, 50 per cent. of them were Jews, whereas this race constituted only 21 per cent. of the total admissions.

DR. MAURICE FISHBERG: Great care must be taken in interpreting the statistics of insanity. Ninety-five per cent. of Jews are city dwellers as against only thirty-three per cent. of non-Jews. Urban dwellers have a higher incidence of insanity, and must commit their mental defectives to institutions, whereas in rural populations the rates of insanity are lower and the milder forms of mental alienation are permitted to roam about. The Jews are engaged in financial and commercial pursuits in much larger numbers than the Christians, and this has an influence in the direction of increasing the number of insane among them.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

April, XXXV, No. 4, pp. 179-242

- 1 Mental Defectives. R. W. Hill, Albany.
- 2 Causes of Backwardness in Children. C. H. Johnson, Yonkers.
- 3 Determination of Mental Defect. C. Bernstein, Rome.

American Journal of Insanity, Baltimore

April, LXX, No. 4, pp. 765-1001

- 4 Chronicity and Deterioration in Manic Depressive Cases. S. Brown, White Plains, N. Y.
- 5 Analysis of Twenty-Five Cases of Mental Disease Arising in Fifth Decade. E. E. Southard, Boston, and E. D. Bond, Philadelphia.
- 6 *Distribution of Lesions of General Paralysis. S. T. Orton, Worcester, Mass.
- 7 *Amyloid Degeneration of Brain in Two Cases of General Paresis. S. C. Fuller, Westboro, Mass.
- 8 Psychoses Following Apoplexies. J. H. W. Rhein, Philadelphia.
- 9 Study of Hallucinoses. A. Gordon, Philadelphia.
- 10 Association Test as an Aid in Diagnosis. W. R. Dunton, Jr., Towson.
- 11 Father Complex: Report of Five Cases. H. J. C. Kuhlmann, Buffalo.
- 12 Benjamin Rush, Patriot, Physician and Psychiatrist. F. Woodbury, Philadelphia.
- 13 Case of Chorea Insaniens. C. A. Porteous, Montreal.
- 14 Surgical Procedures on Insane. A. S. Chittenden, Binghamton, N. Y.

6. **Distribution of Lesions of General Paralysis.**—A graduated review by Orton of the intensity of the lesions of general paralysis in six areas of each hemisphere of 50 unselected cases indicated the following order of severity—frontal, hippocampal, temporal, precentral, postcentral and with markedly less involvement of the occipital. The circle of Willis does not act as a path of ready communication between the carotid and vertebral systems. The hippocampal region receives a part of its blood-supply from the carotid group, thus including within the distribution of the branches of the carotid those areas where the lesions have been found to be prominent and suggesting this vascular system as the basis for the distribution in the typical case.

7. **Amyloid Degeneration of Brain.**—Two cases of general paralysis of the insane, one with a rather typical clinical course, the other presenting symptoms apparently of focal origin which obscured the clinical diagnosis, showed at autopsy, in addition to the usual gross anatomical changes of paresis, the typical histopathologic lesions of the disease. In one case there were added certain proliferations of the cells of vessel walls, indistinguishable from histopathologic lesions of the endarteritic non-paretic type of cerebral lues. Other alterations present in both cases were certain glistening, grayish or "fish-flesh" appearing, homogeneous deposits, visible to the unaided eye and limited chiefly to the cerebral cortex. In one case they were small, for the most part discrete, thickly sown in the frontal and parietal areas and found in other portions of the cortex. In the other case this type of alteration was restricted to a portion of the right calcarine area. Here, however, the macroscopic appearance was that of a confluent mass.

Microscopically, the process was shown to have involved the mesoblastic apparatus by the deposition of stuffs in the walls of blood-vessels which eventually converted them into structureless masses. Many of the apparently extravascular deposits proved to be only residuals of vessels, the lumina of which had become obliterated, or groups of vessels which had coalesced as the space between them had become annihilated by the encroachments of their respectively thickened walls, while the remainder not so classed could be reasonably interpreted as deposits within the meshes of the adventitial net-like proliferations exhibited by many vessels. Moreover, the process brought to light a richer vascularization than is usually shown in the most pronounced type of the atrophic paretic cortex. The study of this rich vascularization in a general way confirmed the contentions of Cerletti, namely,

that what heretofore has been looked on as actual vessel proliferation in the brain, in the majority of instances, is more apparent than real.

The microchemic differences which these deposits exhibited led Fuller to conclude that, despite the wide distribution in the first case and the extent to which surrounding structures had been compromised, the process was still in a stage of devolution, with an amyloid degeneration as the goal. The tannin-silver method in demonstrating the connective tissue invasion of nervous structures by a net-like extension of the proliferated adventitia of blood-vessels added not only confirmation of the previous observations of Snessarèw and Achucarro, but furnished the final link in the chain of evidence that in these two cases the process played itself out in the mesoblastic apparatus.

American Journal of Public Health, Boston

March, IV, No. 3, pp. 179-288

- 15 Occupational Diseases and Legislative Remedies. J. B. Andrews, New York.
- 16 Investigation into Relationship of House Fly to Disease—Special Importance of Fly in Infant Welfare. D. B. Armstrong, New York.
- 17 Midwives in America. C. C. Van Blarcom, New York.
- 18 Meaning of "Faith Cures" and Other Extra-Professional "Cures" in Search for Mental Health. W. A. White, Washington, D. C.
- 19 Prevention of Carriers. W. A. Sawyer, Berkeley, Cal.
- 20 *Study of Germicidal Action of Ultraviolet Rays. E. M. Houghton and L. Davis, Detroit.
- 21 Serious Fallacy of "Standard" Methylene-Blue Putrescibility Test. A. Lederer, Chicago.
- 22 Report of Committee on Industrial Hygiene and Sanitation in Home. J. H. Landis.
- 23 Report of Committee on Study and Prevention of Communicable Diseases. F. C. Curtis.

20. **Germicidal Action of Ultraviolet Rays.**—Houghton and Davis found that the ultraviolet rays produced by the Cooper-Hewitt mercury arc have a strong bactericidal action. Certain species of bacteria in aqueous suspension, including spore-forming organisms, are killed by exposure to rays. Molds, however, are only partially destroyed by the ultraviolet light. The action seems to be a photo-mechanic process, and is, in all probability, due to absorption of the ultraviolet rays by the bacterial protoplasm. Water, wines, many inorganic and a number of organic substances in aqueous solution, can be sterilized by intraviolet light. Bacterial vaccines require a prolonged action. Proteins and other bodies of high molecular weight interfere with the action of the rays. Turbidity, both organic and inorganic, has a similar action. Color, within certain limits, seems to have no influence.

American Journal of Roentgenology, Detroit, Mich.

March, I, No. 5, pp. 201-232

- 24 *Some Unusual Bone Lesions. A. Hartung, Chicago.
- 25 *Preliminary Report on Control of Percussion by Means of Roentgen Rays. G. C. Shattuck, Boston.
- 26 Roentgen-cinematography of Stomach and Duodenal Cap. L. G. Cole, New York.

24-25. Abstracted in THE JOURNAL, November 8, pp. 1742 and 1744.

Annals of Surgery, Philadelphia.

May, LIX, No. 5, pp. 645-804

- 27 Technic of Comparative Hyperemia. C. G. Cumston, Geneva, Switzerland.
- 28 *Vaccine and Serum Therapy in Septicemia. A. C. Burnham, New York.
- 29 Advantages of Double Resection in Certain Types of Goiter. D. C. Balfour, Rochester, Minn.
- 30 *Frequency of Carcinoma of Appendix. W. C. MacCarty and B. F. McGrath, Rochester, Minn.
- 31 Consideration of Certain Coexisting Lesions of Gall-Bladder and Kidney. E. Eliot, Jr., New York.
- 32 Splenic Anemia with Splenectomy (Banti's Disease). F. C. Herrick, Cleveland.
- 33 *Ileocecal Tuberculosis. J. Wiener, New York.
- 34 *Experimental Study of Intestinal Obstruction. H. B. Stone, B. M. Bernheim and G. H. Whipple, Baltimore.
- 35 Sarcoma of Small Intestine. J. Speese, Philadelphia.
- 36 Surgical Treatment of Acute Gonorrheal Epididymitis by Epididymotomy. J. B. Clark, New York.

28. **Serum Therapy in Septicemia.**—One hundred and eleven consecutive cases of severe infection in which either the

course and symptoms were those of septicemia, or cultures showed the presence of bacteria in the circulating blood, were studied by Burnham. The mortality of the entire series (111 cases) was 74, or 66.6 per cent. In some of the cases vaccines were used in the treatment. Burnham believes that vaccines are of benefit in many of the cases not overwhelmed at the onset by the severity of the infection, and, clinically, seem to benefit the majority of the cases. Antistreptococcic serum is of great value, especially during the early stage when its bactericidal powers are most pronounced, and if given in sufficient dosage during the period of invasion will often change a systemic bacteremia into a localized infection. The combination of antistreptococcic serum, used in the early stage of septicemia, together with autogenous vaccines, used as soon as they can be prepared from blood-cultures, seems to be particularly beneficial. If the blood-cultures are sterile, vaccines may be prepared from the local lesion, although this method is unsatisfactory and may lead to errors. Stock vaccines are still less desirable and are of uncertain value.

Burnham warns that neither sera nor vaccines, although they usually do little harm, are free from danger, and the dosage and intervals need to be carefully worked out. Open-air treatment in cases in which cultures are sterile and as an adjunct to vaccine and serum therapy seems to be the best method of increasing the resistance of the patient.

30. Carcinoma of Appendix.—One in every 225 of all appendices, and one in every 53 partially or completely obliterated appendices MacCarty and McGrath found were carcinomatous. Thirty-one per cent. were found in association with other abdominal and pelvic conditions.

33. Ileocecal Tuberculosis.—Ileocecal tuberculosis Wiener states is usually a primary lesion. The infection takes place either from tubercle bacilli that have been swallowed (milk or sputum) or through the mesenteric glands. Pathologically we distinguish two forms, the ulcerative or enteroperitoneal and the hypertrophic ileocecal tumor. The diagnosis is very difficult owing to the similarity to appendicitis, with which diagnosis most cases come to operation. The two operations to be considered are lateral anastomosis with or without exclusion and resection. In the majority of cases Wiener suggests the lateral anastomosis first, and there will then often be no secondary operation required; or, if required, it will be done under much more favorable conditions. Wiener reports seven cases.

34. Experimental Study of Intestinal Obstruction.—In dogs the authors were able to isolate by double ligatures a loop of the duodenum and high jejunum and reestablish the continuity of the alimentary tract about the closed loop; such a condition is rapidly fatal. A fluid collects within the closed loops that is highly toxic, producing, when injected into normal dogs, a reaction much like that of dogs with closed loops. This toxin is believed to be the cause of death. The toxin is formed by the mucosa of the closed loop, some of it being secreted into the lumen and some remaining within the cells of the mucosa. If the closed loops be drained externally, the postoperative course of the animal is altered, but varying degrees of intoxication still are observable, and the presence of toxin within the mucosa of the drained loops is demonstrable. Absorption takes place not only from the loop contents but from the mucosa direct, the latter being a quite important source of intoxication.

There are various possible explanations for the perversion of function that causes the mucosa to become a source of intoxication, but none is yet proved. The fundamental explanation of the change is as yet unknown. It is possible by the repeated injection of sublethal amounts of the toxin to immunize dogs against fatal doses. The parenchymatous organs, spleen, intestinal mucosa, etc., and particularly the liver, seem to be especially concerned in the production of the resistance against the toxin when dogs are immunized. The extract of an immunized dog's liver, properly handled, will destroy the toxin in vitro. The authors believe that the intoxication observed in closed loops is quite similar to that existing in simple obstruction, and that the same toxin is the

essential agent causing death in each instance. The establishment of an enterostomy for drainage in clinical cases may not meet all the requirements for successful treatment.

Boston Medical and Surgical Journal

May 7, CLXX, No. 19, pp. 709-744

- 37 Results of Swift-Ellis Intradural Method of Treatment in General Paresis. A. Myerson, Taunton.
- 38 Hip Fractures and Their Treatment. F. J. Cotton, Boston.
- 39 Experimental Method as Utilized in Clinicopathologic Department. H. T. Karsner, Boston.

Bulletin of Johns Hopkins Hospital, Baltimore

May, XXV, No. 279, pp. 133-164

- 40 *Colloidal Gold Reaction in Cerebrospinal Fluid. S. R. Miller and R. L. Levy, Baltimore.
- 41 *Essential Features of Acidosis and Their Occurrence in Chronic Renal Disease. A. W. Sellards, Baltimore.
- 42 Work of Out-Patient Department of Henry Phipps Psychiatric Clinic. C. M. Campbell, Baltimore.
- 43 Dystrophia Epithelialis Cornea. Report of Case. L. B. Whitham, Baltimore.

40. Colloidal Gold Reaction in Cerebrospinal Fluid.—The present report by Miller and Levy is based on the examination of 210 spinal fluids secured from 171 cases. In 2 of 8 examinations made on 4 cases of purulent meningitis, typical *Verschiebung nach oben* was observed. Two gave reactions analogous to the paretic type, with the noteworthy differences that the supernatant fluid in the low dilutions showed a pink turbidity and the precipitation continued throughout the remaining tubes. Eleven cases of tuberculous meningitis confirmed either by the finding of tubercle bacilli or by autopsy, gave, with one exception, maximum color changes in the higher dilutions. One observation confirms Eicke's statement that in the early stages the reaction may simulate that of syphilis. As the disease advances there is *Verschiebung nach oben*. Of 10 cases of congenital syphilis 3 showed moderate pleocytosis, 5 a positive phase I. Reactions of the luetic type were obtained in 80 per cent. Reactions in the "luetic zone" occurred in 4 out of 5 cases of secondary syphilis. In 11 cases of tertiary syphilis comprising instances of latent syphilis, gummatous lesions and vascular manifestations, a reaction in the luetic zone occurred in 4. In none was there any demonstrable clinical evidence of central nervous system involvement. Several of the individuals were elderly men, who had had their primary infection many years before, and who, in all probability, will never develop cerebrospinal syphilis, tabes or paresis.

All the tabes dorsalis cases showed luetic curves. With 3 exceptions, these were of moderate intensity, yet definite. Thirteen of the 15 fluids from cases of cerebrospinal syphilis examined reacted in the luetic zone, 6 with fairly marked intensity. All of the 49 cases of general paresis gave characteristic paretic curves. The more advanced cases clinically have shown the most striking tests. The authors conclude that the colloidal gold test is essentially a laboratory method. It can be performed rapidly and with a minimal amount of spinal fluid. Extreme care in the preparation of reagents and the cleaning of glassware is imperative. The test is of no aid in the diagnosis of purulent or tuberculous meningitis. It has no advantage over known laboratory procedures in the diagnosis of congenital syphilis. Reactions in secondary and tertiary syphilis are inconstant. Their significance when present is now known. The statement that they indicate the earliest stages of central nervous system involvement lacks proof. The positive reactions observed in the majority of cases of tabes and cerebrospinal syphilis are not characteristic. The authors feel that the reaction peculiar to paresis is sufficiently constant to warrant its use as an aid in the differentiation of this condition from others with which it might be confused.

41. Acidoses and Their Occurrence in Chronic Renal Disease.—The essential feature in acidosis, Sellards says, consists in a general impoverishment of the body in bases or in substances which readily give rise to bases, e. g., sodium carbonate. This may be brought about by the loss of bases as such, as in the so-called relative acidosis, or by the neu-

tralization by acids as in the so-called absolute acidosis. In either case the end result is the same and the distinction between relative and absolute acidosis is misleading. The fundamental features of every acidosis which have been established thus far are: 1. An increase in the tolerance of the body to fixed bases. 2. A diminution in the titratable alkalinity of the blood-serum. 3. A diminution in the carbon dioxid of the blood. The excretion of ammonia either in its relative or absolute amounts, Sellards says, does not afford a definite basis for the detection of acidosis. Thus: 1. The ammonia excretion may be normal in acidosis. This may occur in diabetic cases which are free from any suggestion of renal disease. In the nephritic cases in which the ammonia is low in the urine it is probable that there is no increase in the quantity of ammonia in the blood, though some have suggested that it accumulates in the blood and its excretion in the urine is suppressed. 2. The ammonia excretion may be increased even to the extent of 2 gm. per day with an ammonia coefficient of 40 per cent., in conditions in which there is no acidosis.

An acidosis of high grade occurs in certain nephropathies. The acidosis reaches its maximum in the uremia of acute and of chronic diffuse nephropathy. It is not a terminal event, for it is often present in relatively high grade in out-spoken cases many months before the development of uremia. It represents the effect rather than the cause of the renal lesions and thus constitutes a condition of only secondary importance. The characteristics of the chemical pathology of this acidosis are: 1. Increase in tolerance to bases. 2. Decrease in titratable alkalinity of the blood. 3. Decrease in the carbon dioxid content of the blood. 4. Normal excretion of ammonia. 5. Absence of any disturbance of carbohydrate or fat metabolism, and absence of the salts of any abnormal organic acids.

The changes in the titratable alkalinity of the blood which can be detected by the use of phenolphthalein afford a ready means for the prompt diagnosis of acidosis and the method is particularly applicable in renal disease. In this condition it furnished a definite indication of the amount of bicarbonate that will be required for the relief of the acidosis. The determination of the tolerance of the body to sodium bicarbonate also affords a delicate method of general application for the detection of acidosis. Examination of the feces showed that bicarbonate was not excreted into the intestine, even in the cases in which massive doses were injected. Some of the toxic symptoms of uremia Sellards claims are due not to the presence of a toxin, but to the absence of a normal constituent of the blood, namely, the carbonates. Therefore the therapeutic bleeding for the removal of any toxins that may be circulating causes at the same time a still further diminution in a substance in which the blood is already seriously depleted. This disadvantage could be readily obviated by the injection of bicarbonate at the time of bleeding. Sellards suggests that this acidosis is perhaps the result of defective function of the kidney in the normal separation and excretion of acid salts. If this supposition is correct, the acidosis would be an indirect expression of renal retention. In support of this it has been found that the acidosis is in general parallel to the ordinary signs of renal retention, such as the suppression of the excretion of dyes and sugars and the accumulation of non-protein nitrogen in the blood.

Indiana State Medical Association Journal, Fort Wayne

April 15, VII, No. 4, pp. 141-194

- 44 Occupational Traumatism of Eye. E. M. Shanklin, Hammond.
- 45 Typhoid Perforation, Early Operation, Death from Suppurative Peritonitis Fifty-Five Hours after Operation. B. P. Weaver, Ft. Wayne.
- 46 Indications for Surgery of Ethmoid and Sphenoid Labyrinth. Case Report. J. McCall, Jr., Terre Haute.
- 47 Ocular Neurasthenia. J. R. Newcomb, Indianapolis.

Journal of Cutaneous Diseases, New York

April, XXXII, No. 4, pp. 257-346

- 48 Case for Diagnosis: Impetigo or Impetigo Herpetiformis? H. P. Towle, Boston.
- 49 Consideration of Two Outbreaks of So-Called Pemphigus Neonatorum. A. P. Biddle, Detroit.

- 50 Oriental Sore in Americas, Report of a Case. E. L. McEwen, Chicago.
- 51 Pathology of Xanthoma Tuberosum Multiplex. F. C. Knowles, Philadelphia.
- 52 Acrodermatitis Chronica Atrophicans: Transition from Infiltration to Atrophy. F. Wise, New York.
May, No. 5, pp. 347-412
- 53 Pityriasis Rosea. W. D. Owens, U. S. Navy. Idem. H. E. Alderson, San Francisco.
- 54 *Tuberculin Therapy in Tuberculosis Cutis, Tuberculides and Allied Conditions. G. M. MacKee, New York.

54. **Tuberculin Therapy in Tuberculosis.**—Fifty-two cases were treated by MacKee with bacillus emulsion in various dilutions. These cases included lupus vulgaris, tuberculosis, verrucosa cutis, tuberculosis of buccal mucosa, scrofuloderma, tuberculous adenitis, Bazin's disease, tuberculous dactylitis, papulonecrotic tuberculid and lupus erythematosus. In this series true tuberculosis of the skin apparently completely recovered under the influence of tuberculin injections. All the cases of ulcerative tuberculosis of the skin and mucous membrane failed to yield to tuberculin. At first this was thought to be due to the activity of complicating organisms, and perhaps it is, but these lesions failed to respond to a combination of tuberculin and mixed, polyvalent stock vaccines. The ulcerative lesions of Bazin's disease yielded at once. Lupus erythematosus and papulonecrotic tuberculid, which are thought to be due to the products of tubercle bacilli rather than to the organisms themselves, failed to respond. In this series of cases nothing but tuberculin was employed. There was no local or general treatment.

Journal of Outdoor Life, New York

April, XI, No. 4, pp. 97-127

- 55 Tuberculosis Among Homeless Men and in Lodging Houses. C. B. Barnes, New York.
- 56 Tuberculosis "Repeaters." S. Potter, New York.
- 57 Difficulties Encountered by Hospital Authorities in Detaining Homeless Tuberculous. R. J. Wilson, New York.
- 58 Detention of Tuberculous in City Hospital. W. H. Conley, New York.
- 59 Effect of Habits of Posture on Health. J. E. Goldthwait, Boston, Mass.
- 60 How and When Do We Contract Tuberculosis? L. Brown, Saranac Lake.
- 61 Home Treatment of Pulmonary Tuberculosis. G. M. Sternberg, Washington, D. C.
- 62 Tuberculosis and Its Treatment. W. C. Klotz, Los Angeles.
- 63 Adventures of Tuberculosis Branch Germ as Told by Himself. A. Somerfield, Naperville, Ill.
May, No. 5, pp. 129-159
- 64 Practical Application of Sanatorium Treatment for Tuberculosis. H. S. Newhart, North Wilmington, Mass.
- 65 Subjective Symptoms of Pulmonary Tuberculosis and Their Significance to Patient. G. L. Bellis, Wales, Wis.
- 66 Nature Study for Tuberculous Children. S. L. Patteson, South Euclid, Ohio.
- 67 What Fresh Air, Good Food and Plenty of Sleep Did for One Baby. I. Webber, Bobcaygeon, Ontario.

Lancet-Clinic, Cincinnati

April 18, CXI, No. 16, pp. 461-488

- 68 Kidney Function Estimation in Preparation of Patients for Prostactectomy. A. P. Cole, Cincinnati.
- 69 Present Status of Medicine and Dermatology in Japan. A. Ravogli, Cincinnati.
- 70 Prostitution System in Palestine. D. C. McMurtrie, New York.
April 25, No. 17, pp. 489-516
- 71 Brain Tumors from Clinico-Neurologico-Ocular Standpoint. L. D. Brose, Evansville, Ind.
- 72 Needed—New Human Race. J. H. Kellogg, Battle Creek, Mich.
- 73 Public Welfare Department—Its Proper Relations to Hospitals Under New Charter. O. P. Geier, Cincinnati.
- 74 U-Shaped Electromagnet for Surgical Purposes and Its Calculations. G. T. Fette, Cincinnati.
May 2, No. 18, pp. 517-542
- 75 Case of Unilateral Renal Aplasia. C. E. Kieley, Cincinnati.
- 76 Needed—New Human Race. J. H. Kellogg, Battle Creek, Mich.
- 77 Public Welfare Department—Its Proper Relations to Hospitals Under New Charter. O. P. Geier, Cincinnati.
- 78 Eye-Strain as Cause of Headache. J. Ranly, Cincinnati.

Medical Record, New York

May 9, LXXXV, No. 19, pp. 829-874

- 79 *Practical Management of Chronic Osteo-Arthritis. Report of Cases. P. W. Roberts, New York.
- 80 Loose Kidney Question. R. T. Morris, New York.
- 81 Surgical Treatment for Reduction of Vacuum Caused by Nasal Obstructions. C. A. Bucklin, Glasgow, Scotland.

- 82 *Ether-Oil Rectal Anesthesia: Some Theoretical Considerations. H. C. Luke, New York.
- 83 Practical Scientific Diagnosis and Treatment of Sterility in Male and Female. M. Huhner, New York.
- 84 Four Cases of Multiple Myeloma. M. H. Kahn, New York.
- 85 Case of Vincent's Angina, Treated with Neosalvarsan. H. H. Amsden, Concord, N. H.
- 86 Biologic Treatment for Cancer. C. F. D'A. Francis, Brooklyn.

79. Practical Management of Chronic Osteoarthritis.—Roberts states in considering the treatment of osteoarthritis, the problem presented is to remove discernible foci of infection, improve local nutrition, correct such deformities as tend to put undue strain on weight-bearing joints, and to place the painful parts at rest, so far as that is possible. So-called anti-rheumatic remedies, such as the alkalies, salicylates and iodids, have no effect on these conditions and should be avoided because of the digestive disturbances which frequently follow their exhibition. The diet usually prescribed for "rheumatism" is harmful, because it denies certain elements of nutrition which the economy demands. Such treatment as is afforded at the various watering places is at best of merely temporary benefit and has at times been observed to be a source of real injury. Massage and manipulation of joints with the idea of keeping them pliable is an inexcusable error, for it serves only to perpetuate the irritation of the already sensitive tissues. It would seem, too, that the importance of correcting visceroptosis in these cases has been very much overestimated.

Where a focus of infection exists, it should be removed. Vaccine treatment offers much that is hopeful for the future, but it is still in the developmental stage. The essentials of treatment followed by Roberts in his cases have been the administration of glandular preparations, rest, a diet reducing the intake of calcium, and the use of the d'Arsonval or bipolar high frequency current.

82. Ether-Oil Anesthesia.—The advantages of the oil-ether outside of its simplicity in Luke's opinion seem to be more apparent than real. In fact, with the possible exception of selected cases of bronchoscopy, he finds it difficult to see any indication for its use that cannot be as well and probably more safely met by the modern pulmonary methods.

Some of the undesirable clinical features which, Luke says, must certainly be looked for in a method involving so many theoretical objections are the following: (1) the rather exhaustive and unpleasant experience accompanying any special rectal preparation, as required here; (2) the occasional necessity and inconvenience of preliminary and subsequent proctoscopic examinations, as a matter of safety and caution; (3) occurrence during the induction period of cramps, with distressing sensations of fulness and pressure in the lower bowel, accompanied by desire for stool; varying degrees of anal irritation occurring early or late; (4) prolonged induction stage with frequent necessary recourse to the inhalation method; (5) any time after the first fifteen or twenty minutes' respiratory depression may rather suddenly or slowly appear, followed by arrested breathing, loss of muscular tone and dilated pupils, with the possibility of fatal syncope supervening; (6) the occurrence of mild to very severe grades of proctitis and colitis, these complications appearing in more aggravated forms where any pre-existent pathological condition is present; (7) delayed recovery, which may be prolonged for many hours; (8) increased toxemia.

Missouri State Medical Association Journal, St. Louis

April, X, No. 10, pp. 355-398

- 87 *Practical Methods of Differentiating between Active Tuberculous Lesions and Healed or Quiescent Ones. F. M. Pottenger, Monrovia, Cal.
- 88 Relation of Physician to Coroner's Office. L. R. Padberg, St. Louis.
- 89 Introduction to Laboratory Symposium. C. H. Neilson, St. Louis.
- 90 Stomach and Feces. H. W. Soper, St. Louis.
- 91 Serology. C. L. Klenk, St. Louis.
- 92 Luke, Greek Physician. G. Homan, St. Louis.
- 93 Free Service of Department of Preventive Medicine of University of Missouri. O. W. H. Mitchell, Columbia.

87. Tuberculous Lesions.—It is not right, says Pottenger, to speak of the tuberculin treatment of tuberculosis. Tuberculin alone is no treatment for tuberculosis. He considers the scientific treatment of tuberculosis a combination of tuberculin with all measures which will build up the patient and make his resisting power greater. The injecting of tuberculin alone, without proper care and supervision of the patient is unscientific and nothing short of malpractice.

Tuberculin is a specific remedy. Its action in tuberculosis is specific in that it stimulates the body cells to the production of certain definite antibodies whose function it is to attack and destroy tubercle bacilli and their toxins with which they come in contact. This is the only form of treatment that is specific. Fresh air, good food, proper regulation of life and the alleviation of distressing symptoms and complications are not specific, yet they are a very important part in the treatment of tuberculosis. They make the patient stronger; build up his resisting power; increase his reactivity and make his body cells capable of reacting to the tuberculin when it is injected or when it is produced normally.

Tuberculin also acts in stimulating healing. It increases fibrosis and aids in the production of scar tissue and encapsulation. While of inestimable value when properly given, it is of little or no value and may even do harm when given improperly. Too much must not be expected from tuberculin as a remedy. If it stimulates the body cells to the production of antibodies and increases fibrosis it is performing its function. It may fail to cure the disease and yet perform its function perfectly. Many men who use tuberculin fail to grasp what it should do. The result is that they are often disappointed. It cannot prevent necrosis when begun; it cannot fill up cavities; neither can it restore lost function to the various organs; but, if given properly, it will increase the antibodies in the blood, and will stimulate an increase of scar-tissue formation and thus improve the patient's chances of cure; but it should always be reinforced with other measures which will help the patient.

New Orleans Medical and Surgical Journal

May, LXI, No. 11, pp. 785-882

- 94 Comparative Medicine. W. H. Dalrymple, Baton Rouge.
- 95 Meat Inspection. W. H. Dalrymple, Baton Rouge.
- 96 Community's Right to Health Protection. A. H. Gladden, Monroe.
- 97 Phylacogens in Tuberculosis to Control Temperature Due to Secondary Infection. R. H. Chilton, New Orleans.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

April, XVIII, No. 4, pp. 189-233

- 98 Two Operations for Aneurysm after Matas Method. H. A. Royster, Raleigh, N. C.
- 99 Intestinal Perforation in Case of Ambulatory Typhoid—Operation with Recovery. B. C. Willis, Richmond.
- 100 Case of Popliteal Aneurysm and Its Rapid Disappearance Under Antisyphilitic Treatment. S. B. Cary, Richmond.
- 101 *Case of Lymphosarcomatosis under Roentgen Ray Treatment. D. D. Talley, Jr., Richmond.

101. Case of Lymphosarcomatosis—Talley's patient has improved steadily under Roentgen-ray treatment for five months, in spite of two other intercurrent affections. The blood-picture has improved in proportion to the clinical symptoms, with steady decrease of leukocytes in conjunction with increase in hemoglobin. Oct. 10, 1913, the leukocytes numbered 63,000, hemoglobin 45 per cent.; now the leukocytes number 19,300, hemoglobin 80 per cent.

Pennsylvania Medical Journal, Athens

April, XVII, No. 7, pp. 523-604

- 102 Real Significance of Visceroptosis. J. E. Goldthwait, Boston.
- 103 Surgical Treatment of Gastroptosis. H. D. Beyea, Philadelphia.
- 104 *Removal of Colon for Obstructive Fecal Stasis. Report of Eight Cases. J. G. Clark, Philadelphia.
- 105 *Roentgen-Ray Diagnosis of Gastroptosis. H. K. Pancoast, Philadelphia.
- 106 Care of Advanced Cases of Tuberculosis. C. J. Hatfield, Philadelphia.
- 107 Which Training Makes Best Specialist. H. W. Cattell, Philadelphia.
- 108 Value of Anatomy as Applied to Diagnosis of Medical Conditions. W. E. Robertson, Philadelphia, and J. Roxby, Swarthmore.

- 109 Transitory Vascular Hypertension Independent of Renal or Arterial Disease. R. G. Torrey, Philadelphia.
110 *Interstate Endorsement of Medical Licensure. J. M. Baldy, Philadelphia.

104. Removal of Colon for Obstructive Fecal Stasis.—Clark is skeptical as to the final outcome in cases in which the colon is not at least partially obstructed, for he cannot accept the theory that the colon is a useless organ. His experience convinces him that if the most conservative methods are adhered to, benefit may accrue from surgical intervention in these cases, but even with these successes there will be a considerable percentage of failures. A summary of his eight cases of colectomy shows the following results: 1. The radical relief of constipation in 5 of the 8 cases. 2. An absence of thirst in all but 1 case, and in this only of moderate degree. 3. An absence of immediate postoperative diarrhea in all cases, this symptom appearing several months later in one patient. 4. A somewhat remarkable gain in weight in 5 cases. 5. Striking improvement in general health in 3 cases with a considerable disappearance of neurasthenic symptoms; only partial or doubtful improvement in 2 and complete failure in 2; death of another from postoperative adhesions some months later. Although the immediate results were all favorable, yet the subsequent history, Clark says may prove disappointing; therefore, it behooves every one who performs even a small number of these operations to keep the closest possible oversight of these patients after they leave the hospital. The most critical judgment should be brought to bear in analyzing results, for if it lead into wrong channels, this question has the greatest potentialities for surgical evil, and no one should report a single case without the fullest history and complete notes on the result some months subsequent to the operation. Based on practical deductions secured from the study of cases of general ptosis, Clark does not consider that they come within the operative domain unless obstructive symptoms are evident. For this reason, he does not deal with the ptosis *per se*, but with the particular portion of the intestine which is so hampered by actual sharp angulation that the fecal current is dammed back or retarded; hence the symptom of localized obstruction, rather than that of constipation, which cannot be relieved therapeutically, becomes the indication for surgical intervention. That his attitude is a conservative one is attested by the fact that in two years he has seen only eight cases to which he considered these radical measures applicable. These cases were represented clinically by extreme degrees of obstructive constipation, and dilated.

105. Abstracted in THE JOURNAL, Oct. 25, 1913, p. 1565.

110. Abstracted in THE JOURNAL, March 7, p. 805.

Public Health Journal, Toronto

April, V, No. 4, pp. 209-282

- 111 Care and Training of Feeble-Minded. E. R. Johnstone, Vineland, N. J.
112 Need of Institutional Care of Feeble-Minded. L. M. Brooking, Toronto.
113 Nova Scotia League for Care and Protection of Feeble-Minded. Stead, Halifax, N. S.
114 Mental Defectives in Alberta. R. B. Chadwick, Alberta.
115 Mentally Defective Pupils in Public Schools of Toronto. R. H. Cowley, Toronto.
116 Feeble-Minded Women in Houses of Refuge. J. McNeillie, Peterborough.
117 Need of Institutional Care of Feeble-Minded. A. Shortt, Ottawa.
118 Problem of Feeble-Minded. W. Cummings, Toronto.
119 Feeble-Mindedness—Municipal Problem. D. M. Cameron, London.
120 Feeble-Minded and Social Evils. G. S. Strathy, Toronto.
121 City Responsible for Care and Training of Feeble-Minded. J. O. McCarthy, Toronto.
122 Feeble-Minded and Crime. J. E. Farewell, Whitby.
123 Rural Cold Storages, Scientific Economic Necessity. P. H. Bryce, Ottawa.

Wisconsin Medical Journal, Milwaukee

April, XII, No. 11, pp. 345-378

- 124 Prostatectomy in Aged. J. F. Pember and T. W. Nuzum, Janesville.
125 Feeble-Minded and Their Relation to Society. A. L. Beier, Chipewewa Falls.
126 Are Ideals Worth While? E. Evans, La Crosse.
127 Cancer and Cancer Problem. W. E. Ground, Superior.

- 128 Treatment of Peritonsillar Abscess (Quinsy). P. J. Calvy, Fond du Lac.
129 *Case of Trichiniasis with Unusual Blood-Picture. H. E. Cooper, Wauwatosa.

129. Trichiniasis with Unusual Blood-Picture.—A count of the leukocytes was made in Cooper's case on the day of entrance and showed 23,500 leukocytes. A smear of this blood was then stained with the Nocht-Jenner stain and a differential count of this stained specimen gave these surprising figures: Polymorphonuclear neutrophils, 18 per cent.; polymorphonuclear eosinophils, 72 per cent.; polymorphonuclear basophils, 0.5 per cent.; small lymphocytes, 1.5 per cent.; large lymphocytes, 1.5 per cent.; transitional leukocytes, 4.5 per cent.; large mononuclear leukocytes, 2 per cent. Other stains were made to verify this count, one of these stains showing an eosinophilia of 80 per cent. The attack was of slight intensity. The fever was intermittent in character, reached 102 to 103 F. in the afternoon, dropping down to normal in the early morning. There was no increase in pulse or respiration. The diarrhea which was present at the time of admission was checked within two or three days after entrance. The adult parasite, *Trichinella spiralis*, was never found in the stools. One week after entrance the fever began to decrease and on the tenth day was practically gone. The amount of eosinophilia remained about the same until several days after the temperature had become normal, when the count showed the eosinophilia to be decreased to 55 per cent. Just before leaving the hospital, apparently recovered, another count was made, which still showed an eosinophilia of 40 per cent., the picture being as follows: Polymorphonuclear eosinophils, 40 per cent.; polymorphonuclear neutrophils, 37 per cent.; polymorphonuclear basophils, 1 per cent.; small lymphocytes, 13 per cent.; large lymphocytes, 4 per cent.; transitional leukocytes, 5 per cent.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, London

April, VIII, No. 1, pp. 1-130

- 1 Differentiation of More Important Mammalian Trypanosomes. W. Yorke and B. Blacklock.
2 Bronchial Spirochetosis in Uganda, with Pneumonic Symptoms. J. A. Taylor.
3 *Attempts to Find Disease Germs in Bed Bugs (*Cimex Lectularius*) after Feeding Experiments in Various Diseases: Leprosy, Lymphadenoma, Carcinoma, etc. D. Thomson.
4 Pathogenicity of Trypanosome (*T. Nigeriense*). J. W. S. Macfie.
5 Occurrence of Spirochetosis of Fowls in Southern Nigeria. J. W. S. Macfie and J. E. L. Johnston.
6 *So-Called Cure for Trypanosomiasis. W. Yorke and B. Blacklock.
7 *Antimony Trioxid in Treatment of Experimental Trypanosomiasis. W. Yorke and B. Blacklock.
8 Variations in Form of Microfilariae Found in Man. J. E. L. Johnston.
9 Occurrence of Plasmodium in Blood of West African Monkeys. H. Seidelin and A. Connal.
10 Scratching Birds and Tsetse-Fly. L. Lloyd.
11 *Origin and Development of Gametes (Crescents) in Malignant Tertian Malaria. D. Thomson.
12 Second Report on Cestoda and Acanthocephala Collected in Queensland. T. H. Johnston.
13 Microsporion Scoreum from Case of Ringworm in Man. H. Priestley.
14 *New Malaria Parasite in Man. J. W. W. Stephens.
15 Mutilation of Wounded on Battlefield. J. B. Christopherson.

3. Attempts to Find Disease Germs in Bed Bugs.—Four hundred and fifty-five bed bugs were used by Thomson in this research, of which 184 were controls. No acid-fast bacilli were found in 105 bed bugs fed on lepers, nor in thirty-five bed bugs caught on the bed mattresses of leper patients. In the few experiments conducted, nothing abnormal was found in bugs fed on cases of lymphadenoma, chronic lymphatic leukemia, sarcoma, carcinoma and malaria. Forty bed bugs fed on a case of splenomedullary leukemia all developed numerous Charcot-Leyden crystals in their intestines.

6. So-Called Cure for Trypanosomiasis.—Yorke and Blacklock tested the "sera" (Mehnarto contratoxin) supplied by a Mr. H. C. Sieg and found that it had not the slightest

therapeutic value in animals experimentally infected with pathogenic trypanosomes.

7. Antimony Trioxid in Treatment of Trypanosomiasis.—

As regards the amount of antimony trioxid which can be given at a single dose without causing toxic effects, either local or general, it was found by Yorke and Blacklock that, as is generally the case, a relatively much larger quantity is borne by small than by large animals. At least 1 mg. per 10 gm. of body-weight can be administered intramuscularly, or intraperitoneally to rabbits, guinea-pigs, rats and mice without any untoward result. In donkeys and dogs, on the other hand, such a dose frequently caused death, and even much smaller doses were followed by abscesses at the site of inoculation. Although the amount of drug administered can be regulated, there is no control over the amount or rate of absorption. Post-mortem evidence proves that the proportion absorbed during a period of six months is exceedingly small. In view of the extremely long periods after which relapses have occurred, the authors are cautious in stating that an animal is cured. But as several have remained negative without relapse for over two hundred days, and subinoculated animals have not become infected, it appears that a certain number of cures have resulted.

11. Development of Gametes in Malignant Tertian Malaria.

—Thomson claims that crescents are produced from ordinary asexual spores of *P. falciparum*, due to a development of immunity toward the latter. They develop somewhere in the internal organs, and then appear suddenly in the peripheral blood. The period required for their development is about ten days. Crescents do not generally live more than a few days in the peripheral blood. Crescents may be present in the peripheral blood during periods as long as eight weeks, not because individual crescents survive for that time, but because their numbers are constantly replenished from surviving asexual forms. Fresh broods of crescents come into the circulating blood daily or every other day, or irregularly, according as the asexual sporulations occurring ten days before, were quotidian, tertian or irregular.

Quinin has no direct destructive action on crescents, either during their development or afterward, but it destroys the asexual source of supply. Quinin in doses of 20 grains daily reduces the crescents to numbers less than one per cubic millimeter of blood within three weeks. The crescents obtained from autopsy smears of the inner organs take about ten days to develop into the adult state in the inner organs. They develop chiefly in the bone-marrow and in the spleen. The protoplasm of the crescent in all stages of development stains a faint greyish-blue often with a yellow tinge, in contrast to the deeper blue of the asexual schizonts. Adult crescents have been found in autopsy smears of the spleen and bone-marrow after eleven days' quinin treatment (45 grains daily). Malarial pigment has been found in spleen and marrow smears after forty-seven days' quinin treatment (30 grains daily).

No evidence was obtained of parthenogenesis in crescents. Crescents become spherical in about four minutes after the blood is drawn, which appears to coincide with the time of coagulation. They may flagellate in four minutes after the blood is drawn, but some may not flagellate till after fifty minutes. The crescents in patients subjected to thorough and continuous quinin treatment are able to flagellate. The spherulation of crescents is probably due to osmosis, which in turn probably stimulates the actual flagellation. The polar bodies seen in crescents which have become spherical are extruded chromatin. The microgametocytes are capable of extruding 4, 6, 8 or 10 flagella (microgametes). There is no reason to believe that crescents ever flagellate in the circulating blood of a patient.

14. **New Malaria Parasite in Man.**—The parasite studied by Stephens was found in the blood of an East Indian child. It is extremely ameboid. Thin processes often extend across the cell or occur as long tails to more or less ring-shaped bodies. These processes may be several in number, and may give the parasite most peculiar fantastic shapes like that of an irregular web or mesh. The cytoplasm is always scanty,

i. e., the individual ameboid processes are delicate or thin, and the parasite has but little bulk or density. While forms resembling "rings" do occur, yet, owing to the abundance of all kinds of irregular forms, it is certainly difficult to find quite typical "signet" rings.

Laterally applied parasites also occur, but in them the chromatin is not dot-like, as it usually is in the malignant tertian, but practically always rod-like. The nuclear chromatin is out of proportion to the volume of the parasite. It takes the form of bars or rods, strands, curves, forks, patches, etc.; the occurrence of the chromatin in a dot, as in the "ring" forms of other species, is rare. In the web-like protoplasmic processes mentioned above there may be seen several chromatin strands, and not uncommonly one observes a minute dot of chromatin some way from the parasite, or between two portions of the parasite, though the protoplasmic process connecting it with the main mass or masses is so thin as to be invisible. The chromatin masses are frequently angular, the angles jutting into the points at which an ameboid process is given off. Abundance of, and marked irregularity in distribution of, the chromatin masses are characteristic of this parasite.

British Journal of Children's Diseases, London

April, XI, No. 124, pp. 145-192

- 16 Study of Group of Cases of Chronic Recurrent Diarrhea in Childhood. (To be continued.) F. J. Poynton, R. R. Armstrong and D. N. Nabarro.
- 17 Mechano-Therapeutics of Chronic Infantile Paralysis (Poliomyelitis Anterior Acuta). E. F. Cyriax.
- 18 Suppression of Urine in Boy after Operation for Acute Appendicitis, Cured by Double Nephrotomy. A. Evans.
- 19 Retrospect of Otology, 1913. M. Yearsley.

British Journal of Surgery, London

April, I, No. 4, pp. 549-748

- 20 *Congenital Elevation of Scapula: Series of Eighteen Cases. H. A. T. Fairbank.
- 21 *Two Cases of Severe Unilateral Hematuria without Evident Cause. G. Barling.
- 22 Obscure Case of Ulceration of Nose in Child. Simulating an Epithelioma. D. Nabarro and T. T. Higgins.
- 23 *Traumatic Sensory Aphasia. V. Z. Cope.
- 24 *Typhoid Spine: With Report of Two Cases. S. J. Elkin and J. Halpenny.
- 25 Late Results of Three Cases of Transplantation of Fibula: with Remarks on Process of Growth and Physiologic Development of Transplanted Bone. C. J. Bond.
- 26 Radical Operation for Chronic Osteomyelitis. S. Pringle.
- 27 *Excision of Diaphysis of Humerus with Full Functional Recovery. A. J. Evans.
- 28 Two Cases of Injury to Pancreas. G. G. Turner.
- 29 *Acute Intestinal Obstruction Due to Rare Causes. J. Marnoch.
- 30 Loose Bodies in Knee: Special Reference to Their Etiology and Growth. R. H. A. Whitelocke.
- 31 Two Cases of Complete Division of Duodenum at Duodenojejunal Junction Treated by Closure of Divided Ends and Gastrojejunal ostomy. H. Collinson and L. R. Braithwaite.
- 32 Case of Intussusception of Vermiform Appendix. R. J. McConnell and W. Wilson.
- 33 Arterial Supply of Rectum and Pelvic Colon. H. Drummond.

20. **Congenital Elevation of Scapula.**—The chief features of the series of 18 cases of congenital elevation of the scapula analyzed by Fairbank may be summarized as follows: The sex of 8 was male, of 10 female. The right scapula was affected in 6 cases, the left in 9, while in 3 the deformity was bilateral. The scapula was anchored to the spine in 7 cases; in 2 of these, both scapulae were fixed, in one by a bridge of bone on both sides, and in the other by bone on the right and fibrous tissue on the left. Scoliosis was present in 10. In at least 4 a wedge-shaped half vertebra was present. In one of these, at the age of 2 years, there was no curve, but by 6 years a low dorsal curve, toward or rather below the elevated scapula, and quite unconnected with the half vertebra, had developed. In 5 the dorsal convexity was directed toward the raised shoulder, in 4 away from it, while in 1 case with an abrupt curve, both scapulae were elevated.

Partial fusion of ribs was seen in 7 cases, one of these being open to doubt. An unmistakable cervical rib was present in 2 cases only. In 2 there was total suppression of one or more vertebrae while in 4 cases, including the two just mentioned, there was present a half or wedge-shaped vertebra.

In 3 other cases the shortness of the neck made suppression of vertebrae more than probable, but the difficulties encountered in taking roentgenograms prevented a definite decision being arrived at. In 2 cases a projection or exostosis was present at the vertebral border of the scapula. With regard to other deformities present, 3 cases displayed torticollis, 2 of them having both scapulae elevated. The radius was absent in 1; the pectoral muscles were imperfect in 2, and facial asymmetry was noted in 2, only one of which was associated with torticollis.

21. Severe Unilateral Hematuria.—The control of the renal circulation during section of the kidney is obtained by Barling, by clamping the pedicle with rubber-covered forceps and placing several mattress sutures in the capsule, tightening them all simultaneously to take the strain off any individual suture and then tying them. When this has been done the clamp is removed and the kidney quickly replaced and compressed firmly inside the wound for several minutes with the hand over gauze pads; this Barling has generally found effective in stopping the bleeding.

23. Traumatic Sensory Aphasia.—According to Cope traumatic sensory aphasia is often, if not generally, due to subdural hemorrhage pressing on the cortical sensory speech centers. The aphasia affects the visual more than the auditory speech center. If treated expectantly, recovery is generally incomplete, and there is a risk of epileptiform convulsions developing later. Treatment by trephining and removal of the clot is the best course.

24. Typhoid Spine.—In 1909 Halpenny reviewed 72 cases of typhoid spine reported in the literature up to December, 1908. To this the authors add 20 cases reported since that time. These, with the 2 now cited, make 94 in all. A study of the cases since 1908 reveals the fact that when treatment is commenced early, spinal deformity rarely occurs, convalescence is short and recovery is nearly complete—that is, the movements of the spine approach more nearly to the normal.

27. Excision of Diaphysis of Humerus.—A female child, aged 5, was admitted to the hospital on Jan. 21, 1913. A week before admission she had fallen down stairs, injuring her right arm. The case presented the obvious features of severe acute osteomyelitis involving the entire diaphysis. An incision was at once made down to the humerus and pus evacuated. The general condition of the patient was very critical at the time of admission, and therefore nothing more was done beyond employing free drainage. The local infective process appeared to have attacked both epiphyseal ends of the diaphysis simultaneously, the infection rapidly spreading up and down the bone.

March 3, 1913, the patient's general condition having improved, an incision was made through the deltoid muscle down to the bone, the shaft of which was found to be devoid of periosteum and surrounded by an irregular "involucrum" of new bone. The whole shaft, consisting of sequestrum and involucrum, was then withdrawn through the upper wound. The arm now consisted of nothing more than a flaccid tube of periosteum and granulation tissue, surrounded by the soft parts. It was placed in a specially moulded poroplastic splint fixed above to the axilla and below to the forearm at the elbow, the limb being so fixed that the muscles of the arm were fully extended and no contraction could take place. Drainage was provided above and below. The subsequent course of the convalescence was uneventful. Roentgenographic records, taken at regular intervals showed regeneration of bone taking place very rapidly along the whole length of the periosteal tube, the growth appearing as rapidly in the center of the limb as at its epiphyseal ends.

Twelve months after operation, the mobility of the shoulder and elbow-joint is unimpaired; full flexion and extension are present in the latter, while the movements at the shoulder are free in every direction. The right arm is shorter than the left to the extent of $\frac{5}{8}$ inch; it is as strong and flexible as the other. The child can accomplish any sort of gymnastic exercise without pain or loss of power. The cosmetic result

is excellent, the contour of the limb perfect, and the slight amount of shortening is difficult to detect, the healed scars being the only observable blemish.

29. Acute Intestinal Obstruction.—Four cases are reported by Marnoch. The first was caused by a volvulus of the cecum, the second by repeated operation for obstructive attacks due to congenital abdominal abnormalities; the third by an intersigmoid hernia and the fourth by a hernia into the paraduodenal fossa.

British Medical Journal, London

April 25, I, No. 2782, pp. 897-948

- 34 *Therapeutic Value of Gases Introduced into the Pleural Cavity. H. M. Davies.
- 35 *Need for Research in Antenatal Pathology. A. Routh.
- 36 Pituitrin in Labor. P. A. Hendley.
- 37 Two Cases of Pregnancy in Uterus Subseptus. R. C. Buist.
- 38 Carcinoma of Stomach: Gastrectomy. R. Jamison.
- 39 Association of Erythema Nodosum and Tuberculosis. Report of Six Cases. J. O. Symes.
- 40 Experiences of Surgeons in Sclerocorneal Trephining. R. H. Elliot.
- 41 Multiplication and Infectivity of T. Cruzi in Cimex Lectularius. B. Blacklock.

34. Value of Gases Introduced into Pleural Cavity.—Oxygen replacement according to Davies is not only of great value as a method of removing pleural effusions and exposing the lung for radiographic purposes, but it is the only efficient means we possess for the treatment of chronic cases of tuberculous pyopneumothorax. It is possible in these cases, by replacing the gas and fluid by oxygen, gradually to draw out the lung without producing any symptoms of distress or discomfort. The process must be repeated on three, four or even five occasions at intervals of two or three weeks, leaving on each occasion an increasingly high negative pressure. If the lung is completely fixed by adhesions, it cannot be made to reexpand, but it will be found that the tendency for the fluid (at first pus, and then serum) to reaccumulate will rapidly diminish—a state of affairs which is greatly appreciated by the sufferer.

35. Need for Research in Antenatal Pathology.—Routh urges obstetricians to look on research into antenatal pathology as only one of the methods which must be advocated in order to deal with statistics, and with the supply of material for research and for help in the diagnosis, prophylaxis and treatment of antenatal diseases, for without associated methods any large reduction of the antenatal death-rate is impossible.

Journal of Laryngology, Rhinology and Otology, London

April, XXIX, No. 4, pp. 169-224

- 42 Intranasal Treatment of Lachrymal Disease. D. R. Paterson.
- 43 Histology of Eucleated Tonsils. W. Wingrave.
- 44 Reports for Year 1913, from Ear and Throat Department of Royal Infirmary, Edinburgh. J. K. M. Dickie.
- 45 New Theory of Hearing. F. P. Sturm.

Journal of Obstetrics and Gynecology of British Empire, London

March, XXV, No. 3, pp. 113-174

- 46 Uncontrollable Uterine Hemorrhage. Functional Disturbance. H. Briggs and R. A. Hendry.
- 47 Stillbirths Registration. J. W. Ballantyne.
- 48 Case of Chorionepithelioma Presenting some Unusual Features. H. Williamson and C. Noon.
- 49 Ectopic Pregnancy Occurring Twice in Same Patient. D. Dougal.
- 50 Left Parovarian Cystoma Causing Torsion of Fallopian Tube, Pedicle Containing Fallopian Tube, Fimbria Ovarica and Mesosalpinx. G. B. Marshall.
- 51 Early Tubal Gestation in Malformed Right Tube. Uterine Fibroid. Large Cystic Ovaries. G. B. Marshall.

Journal of Tropical Medicine and Hygiene, London

April 15, XVII, No. 8, pp. 113-128

- 52 Certain Protozoa-Like Bodies in Case of Protracted Fever with Splenomegaly. A. Castellani.

Lancet, London

April 25, I, No. 4730, pp. 1163-1232

- 53 Modern Theories Concerning Hysteria. J. A. Ormerod.
- 54 Intestinal Toxemia. D. C. Watson.
- 55 *Drainage Tube in Abdominal Surgery. J. E. Adams.

- 56 Wild Monkey as Reservoir for Virus of Yellow Fever. A. Balfour.
57 *Vaccination against Hay-Fever. J. Freeman.
58 Use of Omnopon Scopolamine Combined with Local Anesthesia in Ophthalmic Surgery. A. M. Ramsay.
59 Extraperitoneal Ureterolithotomy Through Median Suprapubic Incision. G. Whitehead.

55. Drainage Tube in Abdominal Surgery.—Owing to the adhesions which rapidly form around drainage tubes Adams claims their value is distinctly limited in the treatment of peritoneal infections. Since the tissues of the abdominal wall possess a much lower degree of resistance than the peritoneum, drainage of the former may frequently be called for where drainage of the peritoneum is not necessary. The presence and pressure of a drainage tube in peritonitis may determine the transudation of organisms from the lumen of the gut to the peritoneal cavity. This secondary infection is of less serious importance than might be supposed owing to the fact that the wound area has usually been shut off by surrounding adhesions before this occurs. To prevent adhesions between drainage tubes and adjacent structures the tube should always be rotated whenever the dressing is done, and its gradual withdrawal from the wound should be begun from the third day after operation. Gauze drains, Adams believes, are more properly termed gauze dams, except when used in the form of a small wick down the lumen of a tube as a "cigarette drain," and there the capillary action of the gauze may be of value in securing the escape of thin inflammatory fluid. In the case of thick pus they more often act as a cork at the orifice of the wound than as an external drain.

57. Vaccination against Hay-Fever.—Hay-fever treatment by active immunization with a pollen vaccine whether judged by statistics or by the experiential method, Freeman says, has succeeded, and the immunity thus acquired seems to last for one year at least after treatment has been discontinued.

Annales de Médecine et Chirurgie Infantiles, Paris

April 15, XVIII, No. 8, pp. 249-284

- 61 Social Service in the Hospitals. Nageotte-Wilbouchewitch.
62 Infant Welfare Work. (La pouponnière de la clinique médicale infantile à l'hôpital de Nancy.) G. J. Ramu.
63 *Prophylaxis and Treatment of Functional Heart Disorders in Children. Nobécourt.
64 Direct Sunlight in Treatment of Internal Diseases. (Héliothérapie.) Delachaux.

63. Prophylaxis and Treatment of Functional Heart Disturbance in Children.—Nobécourt emphasizes the importance of the injury liable to be felt by the cardiovascular apparatus from a too sedentary life, unhygienic attitudes in school and overstudy. Sitting still too long and lack of exercise increase the work of the heart as they reduce the activity of the peripheral circulation, while contributing to constipation, anemia and dyspepsia, all of which in turn react on the heart. Mild muscular exercise counteracts all these, but if the exercise is excessive or too long continued the children suffer equally from the other extreme. The circulation in children adapts itself with extreme facility to variations in movement, but prolonged effort is impossible and especially injurious if persisted in. Walking, to be a useful exercise, should be brisk and kept up for some time. It is not always good for children, and often entails a more or less durable dilatation of the heart. Games and sports should not be allowed to become competitive battles.

Gymnastic exercises are often directly injurious; the holding of the breath retards the circulation and fosters congestion. Swedish gymnastic exercises affect the circulation favorably but children find them tedious. Mental work dilates the carotid arteries; the heart-beat is liable to become accelerated, and the radial pulse smaller while the blood-pressure rises. He adds that when there is already some functional heart disturbance, there is still greater need to supervise the physical exercise, graduating it to the special case, as the main therapeutic reliance, supplemented by hydrotherapeutic measures, massage, care in the diet and measures to soothe the nervous system, respiratory exercises, etc. Abnormal excitability of the heart may be combated by valerian and belladonna, alternating each for twenty days. Or atropin

can be given in the daily dose of a tenth of a milligram for each year of age. This is especially useful in paroxysmal tachycardia.

Archives des Maladies du Cœur, etc., Paris

April, VII, No. 4, pp. 225-288

- 65 Regional Myocarditis; Six Cases. E. Lenoble.
66 Electric Action of the Human Heart. (Action électrique du cœur humain.) A. D. Waller.

Bulletin de l'Académie de Médecine, Paris

April 7, LXXVIII, No. 14, pp. 523-544

- 67 *Treatment of Acute Poliomyelitis with Serum from Persons Who Have Had Epidemic Poliomyelitis. A. Netter.
68 Prevalence of Eruptive Diseases in the Army Determined by Immunity Previously Acquired. (Causes de l'absence d'épidémies de fièvres éruptives dans le 1er corps d'armée et de son bon état sanitaire général.) G. H. Lemoine.
69 Raphael's Last Illness, Death at 37. (Conjectures sur la mort de Raphael.) Cabanès.

April 14, No. 15, pp. 545-588

- 70 Various Therapeutic Applications of Emetin and Ipecac. L. E. Bertrand.
71 Pneumococcus Thrombosis of Cerebral Arteries. P. Menetrier.
72 *Gymnastics of the Blood-Vessels by Alternating Hot and Cold Bath. (La gymnastique vasculaire par le bain progressif alternant.) Dausset and A. Hanriot.
73 Therapeutic Paraffin Baths. (Kérithérapie.) B. de Sandfort.
74 *Action of Antirennin on the Digestibility of Milk. L. Gaucher.

67. Serotherapy of Acute Poliomyelitis.—Netter makes intraspinal injections of the serum from persons who have had poliomyelitis at some time in the past, assuming that the serum contains antibodies which will have a therapeutic action. In one case reported an athletic man of 34 developed severe acute poliomyelitis but was apparently recovering when the eighth day his legs became paralyzed, with retention of urine and loss of sensibility up to the costal arch, all showing a progressive course, with an extremely serious outlook. The next morning 7 c.c. of serum from a person who had had poliomyelitis seven years before were injected into the spinal cavity. By this time the anesthesia reached to the nipples, but by evening of the same day the patient could "feel his toes," and complete recovery gradually followed. He was given ten injections in eleven days, a total of 66 c.c. The serum came from eight persons. Netter has applied this treatment before in four other cases, but with such timid technic and so few injections that although marked benefit was apparent each time yet some paralysis was left or the patients succumbed sooner or later.

72. Alternating Hot and Cold Bath.—Dausset and Hanriot recorded the blood-pressure, etc., in a healthy person in a warm bath; then hot water was added to bring the water to 42 or 50 C. After one or two minutes of this, cold water was added until the temperature was felt too cold. The vascular system is exercised to a remarkable extent by these temperature changes in the twenty-minute bath, but the changes are so gradual that there is no sudden shock. They say that oxidation processes are promoted, heat production is regulated, and sluggish elimination whipped up while the reflexes are brought back into physiologic limits.

74. See Paris Letter, May 9, p. 1488.

Journal de Médecine de Bordeaux

April 12, LXXXV, No. 15, pp. 245-258

- 75 Weaning the Baby. (Sur quelques points relatifs au sevrage.) E. Leuret. Commenced in No. 14.
April 19, No. 16, pp. 261-274
76 Hypochondriac Paranoia. (Histoire d'un délire de persécution à base d'hallucinations cénesthésiques.) Authier and R. Lafargue.

Lyon Médical, Lyons

April 5, XLVI, No. 14, pp. 749-804

- 77 Puzzling Disturbances from Cervical Ribs in Elderly Woman. C. Lesieur, Kocher and Milhaud.
April 12, No. 15, pp. 805-860
78 Prolonged Priapism Unaffected by Medical Treatment; Cured by Incision and Drainage of the Corpora Cavernosa. A. Chalié and J. Gaté.
79 Coma without Acetonuria in a Case of Diabetes. Revillet.

Presse Médicale, Paris

April 15, XXII, No. 30, pp. 285-292

- 80 *Pressure on the Spinal Cord from Bony Excrescences on the Spine. (Compressions de la moelle et de la queue de cheval par exostoses vertébrales.) P. Le Damany.
- 81 Diagnosis of Alopecia in Children. R. Burnier.
- April 18, No. 31, pp. 293-300
- 82 Tuberculosis Primary in the Child; Reinfection in the Adult. (Les étapes de la bacilliose de Koch chez l'homme.) L. Bernard.

80. **Vertebral Exostoses.**—Le Damany remarks that these excrescences are comparatively frequent; Regnault found them on sixteen of sixty-three cadavers examined, but as they usually grow outward they cause no nervous disturbances. In a case of his own, however, roentgenoscopy showed that the growth was compressing the cauda equina, explaining the clinical picture. The symptoms in these cases come on extremely gradually, and after removal of the growth they retrogress nearly as slowly. In his case months elapsed before the symptoms subsided, but this rendered all the more remarkable the fine result finally realized. The first symptoms had been pain in the legs which had been ascribed to and treated as sciatica without benefit. The man was given a course of treatment for syphilis, although the Wassermann test was constantly negative. By the end of the year the pains and motor disturbances indicated plainly pressure on the cauda equina, and the exuberant bone growth was removed by resection of the posterior arches of the third and fourth lumbar vertebrae.

Revue Mens. de Gynécol., d'Obstétrique et de Pédiatrie, Paris

March, IX, No. 3, pp. 161-232

- 83 *Removal of Ovaries Cures Hemorrhage from Myomas. (Valeur actuelle de la castration ovarienne dans les hémorragies des fibromyomes. Opération d'Hégar.) G. de Rouville.
- 84 Anatomy and Physiology of Normal Infants. (L'enfant dans les deux premières années.) L. Devraigne.
- 85 *Articular Rheumatism and Endocarditis of Puerperal Origin; Recovery after Curetting. L. Pierra.

83. **Ovariectomy for Hemorrhage from Myomas.**—De Rouville has removed the ovaries for this cause in seven cases, the hemorrhages for which the fibromyomas were responsible being extremely severe and the patients too anemic to stand hysterectomy. The bleeding stopped at once after the castration. There was no recurrence except very slight in one case.

85. **Articular Rheumatism of Puerperal Origin.**—The case reported by Pierra shows anew how infection originating in the genital organs may work insidiously for several months before making itself apparent. It demonstrated further that a cure may be realized even at this late stage by eradicating the focus. His patient was a woman of 28 who developed subacute articular rheumatism and endocarditis five months after an infected abortion. No benefit was realized from a month or more of the ordinary measures, including the salicylates, but after straightening and curetting the uterus the temperature dropped to normal and rapid recovery followed, except that signs of mild mitral insufficiency still persist to date. The patient has passed through a normal pregnancy since. Articular rheumatism of puerperal origin does not attack so many joints as ordinary articular rheumatism. It generally settles down in one joint after a time—the shoulder in his case—and stays there. The rapid development of the mitral insufficiency in this case could be explained only by the slumbering infectious process in the uterus.

Semaine Médicale, Paris

April 22, XXXIV, No. 16, pp. 181-192

- 86 Differentiation between Peripheral and Central Paralysis of Auditory Nerve. (De la perception des mouvements de rotation dans le syndrome des tumeurs du nerf acoustique et de l' "hémiacoustibulie" de siège central.) L. Bard.

Archiv für Verdauungs-Krankheiten, Berlin

XX, No. 2, pp. 147-298

- 87 Pathologic-Anatomic Study of Experimental Beriberi. (Reispolyneuritis.) K. Schnyder.
- 88 Primary Gastric Sarcoma. M. Schiller.
- 89 Pancreatic Diseases; Five Cases. G. A. Friedmann (New York).
- 90 *The Vitamins and Subjective Factors in Eating. (Diät und diätetische Behandlung vom Standpunkte der Vitaminlehre und vom Standpunkte der Lehre der diätetischen Küche.) W. Sternberg.

- 91 Unreliability of the Glycyltryptolan Test for Gastric Cancer. B. Hauschild.
- 92 Nut Milk in Digestive Diseases, etc. (Neuere Gesichtspunkte für die diätetische Behandlung des Ulcus ventriculi und duodeni, der Hypersekretion, der motorischen Insuffizienz, einiger Stoffwechsel- und Ernährungsstörungen, Herz- und Nierenerkrankungen, mit vegetabiler Milch.) A. Fischer.

90. **Importance of Subjective Factors in Eating.**—Sternberg has long been preaching that food is liable to fail of its chief purposes unless it appeals to the senses of sight, smell and taste, with variety in the mode of preparation, appetizing seasoning and the dishes freshly prepared. He thinks that much of what we are now calling "vitamins" is included in the above. He has long been reiterating that the housekeeper's main dietary task is to cultivate the subjective factors, but as a rule this is disregarded as of little moment. He insists that our senses of smell and taste recognize chemical changes more sensitively than we can detect them with chemical tests. Warmed-over dishes, especially vegetables, do not relish as at first; some chemical change has occurred in them. This change has rendered them less wholesome for the person who finds them less palatable. Loss of appetite, disgust, nausea, vomiting and finally some dietary deficiency disease, form the sequence, and loss of relish should warn that we have entered on the downward slope. Sternberg emphasizes anew that the science of cooking is far more than merely applied chemistry and physics and application of heat. It is rather applied physiology of the senses, applied esthetics and applied psychology. It is a matter of taste in the widest sense of the term.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXX, No. 2, pp. 227-362. Last indexed April 11, p. 1204

- 93 *The Development and Spread of Pulmonary Tuberculosis. (Pathologisch-anatomische und klinische Betrachtungen der Lungenphthise.) K. Nicol.
- 94 Gold Cantharidin and Tuberculosis. T. Spiess and A. Feldt.
- 95 *Protest against Newspaper Misstatement Regarding Friedmann Treatment. Pischinger, Ritter and Schellenberg.

93. **Development of Pulmonary Tuberculosis.**—Nicol's long article is accompanied with thirteen plates, one colored, ten illustrations in the text and a chart proposing a more accurate system of nomenclature, based on his research here reported. It has demonstrated, he says, that the tuberculous process in the lung spreads from above downward, and that the outlook is more unfavorable the lower its location.

95. **Protest.**—The officers of the German association of sanatorium physicians (Vereinigung der Lungenheilanstaltsärzte) here repeat their official protest against misleading statements in the lay press in regard to their attitude toward Friedmann's remedy for tuberculosis. They state that at their recent annual meeting at Berlin about half of the members went in a body to Friedmann's quarters to inquire about his remedy and see its mode of use. Few had used the remedy and they only on a very limited scale, and after their call on Friedmann many expressed great doubt in regard to the "success" claimed by Friedmann. An exaggerated account of the call appeared at once in some American papers, claiming that the entire association had visited Friedmann, that the members had reported treatment of 40,000 patients with the remedy, and that the results were phenomenal, the association tendering Friedmann a banquet—none of which they reiterate is true. (See THE JOURNAL, April 18, 1914, p. 1273.)

Beiträge zur klinischen Chirurgie, Tübingen

XC, No. 1, pp. 1-246

- 96 Experimental Production of Gastric and Duodenal Ulcers. W. Gundermann.
- 97 Tubercle Bacilli in the Blood-Stream with Surgical Tuberculosis. W. Haas.
- 98 Treatment of Appendicitic Peritonitis. Haeblerlin.
- 99 Elephantiasis of the Penis Successfully Treated by Draining into Abdominal Wall with Implanted Veins. S. P. Janssen.
- 100 Cystic Fibrous Ostitis of the Skull. P. Frangenheim.
- 101 Familial Bone Growth on the Jaws. (Hyperostosen der Kiefer.) P. Frangenheim.
- 102 Intra-Osseous Hygroma. P. Frangenheim.
- 103 Roentgenotherapy of Actinomycosis. E. Sardinian.
- 104 Xanthomas of Skin and Tendons. H. Hoessli.
- 105 Electric Injuries of the Skull. (Schädelverletzungen durch elektrischen Starkstrom.) G. Langer.

Berliner klinische Wochenschrift

April 20, LI, No. 16, pp. 725-772

- 106 Survival of Mouse Cancer Cells at Incubator Temperature. (Lebensdauer der Mäusecarcinomzellen bei 37 C.) B. R. G. Russell and W. E. Bullock.
- 107 Infant Feeding with Pulverized Vegetables, etc. (Ueber Säuglingsernährung nach physiologischen Grundsätzen mit Friedenthal'scher Kindermilch und Gemüsepulvern.) H. Friedenthal.
- 108 *Influence of Hydronephrosis on Infection of the Kidney. (Harnstauung und Niereninfektion.) H. Harttung.
- 109 Microscopic Anatomy of Skin of Egyptian and Peruvian Human and Animal Mummies. (Aelteste Säugetier- und Menschenhaut.) J. Heller.
- 110 *Lack of, or Excess of Iodin as Factor in Thyroid Disease. (Zur Theorie von Morbus Basedowii, Myxödem, Kretinismus und Gebirgskropf. Hyper- und Hypothyreodismus.) Grumme.
- 111 Absorption of Beta, Gamma and Roentgen Rays. B. Keetman.
- 112 Present Status of Intratracheal Insufflation. S. J. Meltzer. Commenced in No. 15.
- 113 Orthopedic Welfare Work for Schoolchildren at Berlin. M. Böhm.

108. **Stasis in the Kidneys and Infection.**—Harttung threw a ligature around a rabbit ureter and studied the changes which followed in the kidney above. Staphylococci injected intravenously passed through the sound kidney without apparently injuring it, but in the kidney with ligated urter severe lesions developed in all. The stasis in the kidney injures its tissues so that they become abnormally permeable for bacteria.

110. **Lack or Excess of Iodin as Factor in Thyroid Diseases.**—Grumme presents arguments to sustain the view that a lack of metabolized iodine is the cause of myxedema, while exophthalmic goiter is the result of an excess of non-metabolized iodine. In other words, the primary cause of myxedema is a deficiency of iodine in the food, while the cause of exophthalmic goiter is a functionally weak thyroid with a sufficiency or an excess of iodine in the food. Experience has already demonstrated that cretinism, myxedema and endemic goiter are favorably influenced by administration of organic thyroid-iodine or thyroid extract. On the other hand, iodine in any form, organic or inorganic, or food containing iodine, is distinctly injurious in exophthalmic goiter, and also in ordinary goiter, not of the endemic type, but which is often a preliminary phase of exophthalmic goiter. Endemic goiter can thus be effectively treated with iodine but it is strictly contra-indicated in the sporadic form outside of the mountains.

Deutsche medizinische Wochenschrift, Berlin

April 16, XL, No. 16, pp. 785-832

- 114 *Treatment of Acute Threatening Conditions in Tropical Diseases. P. Mühlens.
- 115 Dissolving Action of Carlsbad Water by the Mouth on Human Gall-Stones Implanted in Dog's Gall-Bladder. (Gallenstein-lösende Wirkung des Karlsbader Wassers.) H. Leo.
- 116 Acute Articular Rheumatism a Streptococcus Pyemia. (Zur Aetiologie des akuten Gelenkrheumatismus.) G. Singer.
- 117 Levulose Test of Functional Capacity of the Liver. T. Arai.
- 118 *Non-Operative Treatment of Cancer. (Weitere Erfahrungen bei der nicht operativen Behandlung des Krebses.) Krönig and Others. Commenced in No. 15.
- 119 Treatment of Febrile Abortion. (Wie kann man üble Ausgänge bei fieberhaften Aborten am besten vermeiden?) W. Benthin.
- 120 *Iodin in Treatment of Arteriosclerosis. J. Schwalbe. Commenced in No. 15.
- 121 Testimony of the Physician as Witness and Expert. (Der Arzt als Zeuge und Sachverständiger.) Seeger.
- 122 From the Balkan Wars. (Kriegschir. Ergebnisse aus dem Balkankrieg, 1912-13.) L. Dreyer. Commenced in No. 14.

April 23, No. 17, pp. 833-888

- 123 *Clinical Experience with Friedmann's Remedy for Tuberculosis. (Klinische Erfahrungen mit dem Friedmannschen Tuberkulose-Heilmittel.) L. Brauer, Gaugele and O. Schüssler.
- 124 *Lupus and Friedmann's Remedy for Tuberculosis. (Behandlung des Lupus mit dem Friedmannschen Tuberkulose-Heilmittel.) A. Brauer.
- 125 *Bacterial Contamination of Friedmann's Remedy for Tuberculosis. Biermann.
- 126 Treatment of Tuberculosis with Turtle Tubercle Bacilli. (Zur Behandlung der Tuberkulose mit Schildkröten-Tuberkelbazillen.) M. Piorkowski.
- 127 Inflammation and Mechanical Obstruction as Factors in Jaundice. (Wodurch entsteht vorwiegend der reell-lithogene Ikterus?) B. Riedel.
- 128 Combined Salvarsan-Mercury Treatment of Syphilis. W. Scholtz.
- 129 *After-Pain with Operations under Local Anesthesia. (Nachschmerz.) A. Schlesinger.
- 130 Serious Disturbances from Glycerin-Filled Bladder Used as Metreurynter. (Zur Ballonbehandlung mit tierischen Blasen.) K. Frankenstein.

114. **Acute Threatening Conditions in Tropical Diseases.**—Mühlens emphasizes that we have now in salvarsan a powerful aid in combating relapsing fever. Given in time the severe symptoms subside at one stroke. He says that the confidence in salvarsan is now so great that in research at Tunis men deliberately inoculated themselves with relapsing fever by means of infected lice, the disease being promptly aborted with salvarsan as soon as it developed. He advises an intravenous dose of from 0.2 to 0.5 gm. according to age. One injection is generally enough to prevent recurrence, but a second, six or eight days later, will clinch the matter. When salvarsan or neosalvarsan is not available, symptomatic measures must be the reliance. Stimulants and saline infusion may be urgently needed at the beginning of the crisis on account of the danger of heart failure. He warns further that in the second stage of sleeping sickness, the patient must be constantly supervised on account of the tendency to suicide or homicide.

118. **Non-Operative Treatment of Cancer.**—The Freiburg clinic seems to have carried radiotherapy of cancer farther than has been done elsewhere, and this communication analyzes the experiences from the clinical, experimental and physical standpoints. The best results were always obtained when the dosage was as large as possible and crowded into the shortest possible time. It is thus possible to induce the complete retrogression of deep-seated cancers without noticeable injury of sound tissue, and in some cases two years have elapsed without sign of recurrence. Krönig and his coworkers prefer the radiotherapy even for operable cases if conditions permit effectual cross-fire application of the Roentgen or mesothorium rays. Time alone will decide whether the tendency to recurrence is greater or less with radiotherapy. They insist that after operative removal of a cancer the region should be exposed to the rays at regular intervals for two years at least.

120. **Influence of Iodin on Non-Syphilitic Arteriosclerosis.**—Schwalbe sent a question-blank to a number of leading German clinicians to inquire their views on and experience with iodine in treatment of arteriosclerosis. He summarizes their answers, commenting on the wide divergence of ideas and technics, and emphasizing that none seemed to have a scientific basis for the use of iodine in arteriosclerosis. On the other hand, there seem to be so many drawbacks to the method, so much danger of injury from the iodine, especially in regions where goiter is common, that he sums up his conclusions in a solemn warning against the routine use of iodine or iodides in non-syphilitic arteriosclerosis.

123-125. **Friedmann's Remedy for Tuberculosis.**—Here are the five articles relating experiences with this remedy which were summarized from advance sheets in the Berlin Letter, dated April 16. Biermann says he found the contents of the ampules contaminated with apparently pyogenic germs but they did not prove pathogenic when animals were inoculated with them. L. Brauer's impressions of the remedy were decidedly unfavorable, severe reactions being observed, and he knows of one person in Germany and two in Switzerland who died in a few days after the injection with its severe reaction. One of Hegler's patients had a chill, fever and extreme prostration after the injection, rapidly wasting away after it and dying in six weeks. Brauer reiterates that nothing was observed to indicate a favorable influence from the treatment, while the contamination with other microbes renders this method of treatment a hazardous experiment. Gaugele and Schüssler analyze their experiences with thirty-four children. One child died of miliary tuberculosis, and they say that the end seemed to have been hastened by the remedy. In 21 cases there was much suppuration, with high fever, and in 13 cases considerable infiltration but no actual abscess. They add that since the abscesses have healed the general condition seems improved. The children's appetite is better than before the injections, but no change can be detected with roentgenoscopy of the bone and joint processes and there has been no modification in the reaction to the tuberculin tests. A. Brauer reports the intramuscular application of the remedy in lupus and states that benefit was

apparent in every case and with all forms of lupus, but that the improvement lasted only for ten or fourteen days, in no instance longer than three weeks. After a few weeks of apparent inactivity the affection seemed to become aggravated. In none of the cases by the end of the sixth week was the condition so good as in the cases given the ordinary local treatment for the same length of time. He thinks that the lack of durable effectual action on the visible lupus lesions is an intimation that internal lesions are not liable to be affected any more favorably.

129. After-Pain Following Operations Under Local Anesthesia.—Schlesinger says that it is the amount of fluid rather than the anesthetic which causes the pain, and that it is liable to be more severe in dense and tightly stretched tissues, other things being equal. Different persons vary in their sensation of pain, but he advises against injecting any fluid into inflamed tissues as this is almost certain to entail severe after-pain. The unusual number of nerve terminals and the compact, tightly stretched tissues render the after-pain peculiarly intense and tenacious with operations on the finger and toes. The local anesthetic should be injected into the loose tissue at the base of and between the fingers. When this is not possible, the amount of fluid used should be reduced to the minimum. An operation on a dermoid in the cheek, or a furuncle on the arm, with no zone of inflammation around it, is scarcely liable to entail after-pain. When the nature of the tissues renders it probable, it is better to refrain from local anesthesia or else give some sedative beforehand.

Medizinische Klinik, Berlin

April 19, X, No. 16, pp. 665-710

- 131 Present Status of Research on the Protective Ferments. (Abwehrfermente.) E. Abderhalden.
- 132 *Muscular Rheumatism and Neuralgia. A. Schmidt.
- 133 Lymphogranulomatosis Developing from Acute Hyperplastic Conjunctivitis. A. Elschmig.
- 134 Pathogenesis of Cholelithiasis. K. Grube.
- 135 Influence of Circular Resection of Stomach on Its Secretion and Motor Functioning. M. Faulhaber and E. v. Redwitz.
- 136 Electric Exercising of the Muscles in Treatment of Obesity. (Muskelarbeit in der Behandlung der Fettsucht.) Forschbach.
- 137 Organ Therapy and Prophylaxis of Postoperative Tetany. K. Vogel.
- 138 Modification of Electrocardiogram by Carbonated Baths in Heart Disease. K. Brandenburg and A. Laqueur.

132. The Problem of Muscular Rheumatism.—Schmidt is convinced that the majority of cases of pain in muscles and nerves are of infectious or toxic-infectious origin. He has been confirmed in this view by the frequent complete cure of old rebellious myalgia and neuralgia after removal of the tonsils or evacuation of an empyema. The sudden onset of lumbago or the like after an abrupt movement he explains as the injury from the toxin on the fibers strained by the movement. Muscular rheumatism is in reality merely a neuralgia of the sensory nerve fibers in the muscle. He found among fifty cases of sciatica that in 86 per cent. other muscles or nerve domains were painful, spontaneously or on pressure, as well as the sciatic domain. There was pain in the lumbar region in 54 per cent. and in the femoral nerve region in 22 per cent. The knee-jerk was lost in 16 per cent. As the legs are used so much more than the arms, the greater chance for overstrain explains the predilection of the so-called muscular rheumatism for the legs.

Mitteilungen a. d. Grenzgebieten der Med. und Chir, Jena XXVII, No. 4, pp. 575-806. Last indexed March 7, p. 817

- 139 *Chronic Tetany after Removal of Parathyroid Glands in Animals. A. Tanberg.
- 140 *Tuberculin Tests of Animals after Inoculation. (Die subkutane und die intrakutane Tuberkulininjektion als Mittel zur Diagnose des Tuberkelbacillus im Tierversuche.) M. Jacoby and N. M. Wildungen.
- 141 Double Refracting Lipoids in the Mesentery and in a Mesenteric Sarcoma. W. Lutz.
- 142 *Leukocytosis with Hemorrhage in the Peritoneum. H. Hoessli.
- 143 *Experiments with Coagulation-Promoting Substance Derived from Animal Blood-Platelets. (Wirkung der intravenösen und der subkutanen Injektion von Koagulen Kocher-Fonio am Tierversuch, nebst einigen therapeutischen Erfahrungen.) A. Fonio.
- 144 *Cause of Gastric Ulcer. (Ursache des runden Magengeschwürs.) J. K. W. Kehrer.

- 145 *Pathologic Anatomy of Exophthalmic Goiter. (Morbus Basedowii.) C. A. Pettavel.
- 146 Experimental Cirrhosis of the Liver. Induced by Alcohol. K. Isobe.
- 147 *Pathologic Anatomy of Circumscribed Ossification in a Muscle. (Myositis ossificans.) G. B. Gruber.
- 148 Experimental Study of Gall-Bladder Functioning. (Zur Funktion der Gallenblase.) P. Klee and O. Klüpfel.
- 149 *Splenectomy for Blood Disease. H. Eppinger and E. Ranzi.

139. Tetany after Parathyroidectomy.—Tanberg succeeded in inducing chronic tetany in animals by removing some of the parathyroids; in some there was a period of several months of latency before the symptoms developed. A meat diet did not seem to influence the tetany but a milk diet had an unmistakably favorable action. Milk apparently contains substances which modify the tetany under these conditions. Benefit was likewise manifested on feeding beef parathyroid glands.

140. Tuberculin Tests of Animals after Diagnostic Inoculation.—As early as two weeks after inoculation of the guinea-pig with the suspected sputum or other material, the animal may react to a subcutaneous injection of tuberculin in case of positive findings. Intracutaneous injection of the tuberculin answers the same purpose although the findings are less objective. If a negative response is obtained, the procedure should be repeated a few days later to make sure.

142. Leukocytosis with Intraperitoneal Hemorrhage.—Hoessli found 30,000 leukocytes in a previously healthy young woman suddenly taken with symptoms suggesting rupture of a gravid tube, confirmed by immediate operation, with prompt recovery, the leukocytes numbering 8,000 the tenth day. Three similar cases are reported in which the leukocytes ran up to 15,000 or 19,000 in twenty-four hours after the first signs of trouble. Extra-uterine pregnancy was regarded as probable in all but one case in which the symptoms and intact hymen spoke for appendicitis, but the trouble proved to be a ruptured blood-cyst in the right ovary. Some experiments on animals confirmed the fact that sudden large influx of blood into the peritoneum is liable to induce high leukocytosis for about twenty-four hours, even in the absence of all inflammation.

143. Coagulation-Promoting Substance.—Blood-platelets from animals, obtained by fractioned centrifuging, sterilized by heat and desiccated, may be dissolved as needed and injected to arrest hemorrhage. This substance has been in use at Kocher's clinic for over a year and Fonio here analyzes the experience with it, showing that it answers the physiologic requirements better than any other method of arresting hemorrhage except transfusion of blood. It has the advantage over the latter that it supplies only the one element needed, and that the doses can be graduated. The method is still in the tentative stage. Various by-effects are observed showing that the best method of administration has not yet been worked out. The pulse and temperature ran up regularly after intravenous injection and sometimes there were pains in the heart region, dizziness, vasodilation in face and neck and headache. By administering part of the solution by subcutaneous injection, the by-effects were much reduced. The more blood the patient has already lost, the smaller the dose required.

144. Gastric Ulcer.—Kehrer recalls that pain in the stomach may be due merely to contraction of the muscle, and his experiments on dogs have demonstrated that the expulsion of the blood from the contracted portion of the muscle renders it defenseless against the corroding action of the gastric juice and erosion may occur with its sequel of ulceration. This is especially liable when the muscular contraction occurs predominantly in the pylorus region.

145. Pathologic Anatomy of Exophthalmic Goiter.—This fifty-four page article from Kocher's clinic reviews the findings in eight additional exophthalmic goiter cases, the patients from 22 to 49 years old. Three of the patients had died during an operation on the goiter and the others had died of intercurrent disease but of such mild nature that the exophthalmic goiter must be regarded as the actual

cause of death. Considering these cases with a previous series of four, he states that 80 per cent. of those who died in connection with the operation had an abnormally large thymus—a mixed hyperplasia—as also 66.6 per cent. of those succumbing to mild intercurrent disease. Thus the thymus was of normal size in 25 per cent. of the total material. Dilatation and hypertrophy of the heart was the rule, but in one of the severer cases the heart was of normal size. Both liver and kidneys showed fatty degeneration in all the cases, and the chromaffin system showed hypoplasia. The blood findings confirmed Kocher's typical blood-picture, the leukocytes ranging from 4,300 to 8,800; the neutrophils from 36.7 to 71 per cent. and the lymphocytes from 24.3 to 58.6 per cent. although three of these patients had no signs of the lymphatic status and two only slight indications of it. No connection was apparent between the lymphocytosis and persisting thymus.

147. **Ossifying Myositis.**—Gruber adds twelve more to the seven cases he has already published in which there was bone-production in muscle tissue. Some acute or chronic trauma seems indispensable for this chronic osteoplastic myopathy.

149. **Splenectomy in Blood-Diseases.**—The twenty-two cases on record are tabulated and compared and the remarkably favorable influence of the splenectomy is emphasized in the three types of blood disease represented by hemolytic jaundice, cirrhosis of both spleen and liver, and pernicious anemia. In cases of thrombophlebitic enlarged spleen, splenectomy seems to offer little chance for benefit unless one's hand is forced by severe hemorrhages in the gastro-intestinal canal.

Monatsschrift für Kinderheilkunde, Berlin

XII, No. 10, pp. 603-644

- 150 Eosinophilia and the Exudative Diathesis. A. K. Lifschütz.
151 *Latent Tuberculosis in Infants. T. A. Ossinin.
152 Pedagogic Treatment of Incontinence of Urine and Feces and for Psychopathic Inferiority, etc. J. Girstenberg.
No. 11, pp. 645-686
153 Organic Acids in the Urine of Infants. H. Aron and M. Franz.
154 Leishman's Anemia in Children at Palermo; 110 Cases. R. Jemma.
155 *Transmission of Scarlet Fever by Patients after Discharge from the Hospital. W. Knopfmacher and R. Hahn.

151. **Latent Tuberculosis in Infants.**—Pathologic anatomists agree that latent tubercular foci are often found in children. Ossinin, in order to determine how frequent they are, examined the bodies of 100 children under 9 months of age. He examined the bronchial, tracheal and mesenteric lymph-nodes by treatment with antiformin, histologic examination and inoculation in guinea-pigs. In ninety-seven cases the results were negative by all three methods. In the other three cases, macroscopic and microscopic examination was negative and there had been no clinical symptoms of tuberculosis, but the antiformin examination and guinea-pig inoculation were positive. That is, there was latent tuberculosis in 3 per cent. of the cases. In all the cases it was in the bronchial and tracheal glands, and not in the mesenteric. This seems to confirm the belief that the respiratory tract is the chief portal of entry for tuberculosis.

155. **Prophylaxis of Return Cases of Scarlet Fever.**—A considerable number of scarlet fever patients after their discharge from the hospital infect other members of the family. The percentage varies according to different authors and in different epidemics from 3 to 10. This may be due to the fact that the patient still carries his own virus or that he acts as a carrier of infection from other patients with whom he has come in contact. Knopfmacher and Hahn say that the latter would seem to be more generally true, as this form of infection is more frequent in hospital cases than in those treated at home. Therefore our quarantine regulations do not seem to be sufficient. The best thing would be to isolate all cases in separate rooms for twenty days; but this is costly and difficult to enforce. It is therefore recommended that after the disappearance of acute symptoms the patients be placed in a common convalescent room, but not allowed to come again into contact with acute cases.

Münchener medizinische Wochenschrift

April 14, LXI, No. 15, pp. 801-856

- 156 The Protective Ferments Are Amboceptor Bodies. (Natur der sog. Abwehrfermente.) R. Stephan.
157 Further Research on Protective Ferments. (Nachweis der Wirkung proteolytischer Fermente des Serums mittels Enteiweissungsverfahren und Feststellung der Zunahme der mit Ninydrin reagierenden Stoffe resp. des Stickstoffgehaltes des Filtrates des abgeschiedenen Eiweisses.) E. Abderhalden and Others.
158 Mode of Action of Actinic Rays. (Zur Theorie der Strahlenwirkung insbes. die Latenzzeit.) H. Heineke.
159 Roentgenoscopy of the Liver. F. Meyer-Betz.
160 Standardizing Digitalis Preparations with Frogs. (Methodik der Wertbestimmung von Digitalis-Präparaten am Frosch.) R. Gottlieb.
161 Posterior Cervix Cesarean Section; Seven New Cases. O. Polano.
162 Advantage of Detaching the Costal Pleura as Supplement to Artificial Pneumothorax. (Verbindung von künstlichem Pneumothorax mit Pleurolyse.) F. Jessen.
163 Intraspinal Injection of Salvarsan and Neosalvarsan. (Zur Technik der endolumbalen Salvarsan- und Neosalvarsantherapie.) Genenrich and E. v. Schubert.
164 Fatality after Neosalvarsan. (Todesfall nach Neosalvarsan.) V. L. Neumayer.
165 Multiple Hemorrhages after Injections of Calomel. P. de Favento.
166 Discussion of Diagnosis by the Protective Ferments. (Adsorptionserscheinungen bei dem Abderhaldenschen Dialysierverfahren.) K. Berner.
167 *Treatment of Tuberculosis. (Zur Heilung der Tuberkulose.) Ponndorf. Commenced in No. 14.

167. **Tuberculin Treatment of Tuberculosis**—Ponndorf analyzes the experiences at Weimar with tuberculin treatment in 153 cases of various forms of tuberculosis: 44 were entirely cured; 37 much improved and 28 improved, while the outcome is not known in 12 cases; 13 showed signs of a reaction and the course of treatment was dropped. He mentions parenthetically that 37 of 59 patients under 25 had more or less of a tendency to goiter, and the thyroid returned to normal size in nearly all those who were benefited by the tuberculin treatment. The same treatment was applied to three diabetics without modifying the diet, and the sugar in their urine dropped from 6 to 2 per cent.; from 4.25 to 1.8; and from between 2 and 5 per cent. to zero after one or two sittings. He uses an amplified vaccination technic.

Wiener klinische Wochenschrift, Vienna

April 16, XXVII, No. 16, pp. 453-496

- 168 Sporadic Acute Anterior Poliomyelitis. (Heine-Medinsche Krankheit.) L. R. v. Korczynski.
169 *Action of Benzol in Leukemia. F. Spiegler.
170 Diplococcus Lanceolatus in Pemphigus Vesicles. Busson, Kirschbaum and Staniek.
171 Advantages of Intranasal Operative Treatment of Maxillary Sinusitis. (Die Grösse der Kieferhöhlenöffnung bei der intranasalen Operationsmethode und ihre Bedeutung für die Behandlung der Kieferhöhlenerkrankungen.) L. Rethi.
172 Symptomatology of Pellagra. J. Hatiegan and A. Döri.
173 *Treatment of Cholera with Hypertonic Saline Infusion, Tincture of Iodin and Potassium Permanganate. O. Löwy.
174 Alimentary Galactosuria in Liver Disease. R. Fleckseder.

169. **Benzol in Leukemia.**—Spiegler's patient was a woman of 38 with myeloid leukemia. After two months of benzol treatment, she was much improved but returned five months later with extreme anemia, only 1,400 leukocytes, and multiple hemorrhages in skin and mucous membranes. At one count the leukocytes numbered only 400. Necropsy revealed signs of severe toxic injury of the parenchyma of various organs, especially marked in liver and kidneys. There was no manifest change in the spleen, but the granulated elements disappeared from the blood and lymphocytes took their place. Two similar cases have been published in which the leukocytes dropped under benzol from 988,000 to 1,720 and from 56,000 to 5,300 and later to 200. These experiences impress the necessity for vigilant and repeated control of the blood count as indispensable whenever benzol is being given.

173. **Cholera.**—Thirty-one cholera cases are described to emphasize the efficacy of treatment according to Rogers' method, restoring fluid by subcutaneous injection of 1.5 per cent. salt solution and giving the patients a very weak solution of potassium permanganate to drink copiously. Hot tea and black coffee were also given freely and three times a day ten drops of tincture of iodine. Three died of the eighteen patients treated systematically in this way, all very severe cases.

Zentralblatt für Chirurgie, Leipsic*April 18, XLI, No. 16, pp. 673-712*

- 175 *Improved Technic for Removing Hair from Field of Operation on the Head. (Zur Vorbereitung bei Gehirnopoperationen.) H. F. O. Haberland.
- 176 Hernia and Neuralgia after Appendicectomy. W. Mintz.
- 177 Bimanual Examination of the Prostate. H. F. O. Haberland.
- April 25, No. 17, pp. 713-752*
- 178 Postoperative Pseudomenstruation. E. Holländer.
- 179 Intestine Slips into Loop of Silk Formed as Ligature Loosens Up. (Seltene Form von Strangulation einer Darmschlinge.) R. Vogel.

175. **Preparing for an Operation on the Brain.**—Haberland remarks that shaving the hair preliminary to an operation on the brain is depressing to the patient, tedious for the operator, and liable to cut the skin. He has found that the hair comes off totally and easily in three minutes without the least trouble if barium sulphid (*Barium sulfuratum*) is applied to the region. In three minutes the hair can all be scraped off with a little stick. The only drawback is the odor, but this can be disguised. The hair soon grows out again. He mixes the sulphid with water to a thin paste, with or without addition of a little soap, and applies it with a brush or the hand. After the hairs have been scraped off he rinses and dries the region.

Zentralblatt für Gynäkologie, Leipsic*April 18, XXXVIII, No. 16, pp. 585-616*

- 180 Remarkable Twisted Looping of Umbilical Cord of Twins with Single Amnion. S. Dietrich.
- 181 Systematic Abstinence from Ligating the Umbilical Cord in Normal Cases. (Methode der Nichtunterbindung der Nabelschnur. Ausgeführt bei 10,000 Geburten.) A. N. Rachmanow.
- April 25, No. 17, pp. 617-648*
- 182 *Necrobiotic Endometritis from Abnormal Menstruation. L. F. Driessen.
- 183 Outcome of Serodiagnosis Varies with Functional State of the Ovaries. (Zur Frage der Beziehungen der Abderhaldenschen Reaktion zur Sekretion des Ovariums.) T. A. Solowjew.
- 184 *Epinephrin Treatment of Osteomalacia. (Die Methode Bossi bei Osteomalakie.) D. Cavarzani.

182. **Necrobiotic Endometritis.**—Driessen says that he has encountered seventy-five cases of a peculiar endometritis which is liable to bring on profuse hemorrhages. He ascribes it to abnormal menstruation; the casting off of the mucosa does not occur as regularly as under normal conditions and necrotic scraps cling in place. Just as scraps left after abortion are liable to set up hemorrhage, so these scraps of mucosa may entail it, and the findings closely resemble those in the endometritis after abortion. He has encountered it in many cases in which the possibility of a pregnancy was out of the question. The women are usually approaching the menopause and the girls are passing through the stress of puberty. The abnormal features of the menstruation are thus easily understood. Curetting may cure completely, but as the process recurs at each menstruation the effect is only temporary. A permanent cure is generally possible only when the ovarian functioning, the remote cause, is either modified or stops completely. Either ovariectomy or roentgenotherapy may be considered for the purpose. The latter seems especially promising in these cases which deceptively suggest malignant disease, both clinically and under the microscope, by the necrosis, hyaline degeneration, proliferation of epithelium, tendency to cyst production and signs of inflammation.

184. **Epinephrin Treatment of Osteomalacia.**—Cavarzani adds another to the forty-six cases on record in which systematic epinephrin treatment cured osteomalacia. At the same time he cites twenty-six cases that have been reported in which little or no benefit was derived from the treatment. In some of these cases the epinephrin was stopped at the first sign of intolerance, so the treatment had really no chance to display any efficacy. The hypophysis seems to be able to sensitize the adrenals, and hence combining hypophysis extract with the epinephrin treatment might enhance the action of the latter, he suggests. He adds that there is much to sustain the assumption that deficient functioning of the adrenals interferes with the normal growth of the skeleton. His observation of the prevalence of rachitis and

osteomalacia in regions with certain types of soil and drinking water has convinced him that a deficiency of lime in the food has something to do with their development.

'Gazzetta degli Ospedali e delle Cliniche, Milan*XXXV, Nos. 42-45, pp. 441-472*

- 185 Vaccination against Tuberculosis According to Maragliano's Technic. E. Curti.
- 186 Diagnostic Local Reaction in Syphilis. (L'intradermoreazione nella sifilide mediante l'estratto di sifiloma scrotale di coniglio.) M. Trossarello.

Policlinico, Rome*April 12, XXI, No. 15, pp. 521-556*

- 187 *Iodized Benzol as Substitute for Tincture of Iodin for Sterilization of the Skin. (Sopra un nuovo tipo di soluzione jodica per il metodo Grossich.) G. Zanetti.
- April 1, Medical Section, No. 4, pp. 145-192*
- 188 Pedunculated Tumor of the Liver. N. Trulli.
- 189 Urochromogen in the Urine merely Sign of Rapid Destruction of Tissue. (La reazione di Moriz-Weisz.) N. Martelli and D. Pizzetti.

187. **Iodin-Benzol for Sterilization of the Skin.**—Zanetti has been testing various substances as vehicle for iodine, to take the place of the tincture which deteriorates so rapidly. He announces that benzol dissolves iodine readily and the solution keeps indefinitely, while the benzol seems to enable the iodine to penetrate deeper into the skin. The saturated benzol solution contains 9.75 per cent. iodine while the tincture represents less than this.

Brazil-Medico, Rio de Janeiro*April 1, XXVIII, No. 13, pp. 123-132*

- 190 Dwarf Growth from Achondroplasia. (A proposito de um caso achondroplasia.) A. Austregesilo and F. Esposel.
- 191 Aspect of the Normal and Pathologic Bladder. (Notas sobre a cystoscopia.) R. de Buller.

Semana Medica, Buenos Aires*March 19, XXI, No. 12, pp. 637-684*

- 192 Electrocardiography. A. Viton.
- 193 Primary Sarcoma in Muscle; Three Cases in Children. G. Amunategui.
- 194 Operative Treatment of Hemorrhoids. J. Denegri.
- 195 Literature Written by the Mentally Unbalanced. (La literatura de los alienados. Su valor clinico y medico-legal. N. A. Rojas.

Hospitaltidende, Copenhagen*April 15, LVII, No. 15, pp. 449-480*

- 196 *Acute Hemorrhagic Pancreatitis. H. Bindslev.

196. **Acute Hemorrhagic Pancreatitis.**—Bindslev states that he encountered three cases of this affection in a recent six months' period, all in women between 52 and 67, and all fatal. All of them had had pain in the upper abdomen at times, ascribed to gall-stones, and gall-stones were found at the operation in every case. The pains were characteristic, not radiating, with pain-free intervals at first, but the pains increasing and becoming continuous in time, often so intense that even morphine did not relieve. Vomiting generally occurs early and often keeps up with surprising regularity. The collapse and violent pains may suggest perforation, but with perforation of the stomach the tenderness in the region is more intense and the board-like hardness of the abdominal wall differs in every respect from the peculiar meteorism with pancreatitis. The temperature usually runs up higher than with ileus. If there are no signs of thrombosis, endocarditis or phlebitis, pancreatitis seems more plausible than embolism when the signs of shock develop gradually, in the course of a day or so, and the temperature rises only gradually. There was a tendency to arteriosclerosis, obesity and cholelithiasis in the three cases reported, plus endocarditis in one case, but the biliary passages were not obstructed in any instance. The abdomen was opened in each case, but the conditions were found already irreparable.

Ugeskrift for Læger, Copenhagen*April 9, LXXVI, No. 15, pp. 635-680*

- 197 Hypophysis Extracts in Obstetrics. (Hypofyseekstrakten i Fødselshjælpen.) K. A. Esbensen.
- April 16, No. 16, pp. 681-726*
- 198 Artificial Fecundation. (Tilfælde af Fecundatio artificialis med positivt Resultat.) V. Ryder.

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THE ABDERHALDEN-FAUSER REACTION IN MENTAL DISEASES

WITH SPECIAL REFERENCE TO DEMENTIA PRAECOX *

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After Abderhalden had demonstrated that the animal organism responds to the parenteral introduction of alien proteins by the appearance in the blood of proteolytic ferments which are directed more or less specifically against the proteins in question, the thought naturally suggested itself that similar reaction products might also appear, if proteins derived from the animal's own body were to find their way into the circulation. Theoretically, this seemed not at all unlikely, since practically every cell that is not bathed directly in the blood-stream must, in a manner, be alien to that medium. As a matter of fact, Abderhalden could demonstrate that in pregnancy, during which chorionic cells are known to enter the maternal circulation, corresponding ferments do appear and remain demonstrable as long as pregnancy continues. A basis was thus established on which a multitude of biologic and hence of pathologic questions also became subject to experimental investigation, and among these, of course, the problem of the long-suspected connection between certain mental diseases and the functional activity (namely, derangement) of the sex glands. So thoroughly has this been appreciated that there is probably not a single psychiatric clinic of note where serologic studies of this order are not now in progress. The general interest in this direction has been further accentuated by the enthusiastic reports which have emanated from Fauser's clinic concerning the findings in the dementia praecox group, and it is with this question more especially that we are concerned in the present communication.

In his address before the annual meeting of the German Psychiatric Association, held in Breslau in May, 1913, Fauser¹ reported that he had then examined some 250 patients afflicted with various forms of mental diseases, and that he had found protective ferments directed against sex glands only in dementia praecox; that the serum of male patients reacted only with testicular antigen and the serum of female patients only with ovarian antigen.

As negative reactions alone were obtained in the other purely functional psychoses, such as manic-depressive, hysteric and purely degenerative insanity, etc., he very naturally concluded that the method might become of signal value in differentiating dementia praecox from these other types. In a footnote he adds that ferments of this order were later found also in isolated cases of patients who were at the time not (not yet?) suffering from dementia praecox; but that in these cases there was a demonstrable abnormality of function (dysfunction) on the part of the thyroid gland, and that clinically also these cases could readily be differentiated from the functional psychoses just mentioned.

Besides these findings in dementia praecox, Fauser also ascertained that ferments directed against brain cortex can be demonstrated in the majority of cases, while a reaction to thyroid tissue was only occasionally noted, though, at times, it was observed in the absence of any recognizable enlargement of the gland. In the purely functional psychoses other than dementia praecox, on the other hand, no antiorgan ferments of any kind could be demonstrated.

In contradistinction to these findings were those obtained in certain neuroses and psychoses associated with evident enlargement of the thyroid gland, in which the symptoms of the patient would in a general way have warranted the diagnosis of dementia praecox, and in which both cortex and thyroid were digested, but sex gland was not affected. In paresis also, ferments directed against cortex were almost invariably present, and occasionally ferments against liver and kidney, while those against sex gland could not be found.

Since Fauser's original reports, several other papers have appeared which deal with the same question and which in a general way confirm his findings, although the experience of some investigators has been less encouraging.

Wegener,² in a preliminary report covering 200 cases, and in a second communication in which the findings in 600 cases are detailed, confirmed Fauser's observations. In commenting on his hebephrenic cases he distinguishes between simple hebephrenia, hebephrenia associated with katatonia, and hebephrenia in which a definite mental deterioration had already occurred (dementia praecox). In the first group (121 cases) he observed cleavage of sex gland; in the second (12 cases), in addition to this, cleavage of thyroid, which never occurred in the first; and in the third (96 cases) cleavage of sex gland and cortex. Only negative results were obtained in simple "affect"

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1. Fauser, A.: Pathologisch-serologische Befunde bei Geisteskranken auf Grund der Abderhaldenschen Anschauungen und Methoden, Allg. Ztschr. f. Psychiat., 1913, lxx, 719; Deutsch. med. Wchnschr., Dec. 26, 1912, p. 2446; Feb. 13, 1913, p. 304; München. med. Wchnschr. March 18, 1913, p. 584.

2. Wegener, E.: Serodiagnostik nach Abderhalden in der Psychiatrie, München. med. Wchnschr., 1913, No. 22, p. 1197; Jan. 6, 1914, p. 15.

psychoses, simple hysteria and in chronic paranoia. In epilepsy (61 cases) a reaction with cortex was obtained immediately after the attack and in cases progressing to dementia also in the interval. In melancholia (25 cases) cleavage of liver was observed, and in some cases also of sex gland, but in the latter event the subsequent course of the malady showed that the melancholia had merely obscured the underlying psychosis, especially a hebephrenia. Cleavage of cortex was noted in chorea (6 cases), multiple sclerosis (8), arteriosclerosis cerebri and senile dementia (12), paresis, lues cerebri and tabes (67), brain and spinal tumors (15), meningitis (10), following narcosis and local anesthesia (8), alcoholic psychoses (8) and paralysis agitans (1). Summarizing his general impressions, Wegener refers to the evident importance of the reaction in the differential diagnosis between otherwise similar cases and to the unfavorable prognosis which those offer in which cortex cleavage can be demonstrated on repeated examination.

Kafka,³ as the result of a study of 100 cases of mental diseases, concludes that ferments against sex gland are characteristic of dementia praecox, but adds that positive results may be exceptionally obtained also in paresis and during epileptic seizures. The sex-gland reaction, however, was not obtained in all cases of dementia praecox, and in full strength only in 13 out of 30, while 12 were entirely negative. The reaction with thyroid was positive in 20 of 38 cases, and it is interesting to note that the majority of the praecox cases in which the diagnosis was not self-evident on first examination, belonged to this order. A definite cortex reaction was found in 20 out of 32 cases, and one with adrenal tissue in 5 out of 22. Like Fauser, Kafka emphasizes both the diagnostic and the prognostic value of the method in the study of mental diseases.

Mayer⁴ reports his findings in 47 cases of mental disease, and concludes from a study of 16 cases that in dementia praecox the serum always contains homologously directed ferments against sex gland, and that it usually also reacts with thyroid and cortex, while no ferments were found in the other functional psychoses. In paresis, on the other hand, he found a reaction with sex gland in 5 out of 8 cases, with cortex in all and with liver in 5.

Further confirmatory reports have been published by Fischer⁵ of Stuttgart (24 cases), who found that in 12 dementia praecox cases a reaction occurred "fairly" constantly with cortex and sex gland, and in those which were complicated with thyroid hypertrophy, also with thyroid tissue. In his four cases of manic-depressive insanity, no tissue reactions were obtained, while a response to cortex was noted in all the paretics that were examined (15).

Römer and Bundschuh⁶ of Illenau (36 cases) noted a reaction with cortex and testicle in 15 cases of dementia praecox, out of 20; with cortex and thyroid in one, with all three organs in 3 and with thyroid only in 1. Negative reactions were obtained in 6 normal persons and in 4 cases of manic-depressive insanity. In paresis (6 cases) a positive reaction with cortex exclu-

sively was observed in 3, with cortex and thyroid in 1, with cortex and testicle in 1 and with testicle only in 1.

Theobald⁷ reports a reaction with sex gland in 53 per cent., with cortex in 63 per cent., and with thyroid in 69 per cent. of the praecox cases. Fuchs and Freund⁸ finally report a small series of cases (23) which were examined against sex gland and pancreas. Of the six manic-depressive cases some reacted with sex gland, while one gave a feeble reaction with pancreas. In this instance sugar had been found in the urine on two occasions. Of the 12 dementia praecox cases, 11 reacted with sex gland and all of them with pancreas, while a pancreatic reaction was noted in 5 paretic cases out of 7. Of the three male patients, one gave a full response to testicle, and of two female patients one reacted similarly to cow's ovary.⁹

Beyer¹⁰ reports a positive reaction in six cases of dementia praecox (100 per cent.), and a negative reaction in two cases of manic-depressive insanity (100 per cent.) and one of paresis.

In contradistinction to the investigators above mentioned, Neue,¹¹ Allers,¹² Willige,¹³ Hauptmann and Bumke,¹⁴ and Brahm¹⁵ have arrived at less encouraging results. Allers of Munich, however, seems to have confined his investigations to the behavior of the serum toward brain tissue. He concludes that even with a perfect technic positive reactions are at times obtained in circular insanity and the psychopathies.

Willige of Halle states that in paresis a reaction with brain tissue was observed in the majority of cases, but that in most of these the serum also reacted with thyroid and testicle. So far as the dementia praecox question is concerned, he merely mentions that in "isolated katatonic cases the reaction with brain tissue was negative." Two hypophyseal tumors gave a marked reaction with hypophysis; one also a feeble response to thyroid. One brain tumor reacted with thyroid, but not with brain.

Neue, working in Schröder's clinic (Greifswald), merely admits the more constant occurrence of positive reactions toward sex gland, cortex and thyroid in dementia praecox, as contrasted with degenerative cases, manic-depressive insanity and normal persons (positive reactions with testicle, pancreas and thyroid in seven out of nine young, healthy, male attendants). Of eight cases of paresis, cleavage of cortex was observed in all, but frequently also that of other organs (pancreas, liver and kidney). Seven cases of cerebral arteriosclerosis reacted with cortex and prostate and sometimes also with testicle.

The results of Hauptmann and Bumke (Freiburg) are altogether divergent from those of Fauser. The two former observers thus not only failed to demonstrate the homologous sex-gland specificity of the blood ferments which had been established by Fauser and confirmed by others, but also obtained sex-gland reactions in psychoses other than dementia praecox, in non-mental cases and in "normal" persons. Hauptmann adds, however, that he was able to convince him-

7. Theobald, M.: Berl. klin. Wchnschr., Nov. 24, 1913, p. 2180.

8. Fuchs, A., und Freund, A.: München. med. Wchnschr., Feb. 10, 1914, p. 307.

9. The testicle from lower animals gave the same results as the organ from man.

10. Beyer, B.: München. med. Wchnschr., Nov. 4, 1913, p. 2450.

11. Neue: Abstr., Ztschr. f. d. ges. Neurol. u. Psychiat., 1913, vii, 564.

12. Allers, cited by Oeller, H., and Stephan, R.: München. med. Wchnschr., Jan. 6, 1914, p. 13.

13. Willige: München. med. Wchnschr., 1914, p. 565.

14. Hauptmann and Bumke: München. med. Wchnschr., 1914, p. 566.

15. Brahm: Abstr. München. med. Wchnschr., July 29, 1913, p. 1689.

3. Kafka, V.: Ueber den Nachweis von Abwehrfermenten im Blutserum von Geisteskranken, etc., Ztschr. f. d. ges. Neurol. u. Psychiat., 1913, xviii, 341.

4. Mayer, W.: Die Bedeutung der Abderhaldenschen Serodiagnostik für die Psychiatrie, München. med. Wchnschr., Sept. 16, 1913, p. 2044.

5. Fischer, J.: Abstr. Ztschr. f. d. ges. Neurol. u. Psychiat., 1913, vii, 559.

6. Römer und Bundschuh: Abstr. Ztschr. f. d. ges. Neurol. u. Psychiat., 1913, vii, 564.

self in Fauser's laboratory of the validity of Fauser's claims and that specific reactions were there obtained even with tissues that had been prepared in Freiburg.

Brahm finally reports that cleavage of brain peptone was observed in all of his dementia praecox cases; that a corresponding reaction with silk peptone occurred in 50 per cent. of the cases; that serums from praecox cases frequently reacted with placenta; that in paresis the cleavage of brain antigen is feeblor and that positive reactions also may be observed in psychopathic cases.

In surveying the literature just outlined, one cannot help being impressed, on the one hand, by the wonderful apparent uniformity of the results reported by Fauser, and on the other by the total lack of uniformity of those obtained by others, such as Hauptmann and Bumke. The thought naturally suggests itself that two factors may have been operative to this end, namely, that Fauser was carried away by his enthusiasm and allowed himself to be influenced unduly in the direction of his own wishes, and that Hauptmann and Bumke lacked complete control of the technic. As a matter of fact, there is good ground for the belief that both factors were operative. Fauser himself states that he obtained a reaction with sex gland repeatedly in cases in which this "was not expected or at least not certainly expected"; that in the cases in question, either the diagnosis between manic-depressive insanity and dementia praecox could not be made with certainty, or the diagnosis of manic-depressive insanity seemed to be the only diagnosis warrantable. He adds that in just such cases the serologic diagnosis proved superior to the clinical diagnosis, as evidenced by the subsequent course of the malady or the added information brought out by a more searching investigation into the patient's history. Fauser, in other words, admits that he tried to make his clinical diagnosis fit the serologic one in cases in which the two did not tally, rather than leave the question of the occurrence or non-occurrence of the reaction in the functional psychoses open for the present. This, of course, can be readily understood, if we realize the enthusiasm which his discoveries must have elicited in his own mind; but, on the other hand, it seems that the time interval which elapsed between the serologic examination and the change in diagnosis was scarcely long enough to warrant this change.

Another factor which may properly be advanced against the immediate acceptance of Fauser's published results is his absolute silence regarding questions of technic, and the fact that his results seem to have been as uniform before Abderhalden himself realized the necessity of increasing his demands on the character of the technic, as afterward. As a matter of fact, there is probably not one worker in this difficult field who, even after a long familiarity with the work, has not failures to record in abundance. To be sure, Fauser says in his final response in connection with the discussion relative to his address at the meeting of the German Psychiatric Association in Breslau, that with his earliest tests he obtained results which were truly tragicomic, and remarks that even Abderhalden in his pregnancy work had similar experiences. Granted all this; but even so, one can but wonder at Fauser's uniform results after he had passed beyond the stage of tragicomedy to which he refers.

On the other hand, there can be no doubt that certain workers like Hauptmann and Bumke reported

their findings at a time when they certainly did not control the necessary technic. The writers virtually acknowledge this, but it is certainly much to be regretted that workers who fail in their first attempt to confirm the findings of another, should rush into print, apparently prompted by the sole desire to contradict the findings of probably equally honest workers.

Whatever the reason, the results obtained by different observers, though they support the claims of Fauser in the main, are still sufficiently divergent to warrant the report of another series of observations such as our own. The material for these examinations was obtained from the Sheppard and Enoch Pratt Hospital, and comprises 106 cases. The serums were tested against sex gland, Basedow thyroid and cortex. The results will be seen in the accompanying table.

TABLE OF RESULTS IN 106 CASES TESTED AGAINST SEX GLAND, BASEDOW THYROID AND CORTEX

| | No. of Cases | Sex Gland | Per Cent. | Basedow Thyroid | Per Cent. | Cortex | Per Cent. |
|------------------------------------|--------------|-----------|-----------|-----------------|-----------|--------|-----------|
| Dementia praecox | 25 | 22‡ | 88 | 13 | 56 | 10 | 40 |
| General paresis | 11 | 0 | 0 | 4 | 36 | 5 | 45 |
| Manic-depressive insanity | 25 | 4 | 16 | 9* | 36 | 6 | 24 |
| Involuntary depression | 10 | 2 | 20 | 5 | 50 | 4 | 40 |
| Constitutional psychopathic states | 4 | 2 | 50 | 4 | 100 | 4 | 100 |
| Defective mental development.. | 3 | 0 | 0 | 0 | 0 | 2 | 66 |
| Toxic (nephritis) cases | 2 | 2 | 100 | 0 | 0 | 1 | 50 |
| Intoxication psychosis (alcohol) | 5 | 4 | 80 | 1 | 20 | 1 | 20 |
| Traumatic psychosis | 1 | 0 | 0 | 1 | 100 | 0 | 0 |
| Organic dementia | 3 | 0 | 0 | 0 | 0 | 2 | 66 |
| Exhaustion psychosis | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Drug intoxication (morphin) .. | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Doubtful diagnosis | 15 | 10‡ | 66 | 2 | 11 | 4 | 26 |

* All of these patients were agitated, showing "Angst" symptoms.
‡ All of these patients showed constitutional psychopathic tendencies.
‡ In three patients classed as having dementia praecox and who did not react, the disease was of several years' duration.

To summarize, we can say that a sex-gland reaction may be obtained in nearly, if not all, cases of dementia praecox at some stage of the disease, but that the reaction is not specific of dementia praecox, as Fauser would have us believe. It may, of course, be debatable whether the relatively small percentage of cases in which the clinical history pointed to manic-depressive insanity, but in which a reaction was obtained nevertheless, were in reality manic-depressive cases, but the fact remains that in other types of insanity the reaction may also be obtained, even though we admit that it is observed far less constantly. Of special interest is our observation that in a large percentage of alcoholic cases a sex-gland reaction seems to be obtainable. It will be noted that no reaction was obtained in any one of the eleven cases of paresis. Our results thus seem quite in accord with those of Fauser, but just as he notes that at one time one of his associates obtained a positive reaction in an isolated case of paresis, so also did Dr. Judd in another series of mental cases note a positive reaction in a few instances. The significance of these divergent findings may of course be manifold.

In this connection I would recall the observations of Lampé and his co-workers, Papazolu and Fuchs, who report that in Basedow cases a sex-gland reaction may be frequently observed. It might, of course, be argued that as no clinical histories are given in full, some of these may have been dementia-praecox cases, but as the report has emanated from the first medical clinic of Munich, it hardly seems likely that all the positive cases were of that order. Such apparently

divergent findings, however, in no way diminish the basic importance of Fauser's original observations from the standpoint either of diagnosis or of general biology and experimental medicine. The fact remains that in dementia praecox a positive reaction is the rule, and that in the purely functional psychoses it is the exception. Its possible occurrence in paresis and alcoholic insanity scarcely diminishes the importance of the reaction from this point of view.

How to explain our positive findings in manic-depressive cases I do not know. It is possible that some of these cases were really praecox cases, but it is not likely that this explanation would be applicable to all our exceptions to the general rule of Fauser that in manic-depressive insanity only negative reactions are obtained. We must, hence, either conclude that Fauser's rule does have exceptions, or that our positive findings were due to some error of technic. Before admitting or denying this possibility, it may not be out of place to enter in some detail on the general question of technic.

TECHNIC

As I have previously indicated, Fauser does not discuss the question of technic at all, but merely states that he followed the rules of Abderhalden implicitly and that his results, before Abderhalden "reenforced" those originally laid down, were practically the same as afterward. These rules have reference essentially to the condition of the serum, to that of the parchment thimbles, and of the tissues which are used as antigens.

Concerning the first factor, he asserts that the serum must be free from hemoglobin or corpuscles and uncontaminated by bacteria. These demands were complied with in every particular. The blood was collected in large vacuum tubes similar to the smaller Keidel tube, which permit of thorough dry sterilization, and can be handled with equal facility. The blood was placed in the ice-box over night, the serum separated by centrifugation the next morning and recentrifuged twice more before being used. No serum was used that was tinged reddish in the slightest degree. The dialyzers which were available at first were those originally advocated by Abderhalden, namely, No. 579 Schleicher and Schüll. As a large percentage of these were found to be too pervious, the firm placed a tighter thimble on the market, bearing the number 579a. The first lot of a hundred of these were found so tight, however, that using only 0.5 c.c. of serum in each, no reactions could be obtained with sex gland unless the incubation was extended to from sixty to sixty-six hours. Subsequently, a lot of supposedly tested thimbles were secured from Schoep of Halle, but these also were found to be rather tight, necessitating incubation for sixty hours with 0.5 c.c. of serum. Quite a number of these, moreover, had to be discarded, as they were permeable to serum, in spite of their having been sent out as "tested."

All the thimbles were, of course, tested with serum alone, and those discarded which allowed reacting substances to pass through. If the dialysate gave no reaction with ninhydrin, they received a single notch in the margin, and were then tested against serum in combination with a tissue which was known to react readily, such as a very cellular carcinoma, which gave reactions with practically every serum whether derived from a normal person or a patient; while when placed in the dialyzer by itself, the dialysate gave no reaction whatever with ninhydrin. Or, the thimbles were tested

with an "unimportant" organ in a series of experiments, and those selected which gave reactions in the dialysate. Either procedure gives the same results as when tested with peptone alone. After having been shown to be permeable for substances resulting from the interaction of serum and tissue, the thimbles received two additional notches and were then set aside in jars under toluene until needed for an actual experiment. Early in our work we sterilized our dialyzing jars with the dialyzer and the necessary amount of water, in the steam sterilizer, before using them, but abandoned this when it was found that the permeability of the thimbles was thereby lessened.

After being used the thimbles were carefully washed under the tap, placed in jars under running water for several hours and then stored under water and toluene until needed. The average life of a thimble under such conditions, being in use for from three to four days of every week, certainly extends over several months.

I have pointed out above that in most of our experiments we used but 0.5 c.c. of serum to each thimble. We may be criticized on this point, particularly as Abderhalden discountenanced the use of such small quantities in his pregnancy test. We found, however, that the use of such small quantities of serum is perfectly admissible if the period of incubation is lengthened, as we have done, and if the quantity of water on the outside of the dialyzer is reduced to 10 c.c., of which 5 c.c. are then used in the final test with 0.1 c.c. of the ninhydrin solution. The very fact that with this technic results could be obtained which in the main go to support the claims of Fauser, is the best argument in favor of its admissibility.

We were led to the use of these small quantities of serum in our attempt to obviate the appearance of non-specific reactions with which every worker in this field is no doubt familiar, no matter whether he is willing to admit this in cold print or not. We have found it helpful, though by no means a certain guard against such reactions.

As regards the preparation of the tissues, I may say that every attempt was made to remove all traces of blood, and in many instances this was controlled by applying the phenolphthalin test for occult blood to the wash-water, and carrying the washing to the point of a negative reaction, even when the test was applied to the small amount of water that could be expressed from the tissues. The tissue, after being stripped of fat, connective tissue and macroscopically visible blood-vessels, was passed through a meat-hashing machine and then washed in running water for from twenty-four to forty-eight hours, after which it was coagulated by being placed in boiling water containing one drop of glacial acetic acid to the liter, as suggested by Abderhalden. The subsequent extraction with boiling water was then carried on in exact conformity with Abderhalden's method. As a matter of fact, the tissues to be used on a given day were boiled out at least half a dozen times on the day preceding, and then again as many times on the working-day, and to the point at which not the slightest reaction could be detected even on standing for half an hour in artificial light, which always accentuates the reactions. It will thus be noted that every precaution was taken to guard against sources of avoidable error, to which end the use of the small quantities of serum with the prolonged

incubation certainly would tend to increase the number of negative instead of positive reactions.

The serums were always examined in sets of ten, without the slightest knowledge on our part of the clinical diagnosis, which was furnished only after our results had been announced.

With these precautions given I hardly think that our work is open to criticism from the standpoint of technic, so far at least as our present demands on the technic go, but neither am I ready to admit that a true sex-gland reaction may be obtained in the functional psychoses outside of dementia praecox. Before this question can be definitely answered, our technic must be radically improved. I feel very strongly that the underlying principle is correct, that we are dealing with a reaction which is in a certain sense specific even now with the imperfect technic at our command, but which is readily marred by apparently non-specific collateral or simultaneous reactions. Were this not true then one should obtain only definitely positive or definitely negative results; but as a matter of fact, in our experience at least, a correct "laboratory diagnosis" was frequently possible only when the ultimate results were compared with one another. If, for example, the dialysates were tested after an incubation of only twenty-four hours, using testicular tissue in combination with male serums, negative reactions only were observed, and our inference, had the examination ceased at this point, would have been that none of the serums had been taken from praecox patients. After an incubation of another twenty-four hours one or two specimens would show a reaction perhaps, but of so feeble a degree that one would hardly venture to attach any significance to the reaction. After twelve hours further not only the two specimens just noted would give a reaction, but perhaps six or seven out of the ten cases. The reaction, however, would then be of varying intensity, the most intense color being obtained with the two specimens which showed a faint reaction after forty-eight hours. A third one would perhaps be quite marked, though less so, while the remainder would give a faint color only. If at this stage we were to interpret the two intense reactions only as positive reactions, a comparison with the clinical condition of the patient would reveal that these had been the only praecox cases of the series. On waiting still longer we would at times find that the entire series was blue, and had our examination been made at this time only, we should have been led into the error of announcing that from a laboratory point of view all ten were praecox cases.

The readiness with which a whole series or a part of a series will become positive as incubation is continued, is variable and more marked with some tissues than with others. On the whole, the most satisfactory and unequivocal results were obtained with testicular tissue, cortex and occasionally with Basedow thyroid, while there was very apt to be an appalling blueness of the specimens when ovarian tissue was used, unless indeed the period of incubation was shortened by about twenty-four hours. Such variations Abderhalden would no doubt explain on the assumption that our tissues were not sufficiently free from blood, and this explanation seems to have been the accepted one in the case of many of the results that have been contrary to expectations, but although some of the abnormal findings may have been due to this cause, there

must be still other factors which are operative in this direction.

This is strongly suggested by various incidental observations. Thus on one occasion we found that whereas practically all of twelve serums taken from divers mental cases gave positive reactions with ovarian tissue, but one of the same series reacted with blood-clot by itself. Had the latter parallel tests not been made the results with ovarian tissue would have been open to criticism on the supposititious basis that the tissues had not been washed free from blood, since errors due to faulty dialyzers or to imperfect extraction could be excluded. Such an assumption, however, is invalidated by the results which were obtained when the same serums were directly combined with blood clot. In this connection a number of observations which were made when animal tissue was substituted for human tissue acquire a certain significance as likewise suggesting the operation of extraneous factors.

Fuchs and Freund announced not long ago that they found beef testicle and beef ovary as efficacious as the corresponding human organs. We had already made the observation that rabbit testicle also may give apparently specific reactions, and in a series of ten cases could verify Fuchs and Freund's observations in reference to beef testicle, also, providing that the period of incubation was interrupted at a certain time. If this is exceeded, non-specific reactions appear, and, as in the case of the human organs, we found that these are more apt to occur early when ovarian tissue was used than in the case of testicular tissue. Such reactions can hardly be explained except on the assumption that aside from possible specific factors non-specific influences also are at work, and until these factors are known but little real headway in the application of this interesting field of investigation to clinical medicine will be possible. It would accordingly seem highly desirable if a number of the large army of workers in this field were to abandon the paths which have hitherto been pursued, and to devote their attention to a study of the fundamental physiologic principles which are involved. When once this basis has been furnished the day will not be far distant when "organ diagnosis" will become a possibility. It is my firm conviction that such a day is actually before us and hence that Abderhalden's basic work in this field should be viewed as one of the most important contributions to modern experimental medicine.

With our present knowledge it is of course impossible to draw any far-reaching conclusions concerning the significance of the sex-gland reaction in dementia praecox. Certain possibilities, however, suggest themselves which it may be well to discuss in brief.

When Abderhalden first discovered that during pregnancy a proteolytic ferment which is specifically directed against placental tissue, appears in the blood, he believed that this was the outcome of an invasion of the circulation by chorionic cells, which naturally would be alien to the blood. As a matter of fact it can easily be shown in the animal experiment that such ferments do appear when placental tissue is introduced into the organism by parenteral channels, and it is noteworthy that this will occur not only in female animals, but also in males. This, however, will also take place if instead of the tissue itself a corresponding extract (*Presssaft*) is used. So that we may conclude that the introduction of either cells or cell-products, so far as they are normally foreign to the blood, will

cause the appearance of corresponding ferments. As chorionic cells and hence chorionic cell-products, however, are not found in the normal organism except at certain periods which may be separated from one another by long intervals, whereas the sex glands and their cells are after all constant constituents of the animal body, it would seem *a priori* unlikely that in dementia praecox the appearance of the corresponding ferments should be referable to the action of either *normal* cells or *normal* cell constituents.

In this connection certain observations of Lampé and his co-workers are of interest. These investigators found that in Basedow's disease a more constant and more intense reaction is obtained with Basedow thyroid than with normal thyroid, and they accordingly conclude that in the disease in question we are not dealing with a hyperfunction, but with a perverted function of the gland. Otherwise it would be difficult to understand why the animal body should react with the appearance of a specific ferment to a mere increase of a normal secretion. We should indeed be forced to the conclusion that the reaction must be in response to the appearance in the circulation of the cells themselves; but we should also have to conclude that the chemical structure of these cells must be different from the normal, as otherwise the serum of patients with Basedow's disease should react just as well with normal thyroid as with Basedow thyroid. This possibility of course exists. But we might then ask ourselves if an abnormally constructed cell would not also be likely to furnish an abnormal secretion, in which case the reaction might after all be referable to certain constituents of this altered secretion rather than to the appearance in the circulation of the cells themselves. However this may be, it is evident that either an abnormally constructed cell or abnormally constituted cell-products may theoretically produce the same result.

In considering this question in connection with dementia praecox the thought of course suggests itself that here also we may be dealing with a perverted function of those cells which are concerned in the production of the internal secretion of the sex glands. Evidently, it would be advisable to study, on the one hand, the intensity of the ferment reaction against normal sex gland, and on the other, the reaction against sex gland derived from praecox cases. This has not as yet been done, but would seem to be the most important next step. Practically all the reactions which we obtained with testicular tissue were relatively slight, and it would accordingly go far toward establishing the existence of a perverted function of the cells furnishing an internal secretion, if it could be established that more marked reactions were obtainable with praecox than with normal organs.

That the interstitial cells of the testicles are concerned in the reaction we could demonstrate by combining the patient's serum, on the one hand with infantile tissue, and on the other with adult testicle, when reactions of equal intensity were obtained with the two antigens.

Supposing that the stimulus for the production of the ferments in question were to emanate from the sex glands, the next problem would be to ascertain the origin of the ferments. During his early studies of the pregnancy reaction Abderhalden believed that the ferment originated from the blood-cells, having the leukocytes more particularly in mind. Subsequently, how-

ever, he seems to have abandoned this view, and in a late publication he expresses the belief that the ferments might possibly be formed in the very organs against which their activity is directed. One reason which led to this change of view was the observation that whereas antitesticular ferments appear in the blood-serum of normal rabbits following the parental introduction of testicular cells, this does not occur in castrated animals. On the other hand, however, it must be remembered that the formation of antichorionic ferments may be evoked artificially both in male and female animals, so that we may conclude that whereas certain ferments may originate in the homologous organs, others may be produced by heterologous cells. This would be in perfect accord with what is known to occur in the production of tetanus antitoxin as a consequence of the introduction of the corresponding toxin.

Even though immunization with normal sex-gland tissue should evoke the liberation of corresponding ferments in the normal organ, it would not follow that other tissues might not become similarly active if an abnormal secretion were to enter the circulation.

Every cell of course contains proteolytic ferments which are capable of causing the digestion of homologous cells, when certain inhibitory factors fall away (for example, autolysis after death), and it would seem the simplest to assume that these ferments are given off by the cell when corresponding cells or cell-products are introduced into the circulation. But it remains to be seen whether the ferments then occurring in the blood are identical with the normal ferments of the normal cells and those occurring in the blood under manifestly pathologic conditions.

Considering the problem from the clinical side, the all-important question of course suggests itself whether or not the reaction has any relation to the pathogenesis of dementia praecox. Theoretically, this is of course perfectly possible. Granted that antisex-gland ferments do occur in the circulation in dementia praecox, and that their presence were the outcome of the appearance in the circulation of an abnormal secretion or of abnormal cells, then we may also assume that digestion of these cells or cell-products will take place, and that all conditions would thus be given for a chronic protein intoxication which might very well expend itself on the central nervous system. Should this be true, then we might also expect that the administration of sex gland to such patients would cause an aggravation of the patient's condition, while partial or entire castration, possibly combined with the transplantation of normal organs might similarly be expected to have a beneficial influence. Evidently, the problem is now open to investigation from many sides, and it does not seem unreasonable to expect that definite advances will be achieved in the near future.

In conclusion, I wish to express my appreciation of the courtesy and cooperation of the staff of the Sheppard and Enoch Pratt Hospital, which made the work outlined above possible.

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Public Hygiene Depends on the Individual.—Power to regulate water-supply and sewage-disposal or to vacate or destroy property unfit for habitation helps materially in improving the sanitation of the home, but it fails to reach that class of people whose personal habits render any home unfit for occupancy.—J. H. Landis, in *Am. Jour. Pub. Health*.

RESULTS OF RADIUM IN CANCER

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The application of radium to the treatment of cancer cannot be considered new. It was first tried nine years ago; and since that time Wickham has been constantly engaged in its application to disease, and especially to cancer, in the very city which may be termed the home of radium.

The Laboratoire biologique du radium was organized in the early part of 1906. The object of this institute was to serve as a center for radium therapy. It possessed a chemical, a physiologic and a physical department, the last furnished with the most sensitive instruments of the Curies' laboratory. These departments, respectively, were under the charge of a competently trained chemist, physiologist and physicist. The therapeutic portion of the work was under the direction of Dr. Wickham. Since 1906, one thousand patients, afflicted with various forms of cancer, have been treated. The results of this treatment have been published in two books, one of which appeared in 1910 and the other in 1913. In the second publication, Dr. Wickham furnishes the following summary of his opinion regarding the action of radium on cancer:

1. Radium causes an undeniably destructive modification of the malignant cells.
2. Malignant tissues display a special and very selective susceptibility to the influence of radium.
3. This destructive action extends to a depth varying up to 9 cm., according to the dosage used and the sensitiveness of the neoplasm.
4. This action, even to the depth mentioned, occurs with the maintenance of the relative integrity of the normal tissues traversed.
5. The action, nevertheless, is not complete enough to warrant the use of radium as a primary therapeutic agent in any form of operable cancer, with the single exception of cancer of the skin.

Cancer of the skin, because of its superficial character and relative benignity, will always constitute a form of cancer belonging to an entirely different category from all other varieties. It forms the first of the groups into which Wickham divides the disease for the consideration of radium therapy. Regarding this group, he says:

As far as our experience goes, in judging from our statistics, which contain several hundred cases of different varieties, we have arrived at the conclusion that in a majority of epitheliomata of the skin, even in the gravest cases, radium is undoubtedly superior to any other therapeutic agent, both on account of its direct curative action and because of the simplicity of its application.

In some particularly grave cases radium has been most effective in his hands. Even advanced, entirely inoperable forms, characterized by deep extension and in some instances by the presence of large tumors, have scarcely altered his statistics for the worse. In compiling these statistics, the element of time has been carefully considered.

Though it is only in this first group that radium deserves an important place in the fight against cancer, it is nevertheless by no means devoid of usefulness in other forms of the disease. An acquaintance with what has been accomplished in these other varieties is

therefore important, for even though the results of radium treatment do not demonstrate its curability in the more advanced cancers, yet they furnish information concerning the extent to which it is able to produce the same selective destructive action on cancer tissue in general.

These other types of cancer, in which are grouped all the more serious and more important varieties, may be considered, from the point of view of radium therapy, under the two main divisions of operable and inoperable cancer.

Considering first the operable group (those cases capable of complete extirpation), Wickham makes the following significant statement:

Operable cancer should be operated on immediately without delay. This is an absolutely fixed rule.

The inoperable forms are discussed under the different subdivisions of the histologic varieties of cancer and of cancer in the various locations within the body. In nearly all of the inoperable forms it is permissible to use radium, because of the relief from many of the objective and subjective symptoms which it not infrequently affords.

Wickham states that the various sorts of sarcoma yield to radiation more quickly than any of the many types of epithelial cancer. Lymphadenoma and mycosis fungoides are more susceptible than even sarcoma. He is able to report very important palliative results in the treatment of cancer from all regions of the body, and has witnessed an entire retrogression of many large inoperable epitheliomas of the skin and of some breast tumors. Types of the cases similar to those of Wickham have been described also by Dominici (who shares largely in the credit for the work of the institution), together with many photographs, in a monograph entitled, "The Technique and Results of Radium Therapy in Malignant Diseases."

Isolated instances do exist of apparent cures in some of the inoperable forms of cancer of the second group, and there is a fairly large proportion of cases in which the retrogression at the primary site of the tumor has prolonged the life of the patient and rendered him more comfortable. In no instance, however, has there been a complete eradication of the ultimate ramifications of the disease.

The only conclusion to be drawn from these results is that while the influence of radium on all types of cancer is a favorable one, it does not extend to the limits of the disease in any but the most superficial varieties.

The work of the Radium Institute of London, while much more recent, is second to none in importance. The institute possesses 4 gm. of radium—an amount far exceeding the quantity owned by any other single institution.

In the institute's report¹ of 467 cases of cancer treated during 1912, no patient has been classified as cured, inasmuch as it is not permissible to consider cancer in this light until there has been a freedom from recurrence for a period of at least three years. The most favorable results are reported as only apparent cures, though certain of them may later prove to be actual ones.

Of 101 patients with the slow-growing, benign forms of cancer of the skin, 31 were apparently cured,

1. Pinch, A. E. Hayward: Brit. Med. Jour., 1913.

41 improved, and 12 did not improve. In cancer of the rest of the body, including practically all varieties, there were only 15 cases apparently cured, 156 improved, and 45 did not improve. Of the 15 cases apparently cured, 4 were skin cancers occurring on the hand and cheek, 3 were cancers of the uterus, 2 were breast-cancers, 1 was a cancer of the thyroid gland, 1 was a cancer of the rectum, 1 was a tumor of the parotid gland, and 2 were sarcomas. Among all these cases the cancers of the uterus, breast and rectum are most significant. Cases 180, 5109 and 5199 have been selected as the cancers of the uterus which were apparently cured. In all three of these patients the cancer had returned after operation. Following radium treatment, there was, in each instance, an entire disappearance of the tumor mass and of all induration. It is supposed that Case 35 was the case of cured cancer of the rectum. It was an inoperable cancer, and after an interval of eight months from the time of its treatment with radium, no sign of the growth could be detected. The improvement in Cases 48 and 186 was so great that only the most conservative judgment could exclude them from the category of the apparently cured. Of the tumors of the breast, one was a case of Paget's disease, and therefore superficial. Case 5100 has been selected as the apparently cured case of cancer of the breast, in which the patient concerned had a recurrent cancer. At the beginning of the treatment she had six nodules the size of a walnut which had recurred in the scar. It is interesting to note that the recurrence in this patient had been unsuccessfully treated with the Roentgen ray before the application of radium.

The foregoing results fully confirm the conclusions of Wickham. With the lapse of time they may prove to be even more significant. At present they in no way alter his deductions and lend no support to the view that radium can be considered a cure for cancer. They convincingly demonstrate that its specific effect on the disease is not limited to any one of its forms.

In Vienna an important work with radium has been established. In June, 1912, the Vienna Radium Institute began its researches with half a gram of radium, an additional gram being furnished in June, 1913. The total amount, 1.5 gm., is very large, and quite sufficient to test the efficacy of radium on cancer. The institute has been founded as a central station for the distribution of radio-activity to the various departments of the Vienna Hospital. Riehl² has reported the results obtained by the use of radium on superficial cutaneous cancer, Wertheim,³ on its application to cancer of the uterus and Ranzi, Schüller and Sparmann,⁴ the results of the treatment of cancer of the various organs. Riehl has treated 114 patients afflicted with skin cancer, and his observations regarding its favorable influence on this form of the disease agree with the conclusions of others. He considers that in this form of cancer the application of radium, even in small quantities, is preferable to other methods of treatment. One of his patients may be referred to as an illustration: A tumor the size of a child's head had retrogressed, except for the deeper extension of the growth, which ultimately had reached the esophagus and caused the death of the patient. Wertheim states that he has treated nine cases of inoperable cancer of

the uterus, in a number of which the previously fixed tumor again became movable; there was also a considerable reduction in the size of the growth, and altogether the patients improved to such an extent that it was possible to consider radical removal. Notwithstanding all this, it is impossible for him to view even such improvement as at all approaching a cure.

Ranzi, Schüller and Sparmann have treated 53 patients: 6 after operation, for the purpose of preventing recurrence, and 47 with inoperable tumors existing at the time that treatment with radium was instituted. Three of the 6 patients treated palliatively showed an extensive recurrence after a short time. The other 3 gave no evidence of recurrence after a period of three months in 2 of the patients, and two months in the case of the third.

The accompanying table shows the locations and varieties of all the cancers treated.

LOCATIONS AND VARIETIES OF CANCERS TREATED BY RANZI,
SCHUELLER AND SPARMANN

| | Patients |
|--|----------|
| Sarcoma of the cranium..... | 4 |
| Cancer of the upper jaw..... | 3 |
| Cancer of the neck..... | 6 |
| Cancer of the breast..... | 4 |
| Cancer of the skin..... | 4 |
| Cancer of the penis..... | 1 |
| Melanosarcoma of the skin..... | 1 |
| Cancer of the esophagus..... | 5 |
| Cancer of the stomach..... | 2 |
| Cancer of the rectum..... | 3 |
| Cancer of the interior of the mouth..... | 8 |
| Cancer of the tongue..... | 9 |
| Cancer of the thyroid gland..... | 1 |
| Cancer of the pleura..... | 1 |
| Cancer of the nasopharyngeal cavity..... | 1 |
| | <hr/> 53 |

Notwithstanding the fact that a series of these cases received a high dosage of radio-activity, in only three instances of the whole fifty-three was there a continuous retrogression of the tumor. One of these three patients had a recurrent cancer of the tongue, about $\frac{1}{2}$ to $\frac{3}{4}$ inch in diameter; another had a superficial epithelioma of the nose of the benign type, and in this case, while the growth on the nose was healing, a secondary extension of the disease on the upper jaw increased in size; the third patient in this group was a woman with a carcinoma of the tongue, which completely disappeared.

After deducting from the 53 patients 19 who either discontinued treatment or were lost sight of, there remained 34 from whom it was possible to draw conclusions. Of these, 6 died during the course of the treatment; 11 were essentially improved; 6 were very slightly improved, and 3 were made worse. Wertheim concludes with the statement that radium can be considered only a contributory agent in dealing with cancer. It produces solely a limited effect, and therefore its use in operable cancer is equivalent to the denial of principles in dealing with the malignant disease which are already too well founded to permit of question.

The Samaritan Hospital in Heidelberg has also made a report on the action of radium on cancer. This report deserves mention because of the foundation in this hospital of a work devoted exclusively to the cure of cancer, but the value of the work is much less than that of the three institutes already referred to because of the fact that only 20 mg. of radium

2. Riehl, G.: Wien. klin. Wchnschr., 1913, xxvi, 1645.

3. Wertheim: Wien. klin. Wchnschr., 1913, xxvi, 1648.

4. Ranzi, E.; Schüller, H., and Sparmann, R.: Wien. klin. Wchnschr., 1913, xxvi, 1651.

were available. The report was published by Caan,⁵ the details of 130 cases being given, of which 105 had carcinoma and 11 sarcoma. Fifty per cent. of all the cases treated showed the effects of a favorable influence attributable to cancer. Of 38 cancers of the breast a definite improvement was observed in 27 instances. In 8 of the 27 patients a complete retrogression of superficial tumors was noted (in one instance the size of a hen's egg); in 3 of this group of 27 patients the objective improvement was so marked that a previously inoperable growth became shrunken and movable to the extent of permitting consideration of a radical operation. In 5 out of 7 skin cases, healthy granulations replaced the tumor tissue. In 8 patients with malignant lymphomas, there was a complete disappearance of the tumor.

Caan further states, in summing up, that radium must be considered an important agent in the fight against malignant disease. In about 50 per cent. of his 130 cases he had produced improvement which may be described as a softening and retrogression of the tumor and an amelioration in the subjective symptoms of the patient. In two more recent publications,⁶ Czerny and Caan publish their later experiences with the radio-active treatment of cancer. These publications concern more especially the use of mesothorium and thorium X—two very strong radio-active preparations considered by Caan quite as powerful as radium. It is therefore proper to consider them here. They furnished little additional information, however. Improvement was produced in about 40 or 50 per cent. of the cases, but no patient was cured. Caan concludes by stating that in cases of cancer susceptible to radical removal, treatment by mesothorium and thorium X should in no instance supersede the knife.

It is evident from a comparison of these various reports that the subject has been approached from different attitudes in France, England and Germany. It is quite easy to read between the lines of Wickham's book a great deal of enthusiasm for the treatment of cancer by radium; it is equally obvious that the Germans have expressed themselves most conservatively. The report of the English institute, on the other hand, draws no conclusions whatsoever, but simply consists of a statement of facts. Nevertheless, a comparison of these reports presented from these different attitudes, discloses a remarkable agreement which it would be easy to confirm by reference to numerous isolated publications on the use of radium from independent workers. Each report justifies the statement that radium produces a selective destructive action on the majority of cancers, but that this action never reaches to the more distant extensions of its deeper and more serious forms. Indeed, there is good ground for belief that unless the greatest care is used in the application of radium, the more distant portions of the tumor will be stimulated to more active growth. All observers of the action of radium on cancer have expressed the belief that an insufficient dosage of radio-activity may stimulate tumor growth. A moment's reflection will make clear how rapidly the total amount of radiation must diminish at points increasingly distant from the center of radiation. Aside from the amount of radiation absorbed, the number of rays diminish inversely as the square of

the distance. All users of radium are most emphatic in expressing the belief that no operable cancers, except those of the skin, should be treated by radium in preference to operation.

It is therefore permissible to consider that the true position of radium in the treatment of cancer, with the present methods of application, is a settled matter. While it will destroy cancer tissue in a dosage not affecting normal tissues, it does not cure the disease unless it is quite superficial or of a variety peculiarly susceptible to its influence. The establishment of the fact that we have in radio-activity an agent which will at all specifically affect cancer, is of very great importance—all the more so, inasmuch as no other agent has thus far been discovered which in any degree approaches its effectiveness. A knowledge of these facts offers every encouragement to the belief that a more successful method of applying this remedy may yet be discovered; the lines of experimentation are clearly indicated; the whole question merely reduces itself to the even distribution of the proper dosage throughout all involved tissues. The realization of this end is all in the future and purely speculative. At present, radium may only supplement, but not replace, the knife.

104 East Fortieth Street.

THE AUTOSEROSALVARSAN TREATMENT OF SYPHILIS OF THE CENTRAL NERVOUS SYSTEM

SECOND PAPER

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Since the publication of my paper on "The Autoserosalvarsan Treatment of Syphilis of the Central Nervous System,"¹ thirteen additional cases have been treated. It is not the purpose of this communication to report these cases. During the clinical study of these twenty cases, however, many practical questions have arisen, a brief discussion of which appears to be timely. The points which I propose to discuss are along the lines of safety, efficiency and convenience. They are three in number:

1. The problem of asepsis.
2. Time of withdrawal of blood for serum.
3. Dosage and dilution of salvarsanized serum.

I. THE PROBLEM OF ASEPSIS

In an early one of my last series of eleven cases an accidental infection of the spinal canal occurred. This patient has completely recovered from the infection, but the possibility of the recurrence of such an accident demanded such a critical review and revision of methods as would make it impossible. The opportunities and dangers of contamination in the preparation of a serum for intraspinal injection by an "open-air method" are manifest. Instruments, receptacles and appliances were above suspicion by reason of the effectiveness of modern hospital methods of sterilization. The skin of the patient at points of puncture,

5. Caan: Beitr. z. klin. Chir., 1909, lxxv, 773.

6. Czerny and Caan: München. med. Wchnschr., 1912, lix, 737.

Caan: *ibid.*, 1913, lx, 9.

1. McCaskey, G. W.: The Autoserosalvarsan Treatment of Syphilis of the Central Nervous System, THE JOURNAL A. M. A., Jan. 17, 1914, p. 187

and of the hands of operator and assistant, cannot, however, be completely sterilized by any known method. Then there is the possibility that any open receptacle containing blood or serum may have a particle of foreign matter accidentally deposited in it by a gust of air, or the sudden motion of a garment or other fabric during even a brief exposure. It could easily carry many micro-organisms which might be pathogenic, and which during the hours that the ideal culture-medium stands, might produce a massive dose. Even though placed in a refrigerator, a procedure which might easily be somewhat delayed, sufficient chilling to produce effective inhibition might be long enough postponed to permit considerable germination. This may be a remote possibility, but it should nevertheless be removed. The paucity of antibodies in the spinal fluid points to a danger from the introduction of even a few attenuated micro-organisms which might

fit, connected as shown in the illustration (excepting that the vacuum pump is left out, because the steam ruins the washers) is properly wrapped and placed in a steam sterilizer and thoroughly sterilized.

When the operator is ready to proceed, the needle, which has been paraffined before sterilization and closed with a stylet, is introduced into a suitable vein, the *dry* skin over which has been painted with tincture of iodine. The vacuum pump is then operated by an assistant and the blood rapidly pours out of the top of the small tube *F* and falls to the bottom of the large tube. It is desirable to procure about 60 c.c. The vacuum pump is then disconnected from the cotton bulb, and air filters in to produce an equilibrium. If the needle is withdrawn from the vein first, *unfiltered* air would rush in, and might carry impurities. The needle is now removed, the bulb *H* transferred from *F'* to *F* and the connecting rubber tubes are covered with sterile gauze and rubber finger-cots, which are tied around the lower ends of the glass tubes.

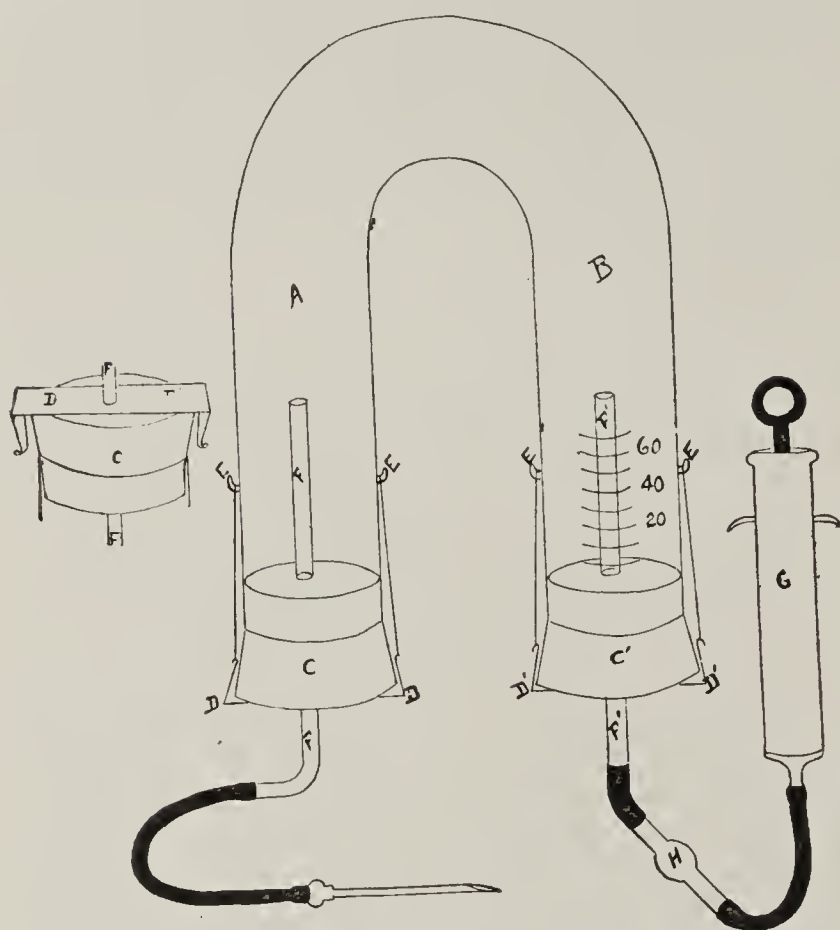
The apparatus containing the blood is now placed in the refrigerator over night, and in the morning the quantity of separated serum desired is poured into the serum arm of the tube by simply tilting it toward that side. It is next placed in an oven and heated to 56 C. (132.8 F.) for thirty minutes, according to the Swift and Ellis technic. The serum is diluted with normal saline solution which has been placed in the graduated serum arm of the large tube before placing it in the sterilizer. The exact amount will depend on the dose and dilution of the serum which it is intended to give by the intraspinal injection. This must, of course, be determined in advance. For example, if it is desired to give 12 c.c. of serum in 40 per cent. dilution (as advised by Swift and Ellis), 18 c.c. would have been used.

The rubber tube (about 18 inches long and broken at two or three places by short pieces of glass tubing to be used as observation fenestrae), which is to convey the salvarsanized serum to the spinal puncture needle is then connected to the glass tube *F'*, which is now pulled down until the upper end is flush with the inner surface of the rubber stopper. The serum is then allowed completely to fill this tube to its lower end all air being, of course, excluded, when a suitable clamp, for instance, an artery forceps, is fastened over the rubber tubing *about one inch from its lower extremity*. This free end, which will remain filled with serum, is later to be fitted over the other end of the spinal needle from which *spinal fluid is emerging*. The clamping forceps are held by an assistant with sterile rubber gloves.

I then take the spinal puncture needle, with gloved hands, introduce it into the spinal canal, through skin previously painted with tincture of iodine, withdraw from 5 to 20 c.c. of spinal fluid, which is, of course, retained for laboratory study, and, while the spinal fluid is still flowing, connect the needle with the end of the rubber tube filled with salvarsanized serum.

The apparatus, held by another assistant, is then elevated. The serum usually flows in readily by gravity, but, if it does not, a pressure-bulb is connected with the small tube in the opposite arm and air pumped in through the air-filter, *H*, sufficient to produce any desired degree of pressure.

An aseptic gauze dressing over the puncture wound completes the procedure.



Apparatus for autoserosalvarsan treatment.

be negligible in the blood with its ample protective resources. Without further preliminary discussion, the technic will now be described.

The apparatus consists of an inverted U-shaped glass tube, $1\frac{1}{2}$ inches in diameter, each arm being about 5 inches long. One arm of this tube, *A*, is for the reception of the blood, the other, *B*, for the serum after its separation. The latter is graduated. The rubber stoppers *C*, *C'*, in each arm of the tube are held in place by metal plates, *D* and *D'*, passing across them, and fastened in their turn by fine copper wire to projecting glass hooks, *E*, on the sides of the tube. Through centrally placed perforations in the rubber stoppers and metal plates pass small pieces of glass tubing, *F*, and *F'*, which extend about 3 inches into each arm of the tube. To the small tube *F'*, projecting into the serum arm of the large tube, is connected a vacuum pump *G*, and to the other a needle suitable for puncturing a vein and collecting the blood. At *H* is interposed a small glass bulb containing cotton to filter the air which might be forced into the large tube if the vacuum pump failed to work properly. This out-

Repeated use of this apparatus has failed to show any defect from the points of view of asepsis, simplicity, cheapness,² or convenience. The rubber stoppers alone have to be frequently replaced to avoid leakage, which will occur as a result of repeated sterilizations by heat. With the use of aseptic gloves, the only possibility of serum contamination would be in puncturing the iodinated skin over vein or lumbar spine. If germs can be picked up by a needle in passing through iodinated skin, assuming this to be the best method, then a perfectly aseptic technic is, of course, unattainable. Such dangers are so remote that they can well be ignored in carrying out so effective a method of attack against a fatal disease, relatively immune against all other procedures.

II. TIME OF WITHDRAWAL OF BLOOD

According to the technic of Swift and Ellis, the blood is withdrawn one hour after the intravenous injection of neosalvarsan. If the purpose of the treatment is, either in whole or in part, the introduction of neosalvarsan into the spinal canal, such a delay appears objectionable, unless demanded by other considerations. Wechselsmann³ says that the Abelin reaction for salvarsan disappears in some cases in one hour. The amount of salvarsan in the blood undoubtedly diminishes rapidly from the moment of its injection. Of this fact, which could have been predicted confidently on purely biologic ground, I have fully satisfied myself by testing the blood at different intervals after the injection of the neosalvarsan.

In regard to the intraspinal dosage of neosalvarsan by the Swift and Ellis technic, what are the facts so far as these can be predicated? A full conventional intravenous dose of neosalvarsan contains 900 mg. The average human body is said by physiologists to contain about 3,000 c.c. of blood. A very simple calculation will show us that if this entire quantity of neosalvarsan is evenly distributed in the blood, each 12 c.c. of serum (the amount advised by Swift and Ellis) cannot contain more than $\frac{1}{250}$ of the entire dose, or 3.75 mg. Of course, in a very few minutes it will be much less, and continue to diminish until at the end of one hour it may not be detectable by the most delicate test.

In an effort to increase the intraspinal dose of neosalvarsan, I have gradually and cautiously shortened the time until now the usual routine is about twenty minutes after the completion of the intravenous injection. In order to secure more rapid uniform diffusion through the circulating blood, the neosalvarsan is injected very slowly, over a period of seven or eight minutes—the approximate time for the complete circulation of the blood. This insures a preliminary mechanical mixture or a general distribution throughout the blood mass, which would not occur if it were injected in one or two minutes. In fifteen or twenty minutes from the completion of the injection, I believe that uniform diffusion may be confidently assumed, and, as any one can easily satisfy himself by the Abelin test, the quantity of neosalvarsan in the blood at this time is several times greater than at the end of an hour.

There has not been, so far as I can determine, any more pain following the intraspinal injection of serum

obtained in twenty minutes than with that obtained one hour after the intravenous injection of neosalvarsan. As a general rule, there is no pain of consequence following the intraspinal injection. Occasionally, immediately or even after from six to ten hours moderately severe pain may rather suddenly develop in back and limbs, lasting several hours. There has been no increase in the incidence or severity of this pain since shortening the interval between the intravenous injection and the bleeding.

Much of its therapeutic efficacy, however, may be attributed to the serum *per se* independently of its salvarsan content; the latter is after all the known specific spirocheticide, and I cannot avoid the conclusion that an intraspinal dose of serum containing perhaps between 2 and 3 mg. of neosalvarsan offers more therapeutic promise than one from which it has so completely disappeared as to be no longer demonstrable. I have, therefore, adopted, and advise a twenty-minute interval as above outlined.

III. DOSAGE AND DILUTION OF THE SALVARSANIZED SERUM

With a view of increasing, if possible, the intraspinal dosage and, therefore, the therapeutic efficiency of the salvarsanized serum, I have, again very cautiously, lowered the dilution until in a few cases undiluted serum was used. We found in the laboratory that the undiluted serum, which has a specific gravity of about 1.035, would rapidly settle to the bottom of a test-tube containing spinal fluid, which has a specific gravity of about 1.012. The rate of fall was almost exactly 1 cm. per second. Moreover, it tends to remain at the bottom of the tube a long time, diffusing through the spinal fluid very slowly. This might be imitated to some extent in the lower segment of the dural pouch, and might obviously be objectionable. In from 60 to 80 per cent. dilution, however, diffusion readily occurs. I do not, therefore, use and would not advise lower dilution.

I usually begin with about 15 c.c. of serum made into 50 per cent. dilution. If thought necessary in subsequent treatments, the quantity of serum is increased by varying the dilution without increasing the bulk of the injection. In some cases the original dose is not modified. In obstinate cases this can be done without any untoward effect so far as I can determine in the way of pain or other reaction and, obviously, offers a means of intensifying the therapeutic effect without increasing the bulk of the injection. Just to what extent this is desirable or justifiable is a question of clinical judgment in the individual case.

While it is not my intention, as stated above, to make a further detailed clinical report just at this time, a few words of comment may perhaps be added.

The necessity for and rationale of the treatment, as well as therapeutic results entirely unattainable by other known methods, are receiving additional confirmation with the passing months. One of the most interesting side-lights is contained in a recent contribution by Flexner and Amoss.⁴ The experiments there cited, which consist of the intravenous injection of poliomyelitic cerebrospinal fluid, "afford valuable support," to quote the language of the authors, "to the hypothesis that infection of the nervous organs in

2. This entire outfit costs about \$5. The vacuum pump is a staple in the market at \$2. The U tubes can be made by any glass-blower for \$2 or \$3.

3. Wechselsmann: Salvarsan Fatalities.

4. Flexner, Simon, and Amoss, Harold L.: Penetration of the Virus of Poliomyelitis from the Blood into the Cerebrospinal Fluid, *Jour. Exper. Med.*, April 1, 1914, p. 411.

man occurs through the mediation of the cerebrospinal fluid." To accomplish this transfer (that is, from blood to cerebrospinal fluid), time is required, *since the barrier of the choroid plexus must first be overcome*. At the expiration of forty-eight hours following the intravenous inoculation, the barrier appears still to be intact; at the expiration of seventy-two hours the passage of the virus seems to have begun, since infection of mild type followed the inoculation of the cerebrospinal fluid removed at this period. At the expiration of ninety-six hours, it appears that the barrier had broken down; and it also appears that under the pathologic conditions created, the virus, in quantity sufficient to cause infection, still persisted in this fluid as late as the nineteenth day, although no longer detectable in the blood by the inoculation test. I have several times found clinically what may, I think, be regarded as an analogous condition in *untreated* syphilis. The infection as determined by the Wassermann test had disappeared from the blood, but was still present in the spinal fluid. Such a condition is, of course, common in cases treated through the bloodstream alone.

The modification of the spinal fluid Wassermann test during the progress of these treatments is extremely interesting and variable. It does not always proceed *pari passu* with clinical improvement. For instance, in one of my cases⁵ under the care of Dr. Walter Domer of Wabash, Ind., the patient suffering from advanced tabes with great emaciation, complete urinary incontinence, both day and night, insanity of a very marked type requiring constant supervision and frequent restraint, etc., has gained 43 pounds in weight, *has regained control of the bladder during the day*, though he still has nocturnal incontinence, and has so completely recovered his normal mentality that he has resumed his usual occupation. The cerebrospinal fluid Wassermann, however, still remains positive, after eight intraspinal treatments.

In another case of advanced tabes with rapidly progressing disability, the spinal fluid Wassermann was practically negative after two treatments, although no clinical improvement could be noted. Sufficient time perhaps had not elapsed. On the other hand, degenerative changes in the nerve elements may proceed for a time even though the infection has been overcome; and in any event the restitution of these degenerated elements must for the present be considered entirely problematical. A great deal more time must elapse before we shall "get our bearings."

If the evidence thus far at hand, still further strengthened by these experiments, supports the assumption that "infection of the nervous organs in man occurs through the mediation of the cerebrospinal fluid," then obviously the most rational mode of attack, if practical, is through this same "mediation." It is equally obvious that the "lumbar route" offers at once the only safe and available method. That it is practical and therapeutically potential has been shown by the work of the Rockefeller Institute and the clinicians who have been guided by their researches.

The direct injection of a 6 per cent. solution of neosalvarsan into the spinal canal, which is practiced by Dr. Ravaut at Paris and to which attention has been

recently called by Wile,⁶ does not appear to me to offer the same advantages as the Swift and Ellis technic. The latter observers have warned us of the actual danger in the use of these injections, their warning being based on experimental work with monkeys. This warning should not pass unheeded. Aside from this, however, the practical simultaneous use of the intravenous and intraspinal injections offers a combined attack on the blood and lymphatic side of the infection at every point. Then again the serum introduced into the spinal fluid may readily be assumed to contain important antibodies which may play a large rôle in the therapeutic result. This is especially plausible, because it is quite in line with the well-known facts in regard to the relative amount of antibodies in these two fluids. If it can be demonstrated that the Ravaut method is safe, it might be used to supplement the Swift and Ellis method and avoid too frequent and too intensive intravenous dosage with neosalvarsan.

I wish to express my indebtedness to my clinical assistant, Dr. Miles F. Porter, Jr., for his aid in this work.

CHRONIC DEMENTIA, CEREBELLAR ATAXIA, AND EPILEPTIFORM CONVULSIONS IN A BOY CAUSED BY PTOMAIN POISONING FROM EATING CANNED SALMON *

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We know little about the direct immediate cause of dementia save in cases associated with visible disease of the cerebral arteries, paresis and senile dementia. Dementia in children has been largely neglected. Persons who are born defective or who become so in childhood we are too prone to classify as idiots or imbeciles and then, so far as study goes, forget. Many of the latter are really suffering from a dementia resulting from an acute acquired insanity. In every asylum for the feeble-minded there are a large number of patients the cause of whose mental illness is unknown, and who, in accordance with the severity of the mental defect, are classed as idiots or imbeciles; those bereft of reason being called idiots, those having some mental power, imbeciles of higher or lower grade. It would be better, as has been suggested by European writers, to use the word "idiot" to include those persons who are suffering from the results of intra-uterine physical disease or accident at birth or illness soon after, without regard to the amount of mental defect resulting, instead of following the present classification, which is purely arbitrary and based on the amount of mental defect no matter what the cause. Under such a classification, the word "imbecile" would mean any person who, on account of inherent weakness, and not from physical disease or trauma early in life, for instance, scarlet fever or serious concussion of the brain, ceases at any time to develop mentally and then retrograde. Such children

5. Case 4 in my previous paper (Footnote 1).

6. Wile, Udo J.: The Technic of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System, THE JOURNAL A. M. A. April 11, 1914, p. 1165.

* Read at the meeting of the Philadelphia Psychiatric Society, May 1914.

differ qualitatively as well as quantitatively from idiots. Of course, there must be some underlying physical defect in them, but it is part of their inherent nature and not the result of accident or acquired disease. The cause probably is often outside the brain itself. Hypothetically, the condition may be explained by abiotrophy, a term introduced by Gowers to explain certain muscular dystrophies in which he assumes an inherent weakness of the muscle-cells which causes them to degenerate under the ordinary stress and strain of life without the increased strain of illness, trauma, or severe emotion. It is possible that this inherent, congenital weakness may occur in the brain-cells in certain persons and result in imbecility. It is a matter of indifference whether the abiotrophy is so great as to prevent any mental development or only sufficient to cause a breakdown later. Another possible explanation is a disorder of one or another of the ductless glands, or a disturbance of the balance between them. Our knowledge of the function of these glands is, however, so fragmentary that it is dangerous to attempt to draw any general conclusions. That disease of one of them may lead to very serious mental trouble is shown in cretinism, which, as is well known, is due to disease of the thyroid. The curious mental state, not very infrequent in Graves' disease, may also be due to thyroid disorder. The hebétude, or at least, if that be too strong a term, the extreme mental slowness, present in almost every case of acromegaly may be either directly caused by disturbance in the function of the pituitary gland or due to the mere mechanical effect of pressure of a tumor of the brain. Our knowledge of the functions and diseases of the ductless glands is still very hazy, but it may, in the future, be proved that the disorder in their functions accounts for some of those people who break mentally in childhood without external cause and without visible cerebral lesion. A very striking difference between idiocy and imbecility, as here defined, is the fact—and I am convinced that it is a fact—that heredity plays relatively little part in the former (idiocy), and a very large part in the latter (imbecility). I have seen many idiots in whose family history I could discover no mental taint. Thus all three children in one family were idiots, not from heredity, but from injury at birth, due to pelvic deformity in the mother. Congenital syphilis, which is not hereditary in the proper sense of the word, also causes idiocy. Almost every imbecile, on the contrary, whose ancestral history I know, came from a family showing a vicious mental strain, either insanity itself, hysteria, epilepsy, extreme eccentricity, or alcoholism, which is itself more often a sign than a cause of illness. By "strain" I do not mean the sporadic occurrence of any of the above-named states in a family, but the repeated appearance of one or several in a family generation after generation.

Whatever may be the cause of imbecility, there is still another class of patients, though in the asylums these are frequently classed together in one group, because the final picture is the same. They are the juvenile demented: people who in childhood present no abnormalities, either mental or physical, and who may have a fairly good ancestral history, but who, after some acute disease, or even in its absence, become demented. The dementia may follow any of the acute infectious fevers—scarlet fever, pneumonia, influenza—just as it may follow infection in adults, or may

come on idiopathically. I am inclined to believe that the number of juvenile demented is very large and that true imbecility is less frequent, but it is almost impossible to get correct histories from families who, several years after the illness has begun, send their children to institutions, and for this reason statistics are very faulty.

I shall relate in this paper the history of a boy patient whose dementia is due to a very rare cause, namely, food poisoning. Medical literature is full of detailed accounts of the acute mental symptoms of ptomain poisoning, but I have found no description of chronic cases.

Family History.—There was nothing very striking in the patient's family history except that his father was one of those men who are continuously and uninterruptedly unsuccessful. He was industrious and honest, religious in a sane way, very temperate, but he could never find his niche in the world. Wanting to be thrifty, he was always thriftless and the responsibility of caring for the family rested largely on his wife—a state of affairs which, to reactionaries and conservatives, points toward mental insufficiency on the man's part. This, however, was the only black spot in his character, and to moderns and the disciples of feminism it would look only a very light pearl gray, pretty rather than hideous.

Present Illness.—The boy himself was an ordinary boy, neither good nor bad, neither brilliant nor dull. He was one of five children and had never had any serious illness until he was 14 years old, when the present illness began. Oct. 24, 1909, while at boarding school, he, along with twenty other boys, ate canned salmon. All, in a few hours, became very ill with symptoms of fish poisoning and, several (I think three but I am not sure of the exact number) died. My patient survived but was bed-ridden for some time. Indeed, he had a fever continuing several months. During this time he had a transient hemiplegia, several general convulsions and bed-sores. At times he was delirious. One of the most striking incidents was that, beginning about eighteen months after the onset of his illness, his usually dull and stupid state was occasionally replaced suddenly by an acute delirium lasting from two days to two weeks. He never had any recollection of these delirious attacks. He also continued to have occasional convulsions about once a month though sometimes the interval between was longer. Frequently an attack of delirium followed, but according to the history either might occur independently of the other.

Examination.—My own first examination was made on April 3, 1911, a few days after the beginning of one of the attacks of delirium. I found the patient in bed, ill nourished and with a skin of the dirty yellow-white of half-dried flour-paste. He rambled continuously in his talk, his mind dwelling on love and religion. At times he was profane and obscene. He answered two or three questions as to his name and dwelling-place but beyond that paid no attention to what was said to him. He had no realization of his condition, nor whereabouts. He was foolishly happy, not violent but restless, tried to get out of bed but merely putting a hand on his shoulder caused him, for the time, to cease his efforts. There was no palsy in any part but his gait was very ataxic—a true cerebellar ataxia. In bed he moved his legs well. His knee-jerks were normal. There were two large scars of old bed-sores on the sacrum. He paid no attention to his bladder or rectum. He drank his milk (he was on a milk diet) voraciously but never asked for food. The transient hemiplegia mentioned in the history had passed away entirely and left no marks of its presence.

Course.—He continued in the hospital till June 27, 1911, when I sent him to a suburban rest-house. While in the hospital he had a number of fleeting visual and auditory hallucinations. For the most part they were really illusions—the false interpretation of things seen or sounds heard. Some, however, seemed to be true hallucinations—to have their origin within himself and not externally. He improved quite a little

by June and presented the picture of a dementia plus cerebellar ataxia. His gait was made somewhat curious by the fact that, having been a student in a military academy in the South, he seemed to have exaggerated the stiffness of the military attitude so that his gait was a mixture of strut and ataxia. On turning he tended to fall but always recovered himself. He stood with the feet wide apart. His station was not bad and was not made more unstable by closing the eyes. There was a little ataxia in the hands. The knee-jerks were very much increased. There was good control of the bladder and rectum. Articulation was good. The patient had no recollection of having seen me before though I had visited him a dozen times, the last visit having been three weeks before. He had no delusions or hallucinations. He understood simple conversation and answered intelligently, but his mental development, that is, his power of reasoning, so far as we can measure abnormal states with the yardstick of normality, was about that of a 9-year-old boy. He was contented, happy and well-mannered.

On July 6, 1911, the patient walked a little better but was still very ataxic. It was very difficult for him to turn without falling. The knee-jerks were normal. There was no ataxia in the hands. He understood what was said to him and answered questions responsively. His memory for recent events was very poor. He could tell accurately about events of his childhood but he had no recollection of having been seriously ill. He remembered vaguely that while at school he had had some sort of an illness but remembered nothing of its nature; indeed, I am not sure whether he really remembered being ill or only remembered being told that he had been so. He had no recollection of having been brought to Philadelphia from a Southern city, some months before, and did not remember anything about being in the hospital or about being sent to the country. He thought he had seen me somewhere but was not sure. He was happy, good-natured and easy to control but rather silly. He cared neither to read nor to be read to. He ate and slept well.

By Aug. 24, 1911, the patient's speech had become slow and drawling. His memory was a little better. When he went to the country he had forgotten how to use a knife, fork and spoon, and frequently even tried to eat soup with a fork. Meal after meal he had to relearn experimentally how to use table-ware. It took him several weeks to learn where his bedroom was and how to go to it from down stairs. These symptoms had passed off by now.

By Sept. 27, 1911, he began to have attacks of headache, at times so severe as to send him to bed. He also was occasionally nauseated but never vomited. His knee-jerks were again increased. He never complained of vertigo.

Oct. 15, 1911, his memory for the geography of the house again became very bad. He knew it was a house, that he was living there, that there were people there to care for him. He recognized the people and remembered their names, but he could not remember how to go from any room on one floor to any room on another. He recognized his own bedroom when within it but when in the hall could not recall which of several doors opened into it. This loss of geographic sense was not confined to the inside of the house. He was lost as soon as he was out of sight of it. This cannot be explained by a dement's mere inability to fix attention and a consequent absence of memory, because by now he remembered people seen and things told him fairly well and, therefore must have had some real power of fixing his attention. He could remember a short story for children.

Between Nov. 18, 1911 and March 4, 1912, he had two general convulsions and five attacks of unconsciousness, lasting from one to several hours, without a preceding visible convulsion. During these attacks of unconsciousness he sat inert, gazing into space and could not be roused. He recovered consciousness slowly and then usually complained of headache. In addition to the convulsions he had many attacks of minor epilepsy. I am inclined to believe that the long periods of unconsciousness really followed attacks of petit mal.

In February, 1912, the patient began to grow in height very rapidly. Previously there had been no growth since coming to Philadelphia. Anatomic sexual development was normal but he was functionally apparently inert. His growth continued during his stay North and has not ceased since his return home.

Examination of Eyes.—Dr. H. Maxwell Langdon examined the eyes in October, 1911, and reported: "Vision in the right eye 6/8, vision in the left eye 6/10. Pupils equal and normal, ocular rotations full and equal, no diplopia. At the limit of lateral excursion there develops a fine tire nystagmus. The media are clear, the disks very pale, with sharply defined margins. No other fundus lesion. The visual fields go well with the atrophic nerves except for the homonymous cut in the upper left field, which strongly suggests a lesion posterior to the chiasm, either an organic exudate or hemorrhage. The optic atrophy is apparently a primary affair—I mean, has not followed an optic neuritis; it may have descended from a lesion higher up in the optic tracts."

Immediately before the patient returned to his home, in the early summer of 1912, his condition was the following: Marked cerebellar gait. Knee-jerks marked. No ataxia in arms. No palsy in arms or legs. Speech slow and drawling. Memory for passing events much improved but still poor. Power of attention poor. Read a little. Wrote short and childish but coherent letters. Liked to play with children. Polite in manner. Disposition good. Geographic sense recovered. He continued rarely to have severe general convulsions and quite often minor attacks, but his attacks of long lasting unconsciousness ceased to occur several months before leaving Philadelphia.

When I last heard of the patient a few months ago he was somewhat better. He cared more for reading and read more mature books. He talked less like a child. His ataxia continued. He undoubtedly was quite demented, though to his mother's eyes he had improved greatly.

The case has many points of interest. First, as to the naming of the mental condition. Should we call the boy an imbecile or a dement? In view of his history, he is of course a dement, but if he were to be seen now by one who knew nothing of his past, I think he would be classed as a rather high-grade imbecile with some intercurrent organic nervous disease. There is no way to tell, from a mere examination of a boy free from physical defect, whether he is one or the other. Yet for scientific purposes it is important to keep apart children who break from inherent weakness and those who require a serious stress to overthrow their mentality.

I have been unable to find any case with a similar cause in the literature. I do not say others have not been reported, because my experience has been that as soon as one claims uniqueness in a patient in principle similar cases, previously hidden in obscure journals or forgotten proceedings of societies, come to light. It must, however, be extremely rare, as its possibility is not even mentioned in the text-books. A rather large number of cases of acute delirium from food poisoning are recorded, but the patients either died or soon recovered. That salmon poisoning was the cause in this case there is no doubt. The history proves it. The only possibility of error would be the simultaneous occurrence of two illnesses, the poisoning plus, say, cerebral syphilis. The latter, however, can positive be excluded.

The combination with dementia of physical symptoms referable to the cerebrospinal axis and surely due to gross organic disease is, in persons so young, very rare. In many ways the case clinically resembles juvenile paresis. The dementia, the drawling speech, the silly happiness, without, however, any distinct

delusion of grandeur, the ataxia, the (for a time) increased knee-jerks, the epileptiform convulsions, all make the picture of paresis. The factors in the case against its being paresis are the absence of congenital syphilis (every case of juvenile paresis I have ever read of or seen occurred in youths with a history of parental syphilis), the very rapid onset, and the seemingly permanent improvement coming on slowly and extending over a length of time greater than that of a remission in paresis. This partial cure I emphasize because I cannot conceive, in the present state of therapeutics, of even a partial permanent cure of true paresis. I do not think that the absence of syphilis is of so much importance, because I can well believe that some other intoxication might affect the brain precisely as syphilis does. The case in no way looks like dementia praecox unless that much-abused term is to include all kinds of insanity that attack the young.

The patient's isolated loss of memory for places was most unusual. At a time when his memory for faces was fairly good and when he could remember things told him quite well, he could not learn the geography of the house and surrounding fields. Of course, it requires more fixity of attention to learn a house than it does to listen and fix in memory a thing said, but it seems to me that lack of attention does not explain the condition. The patient seemed to have a local memory loss comparable to amnesia for words.

That there is a real organic lesion present I think is sure. I fancy the patient has a pretty wide-spread cortical lesion affecting most markedly the intellectual centers and the cerebellum and probably primarily attacking the nerve cells rather than the arteries. The long continuance of the illness, together with the character of the symptoms, is against a merely functional disorder and the optic atrophy is positive evidence of organic disease. I think we may assume that the optic atrophy is a visible sign of similar changes in the brain itself.

1918 Spruce Street.

PREGNANCY AND LABOR COMPLICATED BY CARCINOMA OF THE CERVIX UTERI

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Cancer complicating pregnancy and labor is of such rarity and the calamity of such a complication is so grave that it excites the deepest interest and attention.

De Lee and Hirst, each quoting the statistics of Sarwey and Kerr cite twenty-six cases occurring in fifty-seven thousand pregnancies, or approximately once in every two thousand pregnancies. This ratio is accepted by Edgar, Williams, Ashton and others. De Lee also cites a series of fifteen thousand consecutive maternity cases occurring in the Chicago Lying-In Hospital with only one case of cancer of the uterus arising as a complication. Since these patients were of the usual social standing of the average private practice he thinks this is a fair estimation for such an occurrence in private practice. It is evident by referring to the statements of such standard authors that the condition is more often seen in the cases in the

charity wards than in private practice. It is noteworthy that in America this condition is more frequently found among the immigrant strata and among negroes than among American-born white persons. The relatively small number of such cases is evident when men of large experience in the city hospitals have never seen a case.

On account of the environment but little information can be obtained regarding the course of pregnancy, especially during the early months. It is evident, however, that the advent of pregnancy greatly favors the inroads of cancer, when they coexist; during gestation and the puerperium the progress of cancer is astonishingly rapid, especially in the latter period. Because of the influence of pregnancy an enormous increase in the blood-supply of the uterus occurs, inviting rapid infiltration and metastasis, while during the puerperium rapid necrosis takes place.

It is impossible to accurately estimate the death-rate in this condition, but it is believed to be nearly 100 per cent.; a cure being a most unusual triumph. Edgar, in discussing this subject, says that in 15 per cent. of such cases miscarriage occurs before the period of viability, and that in 33 per cent. of the remainder the children die during labor or shortly afterward.

The course of labor in the cases complicated with carcinoma of the cervix is attended with grave danger. If left to the natural course, death from hemorrhage of the friable but resisting lower uterine segment is very probable. The anemia, as well as the uterine infiltration, greatly predisposes the patient to general and local inertia; ultimately death ensues from shock, hemorrhage and sepsis. The course of labor is prolonged, often continuing several days; it is ineffectual in its mechanism, owing to the undilatable cervix and inefficient pains; it often terminates in the rupture of the uterus or maternal death from shock while still undelivered.

When there is a bare possibility of effecting a cure of the cancerous condition complete hysterectomy should be done as early as possible. The interests of the mother are to be considered whenever there is a reasonable hope that a cure may be effected and the Wertheim operation performed, regardless of the stage of gestation. Should the case be hopeless, so far as the interests of the mother are concerned, the welfare of the child is to be made paramount and an attempt made to reach the latest period in the course of pregnancy. This position is the consensus of opinion of both operators and authors.

At the end of the gestation period abdominal cesarean section with complete hysterectomy is the most popular treatment when it is hoped that both mother and child may be saved. In the cases in which the mother is beyond help abdominal cesarean section followed by complete hysterectomy when possible, or extraperitoneal treatment of the cervical stump after the amputation of the uterine body seems to be the most popular view at present. Ashton advises the amputation of the uterine body above the cervix in such cases and closes as in supravaginal hysterectomy for the purpose of closing off the cancerous mass. Dührssen recommends vaginal cesarean section, saying that it can be done as late as full term, delivery being followed by complete hysterectomy by the vaginal route.

It would seem that the control of hemorrhage, sepsis and shock would be more perfect by abdominal

cesarean section and the chances of the infant greatly increased, while by natural birth or operative delivery by the birth-canal both mother and child would be more exposed to danger.

REPORT OF CASE

Mrs. I. D., a well-nourished Italian woman aged 34, housewife. Family and previous histories negative.

Genital History.—Menstruation began at 14 years and until what seemed to be the beginning of the present illness was always regular in time, quantity and duration. Menstruation was slightly painful, periods lasting from three to four days and were moderate in amount. Patient married in 1903. Since that time there have been four pregnancies to the present illness, all terminating normally at full term; no miscarriages.

Present Illness.—This patient was first seen by me in consultation with Dr. Mary Holmes on April 22, 1913. She then complained of severe aching pain in both tubo-ovarian regions. For a period of two months there had been loss of flesh and strength with continual headache and backache. There had been urinary tenesmus, dark, bloody, foul-smelling vaginal discharge extending over a period of three months. At various times she had lost considerable blood from the vagina.

Examination.—Chest normal, abdomen enlarged symmetrically, showing presence of old and new striae. Fetal parts and fetal heart-sounds were easily made out, the heart beating at the rate of 120 beats per minute. The position was left occipito-anterior. Fetal motion was perceived. The infant was vigorous and had apparently reached the sixth month of gestation. Vaginal examination at that time revealed foul-smelling bloody, purulent discharge. The cervix was large, elongated, hard, nodular and bled very freely when touched. A portion was examined microscopically and found to be carcinomatous. It was also evident that the case was one of advanced carcinoma, since there was fixation of the uterus and vaginal infiltration. So far as a radical cure was concerned the case was hopeless. The blood-pressure was found to be 100 mg. and the hemoglobin estimated at 80 per cent.

The diagnosis of cancer and pregnancy was made and the interests of the infant made paramount. Every effort was made to forestall premature labor in the hope that cesarean section would deliver a living child if an advanced stage of pregnancy could be reached.

The patient was put to bed, given morphin liberally, encouraged to take nourishing food and given salt solution by the bowel daily. On June 12, 1913, labor ensued at approximately the thirty-second week of pregnancy and after a few hours the patient was exhausted by the pains and shock. Since no progress had been made in dilating the cervix cesarean section was advised and performed as soon as the patient could be transferred to the Columbia Hospital for Women. At the beginning of the anesthesia the baby's heart could be faintly heard, but in spite of rapid delivery it was still born, much to our regret.

Amputation of the uterus above the cancerous mass involving the cervix was done and it was planned to treat the cervical stump extraperitoneally. It was possible to do this, since the cervix could not be lifted out of the pelvis and could not be attached, so great was the infiltration and necrosis of the tissues. Closure in the usual method, as in supra-vaginal hysterectomy, was made after the cervical stump was thoroughly painted with full strength tincture of iodine. There was little hemorrhage, the abdomen was closed without drainage and there was no sepsis or wound infection.

Most extensive evacuation of the vaginal vault followed in spite of actual cautery with the angiotribe. The patient died six weeks after operation. She was out of bed but her failure in general ways was excessively rapid.

I believe that such cases can be safely closed by removing the body above the cancerous mass, thus doing away with the uterus that invites further exten-

sion and contamination. It is possible in this way to close off the necrotic cervical stump with pelvic peritoneum as in ordinary incomplete hysterectomy. By operating as soon as labor was evident, before shock had occurred and the patient thus exhausted, it is possible that this baby could have been saved; since it had always been vigorous until the day of operation. Abdominal cesarean section evidently was the only possible means of delivering this infant alive.

I am grateful to Dr. I. S. Stone for his advice and also to Dr. Mary Holmes for the courtesy in allowing me to see this patient.

The Burlington.

PARAFFIN CANCER

COAL AND PETROLEUM PRODUCTS AS CAUSES OF CHRONIC IRRITATION AND CANCER *

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It is customary to include in any summary of the causes of cancer the blanket term "chronic irritation." Prominent under this heading are the inflammations peculiar to the influence of tar, paraffin, anilin, tobacco and soot; lupus vulgaris (a small proportion) and other types of cutaneous tuberculosis; ulcerating syphilis, rarely; irritated warts and pigmented moles; cicatrices, especially from burns or chronic leg-ulcer; circumscribed keratoses — cutaneous horns — callosities palmar and plantar arsenical lesions; leukoplakia buccalis and lesions in the neighborhood of jagged teeth senile keratomas.¹ Hyde² mentions exposure to sunlight, while the almost mathematical certainty with which cancer may be induced by the Roentgen ray has become a matter of common knowledge.

The dermatitis resulting from paraffin irritation was first discussed at length by Volkmann,³ who distinguishes an acute and a chronic stage. The acute stage expresses itself in various eruptions that are at times acneiform and at other times exhibit broader papules. In other cases there are severely inflamed, partly confluent nodules and boils. But few workers in the fluid products in the manufacture of paraffin escape this condition. The acute stage lasts several months, and then the skin becomes accustomed to the contact of the aforesaid material so that the severely inflamed moist and itching skin-changes no longer develop. Instead there now develops an increased formation of epidermis with an exaggerated secretion of the glands. The papules, boils and nodules shrink and form flattened, psoriasis-like spots with here and there rust-colored pigment spots. They may likewise leave behind whitish scars. The skin becomes dry, parchment-like or scaly and fissured. The hyperplastic epidermis cells lead to the formation of either circumscribed or more diffuse horny thickening. Mixed with a lesser or greater amount of sebaceous secretion, they form seborrheic plaques and crusts. Volkmann compares their appearance with hardened wax drops. When abundant they may present a resemblance

* From the Surgical Clinic of Dr. Arthur Dean Bevan, Rush Medical College.

1. Hartzell: Jour. Cutan. Dis., 1903, xxi, 393.

2. Hyde: Am. Jour. Med. Sc., 1906, cxxxi, 1.

3. Volkmann: Samml. klin. Vortr. (Volkmann's), 1875, i, 370.

ichthyosis. The skin affection has been called "tar itch" by workers in this material. With the further development of the disease there develop multiple warty growths which later singly or in numbers degenerate into carcinomas. This final stage is described by Volkmann as follows:

As a result of individual predisposition and particularly deficient cleanliness, the process, which previously has been a hyperplastic epidermic growth and sebaceous secretion, now develops into multiple, warty or papillary formations, some of which degenerate into cancer. In some cases the sebaceous crusts described above exhibit almost a horn-like consistency. The chief seat of these hyperplasias are the exposed forearms and the scrotum. In an old workman Volkmann counted fifteen such warty growths with thick crusts on the dark-brown spotted and fissured forearm, and three on the scrotum. This picture of warty growths completely suggests the "verruca cancerosa" of the aged.

Schamberg⁴ tabulated the reported cases of cancer in tar and paraffin workers up to 1910 and remarked on their frequent tendency to undergo spontaneous involution. Many of the lesions ulcerate and destroy themselves. Of 27 cases described occurring among 18 paraffin workers, 6 workers in fluid tar and 3 employees in coal briquet factories, the lesions were on the scrotum exclusively in 8; on the scrotum and thighs in 3; on the scrotum and arms, hands, legs or face in 7; in 9 the scrotum was not involved, the lesions being distributed on the arms and hands in 7, on the face in 1, and on the face, back, arms and hands in 1. In 13 the lesions were multiple and so situated as to render auto-inoculation, or growth by metastases, as an explanation of this multiplicity, unlikely. There were 7 deaths reported, 2 due to recurrences after operation and 4 recoveries. The final outcome in the remaining 16 was not stated. Metastases occurred late in the disease and were usually lymphatic.

The source of the tar seems to be of great importance from the point of view of its power to damage the skin of workmen. In Great Britain "gas-works tar" as a rule produces dermatitis with the accompanying danger of malignant degeneration, while "blast-furnace tar" does not.⁵ One explanation of this difference, experimental demonstration of which has been offered, is that "gas-works tar" contains substances which are capable of inducing cell division *in vitro*, and of causing the production of tumor-like masses in experimental animals, while "blast-furnace tar" does not. Pure paraffin apparently is not concerned in the production of cutaneous abnormalities, but the irritating substances seem to be present in crude paraffin as bodies having possibly an amidin ($N-C\equiv N$) nucleus, and associated particularly with compounds of the anthracene group. The greater portion of them are separated from paraffin probably with the thick, heavy oil analogous to the "pressed distillate" to be described later.

Study of the case which I wish to report through the courtesy of Dr. Arthur Dean Bevan reveals the following facts:

History.—The patient, A. P., man, aged 52, married, Hungarian, a laborer, entered the Presbyterian Hospital on the

service of Dr. Bevan in March, 1913, at which time the following notes were made:

"A. P. is the oldest of thirty-two employees in the paraffin-refining department of a large oil-refining company located near Chicago. He states that after working in the refining department for a while all the workmen develop an eruption on the skin of that part of the arms which is immersed in the oil. The skin becomes slightly discolored, pigmented and thickened in circumscribed regions, sometimes to the extent of forming warty excrescences. One such growth on the patient's arm has been gradually increasing in size for the past two years until at present there is a cauliflower-like excrescence on his right arm just above the wrist, about the size of a silver dollar. Usually the patient has been able to abort such growths by the use of home remedies, but this one has resisted all his efforts.

"A. P. has been employed for over twenty years in the same department, longer than any one else, and only one other employee has at the present time a growth which resembles his. Except for this the patient is well.

Physical Examination.—On the posterior aspect of the right forearm just above the wrist is a round, elevated, ulcerated, cauliflower-like growth. It is not painful or tender, and is about the size of a silver dollar. The skin of both forearms is slightly pigmented and is curiously mottled with regions that are brownish in color, slightly elevated, some-



Appearance of gross lesion in paraffin cancer; note mottling of the forearm.

what rough to the touch with a tendency toward scaling, and varying in diameter up to 7 or 8 mm. There are no other abnormalities.

"A section taken from the tumor and stained presented the picture of a typical epithelioma with pearls.

Operation.—March 6, 1913, an oval incision was made about the epithelioma down to the muscles, and the tumor with the adjoining skin and fascia was removed in one piece. Thiersch grafts were used to cover the defect. The wound was dressed with gutta percha strips and gauze. The patient was discharged on the twenty-third day with wound completely healed. There was no sign of recurrence when the patient was seen six months later."

Investigation at the oil company's plant disclosed conditions about as follows:

Skin lesions attributable to their occupation were found only in the men employed in the press-rooms. Here the crude paraffin is run into great presses and the oils, "pressed distillate," expressed. The paraffin remaining in the press, so-called slack wax, is scraped off by men who use spade-like instruments and usually work bare-handed with sleeves rolled up above the elbows. During this process the workmen become pretty thoroughly smeared with the pressed distillate. The work is done at room temperature. During the first few

4. Schamberg: Jour. Cutan. Dis., 1910, xxviii, 644.

5. Ross, Cropper and Ross and Associates: Researches into Induced Cell Reproduction and Cancer, and Other Papers, 1911, i, 1912, ii, and 1913, iii; the John McFadden Researches.

months of employment in this department the majority of the workmen suffer from "wax-boils" affecting any portion of the skin, but particularly the arms and neck. The susceptibility to this trouble, which appears to be a species of furunculosis, may disappear in time to a very large extent. A certain proportion of the workmen, however, will develop still further lesions. Thus after a number of years pigmented spots make their appearance; some of these are scaling and psoriatic, others merely rust-colored areas varying in diameter from a few millimeters to a centimeter and a half; these may be followed by wart-like growths of slow development amenable to various common remedial measures; finally, true epithelioma, as in the patient A. P., may appear. These changes are seen only in those employees who come into intimate and nearly continuous contact with the "pressed distillate" for a period of years. Wax-boils and the subsequent lesions are unknown among the workers in the finished paraffin and among the men who handle the crude oil.

Inquiry at two other paraffin-refining plants, one at Cleveland and the other at Franklin, Pa., revealed conditions similar to those at Chicago, with the exception that less than 1 per cent. of the employees were said to be affected at all, and no cases of cancer had been observed. One manager says:

In this connection, however, I would state that by the present methods of handling paraffin the men do not come as much in contact with it as they did years ago by the old process. Formerly there were a great many men employed at this work who suffered considerably from wax-boils.

Another writes:

It is our general belief that if the men are perfectly clean, that is, wash themselves carefully after they finish their work, they never have any trouble.

A request for information as to the chemistry of the pressed distillate brought a reply from the chemists of the oil company, which is here quoted in part:

Very little is known of the scientific chemistry of the oils you mention. Of course, we know a great deal about how they behave in a practical way. Generally speaking, I would say that 90 per cent. of this oil is composed of completely saturated members of the paraffin series C_nH_{2n+2} . Such bodies are perfectly inert and could not be active from a physiologic standpoint. The other 10 per cent. is composed of unsaturated bodies, perhaps of the series C_nH_{2n} and they could act as irritants or in some other way be detrimental to a person's health.

Attempts to induce tumor-like lesions in animals by the use of "slack-wax" and "pressed distillate" have so far been unsuccessful.

Closely allied with the subject of tar and paraffin cancer are the cases of tobacco cancer, cancer in workers in anilin dyes, chimney-sweep's cancer and the so-called kangri-burn cancer of India.

TOBACCO CANCER

In 1850 attention was directed to tobacco cancer by Melzer,⁶ who reported on the incidence of cancer at the General Hospital at Laibach for the years 1787 to 1849, inclusive. Of the 27,800 patients treated, 433 had cancer; of these, 142 were on the lip. The patients were all in late adult life; 127 were men, 15 were women. These people were in the habit of smoking wooden, copper-sheathed pipes, with stems so short —

not over 2 inches in length — that when in use the bowl of the pipe came almost into direct contact with the lips of the smoker. Melzer felt that the connection between the use of this pipe and the cancer of the lip was obvious. Of 350 cases of cancer of the lip in which operation was performed by Sir Thornley Stokes,⁷ only three were in women, but all were assiduous smokers. These patients were peasants from the west of Ireland, and Stokes believed that their use of short clay pipes was directly associated in a causal manner with the production of their cancers.

A good deal of emphasis has been placed on the fact that cancer of the upper extremity of the digestive and respiratory tracts is predominately a disease of the male sex — the sex that is especially addicted to the use of tobacco — and that this is the location at which one might expect the lesions resulting from the use of tobacco to manifest themselves. Russell⁸ points out that the incidence of cancer of the jaw and especially of the tongue increased 228 per cent. in forty-one years, while the habit of smoking more than doubled during the same period. In Switzerland during the years 1905 to 1909, cancer of the lip was five times more frequent in men than in women; cancer of the tongue, ten times more frequent in men, and cancer of the larynx, parotid gland and pharynx seven times more frequent, while the total mortality of the two sexes from cancer was almost equal.

Leukoplakia buccalis is usually the first evidence of the harmful local effect of the use of tobacco, and conversely, excessive smoking—according to Pusey⁹—is perhaps the most important source of irritation in producing the leukoplakia. "The condition is without subjective sensation. Its importance lies in the fact that it is very frequently the site of cancerous degeneration."

The substances in tobacco which act as local irritants predisposing to cancer are probably not confined to the smoke, but also appear to be present in tobacco-juice. Von Esmarch¹⁰ in 1873 remarked that the cases he had observed of severe papillary cancer of the mucous membrane of the mouth and of the gums in youthful subjects had occurred in those who chewed tobacco, and von Langenbeck¹¹ mentioned two cases of cancer of the buccal mucous membrane, due to holding masses of tobacco against the cheek.

Tobacco is one of the important constituents of "betel-nut," which is chewed so extensively by the inhabitants of various tropical countries.¹² The betel-nut, more properly called the areca-nut, is produced by the areca palm.¹³ The nuts grow in clusters beneath the crest of the palm, in a similar manner to the cocoa-nut. Areca-nuts are very similar to large nutmegs, both in size and appearance, and, like cocoanuts, are enclosed in an outer husk of a fibrous texture. "The consumption may be imagined when it is explained that every native (of Ceylon) is perpetually chewing a mixture of this nut and betel leaf. The betel is a species of pepper, the leaf of which very much resembles that of the black pepper, but is highly aromatic and pungent. . . . To make a 'chew': Take a betel leaf, and on this spread a piece of chunam (lime made

7. Stokes: Practitioner, London, 1903, lxx, 577.

8. Russell: Preventable Cancer, 1912.

9. Pusey: The Principle and Practice of Dermatology, 1907, p. 993.

10. Von Esmarch: Quoted by Leuenberger, Footnote 16.

11. Von Langenbeck: Quoted by Leuenberger, Footnote 16.

12. Baker: Eight Years in Ceylon, London, Longmans Green & Co. 1902.

6. Melzer: Jenaische Annalen, 1850, ii, 480.

from burnt coral) as large as a pea; then cut very thin slices of areca-nut and lay them in the leaf; next, add a small piece of ginger; and lastly, a good sized piece of tobacco. Fold up this mixture in another betel leaf." Cancer of the cheek is common among these people, the lesion appearing at the point against which the betel "cud" is habitually lodged. In the hospitals of Madras during the years 1892 to 1901, inclusive, 4,270 malignant tumors were observed,⁸ constituting 2.5 per cent. of the total number of hospital cases. In nearly one-half of the cases the site of the cancer was the mouth or tongue of patients who habitually chewed "betel-nut." Dr. G. G. Davis, in a personal communication, says that he finds a high incidence of mouth cancer among Filipino betel-nut habitués. Baker¹² supposes the disease to result from the irritation of the caustic lime which the "chew" contains; but the possible importance of the other ingredients should not be forgotten.

Tobacco-smoke, according to Ludwig's¹³ analyses, contains ammonium carbonate, ammonium acetate, acetic acid, phenol (carbolic acid) and tar. Other observers have mentioned pyridin bases and empyreumatic oils. Which of these bodies is the irritant which induces leukoplakia and cancer, or whether several of them may not present the requisite irritating qualities, is beyond our ken. It is possible that phenol may be exonerated,¹⁴ but further speculation does not appear to be warranted.

ANILIN DYE CANCER

Formerly it was supposed that workers in anilin dyes were free from lesions induced by their occupation;¹⁵ but the demonstration that deaths from bladder tumors are thirty-three times as frequent among dye workers as among the population in general,¹⁶ and the experimental production of epithelioma-like tumors in man¹⁷ and in animals¹⁸ by means of a great variety of anilin derivatives and products of tissue decomposition,¹⁹ has thrown the actual relation into bold relief. The substances possessing the necessary irritative qualities resemble each other in that they are hydroxylated aromatic amido-bodies. Most of them are distinctly coal and petroleum products and, therefore, the chronic-irritation tumors which they induce belong in the tar and paraffin cancer group.

CHIMNEY-SWEEP'S CANCER

Chimney-sweep's cancer is undoubtedly due to the irritation of soot and has been regarded as a clinical entity since its description by Percival Pott²⁰ in 1775. It is a typical epithelioma, occurring as a rule on the scrotum—although arms, hands and thighs may be attacked—and running a very chronic course leading to ulceration, metastases and death if not interfered with. The disease is rarely seen except in England and seems to be associated etiologically with the kind of coal which is there used for fuel. Curling²¹ says that pit-coal, from which soot is produced, is very sparingly employed as fuel elsewhere than in England,

and Baum²² has shown that chimney-sweep's cancer was unknown in Hanover until wood was supplemented by coal for fuel.

During the years 1900, 1901 and 1902, the comparative mortality-figure⁸ for cancer among English chimney-sweeps from the ages of 26 to that of 65 was 133 as compared with 63 among occupied males at the same ages. Apparently, soot produces irritation of the skin similar to that produced by paraffin and tar, and with similar results.

KANGRI-BURN CANCER

In 1910 E. F. Neve²³ reported on the occurrence of the so-called kangri-burn cancer. Of 4,902 tumors removed by operation in the Kashmir Mission Hospital in the course of twenty-five years, Neve found that 1,720 were malignant; of these 1,189 were epitheliomatous and 484 were on the thighs or abdomen and were due apparently to the irritation of the kangri, a portable fire-basket carried by the people under their clothes.

Kangri-burn cancer is a typical squamous-celled epithelioma. In the early stages the malignancy is slight, the glands are slow to become infected and the disease is readily amenable to operation. It is demonstrably due, according to Neve, to a definite cause, namely, irritation from the constant application of heat. The preepitheliomatous skin changes resemble closely those seen in paraffin- and tar-workers. It is extremely common to find dry, scaly, pigmented spots or patches slightly raised from the surface. The skin is often mottled and pigmented, and shows the lines of distribution of superficial veins. Horny tumors are not rare, and sometimes at their base transition into epithelioma can be demonstrated. There is also a condition allied to chronic eczema in which there is redness and a tendency to desquamation. This gradually shades off into the actual formation of scar-tissue. Objection may justly be raised to Neve's dogmatic assertion that such changes are due to irritation by heat, for the skin of these patients is subjected to other causes of irritation in the soot and gaseous emanations from the fire-baskets.

SUMMARY

The similarity of the lesions following the types of chronic irritation which have been briefly described suggests the probable similarity or possible identity of the irritating agents or agent concerned. Is this factor merely the mechanical effect of the presence of minute foreign bodies—soot—on and in the skin? Probably not; and the best argument against the idea seems to be furnished by the fact that workers in blast-furnace tar escape cutaneous involvement while workers in gas-works tar usually suffer from skin lesions, and the exposure to tar or pitch-dust is the same in both cases. Can the lesions be the result of prolonged exposure to heat and repeated burns? Probably not, because this would never account for the bladder tumors of anilin-workers, and most of the labors of paraffin- and tar-workers and chimney-sweeps are carried on at room temperature or outdoors, and these men are not the victims of frequent burns. This brings us to the assumption that there is some chemical body (or bodies) resident in certain coal and petroleum products which are capable of inducing inflam-

13. Ludwig: Arch. f. klin. Chir., 1877, xx, 363.

14. Tillmanns: Ztschr. f. Chir., 1880, xiii, 519.

15. Grandhomme: Die Theer Fabriken, Heidelberg, 1883.

16. Leuenberger: Beitr. z. klin. Chir. (von Bruns), 1912, lxxx, 208.

17. Stoeber: München. med. Wchnschr., 1910, lvii, 709.

18. Fischer: München. med. Wchnschr., 1907, liv, 879.

19. Stoeber and Wachter: München. med. Wchnschr., 1910, lvii, 947.

20. Pott: Chirurgical Works, London, 1775, p. 734. (See Schamberg, Footnote 4.)

21. Curling: Die Krankheiten des Hodens, Samenstranges und Hodensackes, Deutsch von Reichmeister, Leipsic, 1845.

22. Baum: Quoted by Posner, Ztschr. f. Krebsforsch., 1903, i, 4.

23. Neve: Brit. Med. Jour., 1910, ii, 589.

matory productive reactions in tissues and eventually atypical, unrestrained proliferation of epithelial cells. In favor of this suggestion let me cite several facts.

Physicians of large experience in paraffin prosthesis demand paraffin of the very highest purity for their work, because it seems that paraffinomas, that is, inflammatory tumors which occasionally develop at the site of a paraffin injection, are especially apt to appear following the use of paraffin of inferior grade.

Epithelioma develops earlier and with greater malignancy in workers in fluid tar and paraffin than in those who are subjected merely to the dry dust and soot. This observation agrees with the generalization that substances are most active chemically when in solution.

None other than a chemical cause seems possible in relation to the bladder tumors of anilin workers, and to the betel-nut and tobacco cancers.

Ross, Cropper and Ross⁵ assert that they have demonstrated the existence of a number of chemical bodies, twenty-five or thirty, which are capable of inducing cell division *in vitro*; these bodies they term "auxetics." Auxetics have been demonstrated in gas-works tar but not in blast-furnace tar; moreover, Bayon²⁴ was able to induce atypical epithelial overgrowths in animals by the use of gas-works tar containing auxetics, while experiments with the auxetic-free blast-furnace tar resulted negatively. Ross, Cropper and Ross place certain products of tissue decomposition among the auxetics and suggest that the latter may be responsible for the proliferation of tissue which occurs in healing wounds, and that their continued presence in tissues for a long period, as in areas subjected to "chronic irritation," may be the factors which determine malignant degeneration in such areas.

Schamberg suspected radio-activity as the possible exciting force in tar products, but its presence could not be demonstrated in specimens examined for him at the University of Pennsylvania.

CONCLUSION

It would seem fair to assume that the chronic-irritation cancer produced by coal and petroleum products is a chemical-irritation cancer, and that it is not impossible that the cancer following chronic irritation of other origin may be of an essentially similar nature.

I am greatly indebted to Dr. Arthur Dean Bevan for permission to report this case and for assistance in gathering data on it.

122 South Michigan Avenue.

24. Bayon: *Lancet*, London, 1912, clxxxiii, 1579.

Mental Diseases.—We talk a great deal about the human mind, and, when cornered, quote Hamlet to cover an unpleasant ignorance of its true nature. The modern student, like the ancient, takes his stand either with Plato and compares the mind and brain to a player with his musical instrument, or with Lucretius to a musical box wound up for so many years to play so many tunes. Authorities lean to one or other of these views, and I have a shrewd suspicion that some of our distinguished visitors, great representatives in this specialty, do not see eye to eye in this matter. Three things we do know, departures from normal states are extraordinarily common—they are the most distressing of all human ills—they should be studied systematically by experts, with a view to their prevention and cure.—Osler: *Specialism in the General Hospital*.

ELEPHANTIASIS AND THE KONDOLEON OPERATION *

HUBERT A. ROYSTER, A.B., M.D.

Surgeon to Rex Hospital; Surgeon-in-Chief to St. Agnes Hospital

RALEIGH, N. C.

In my section of the country, elephantiasis is certainly an uncommon disease. My only case, and the only one so far recorded by any observer from this state, is the one herewith presented. By a fortunate circumstance, about the time this patient was admitted, there came from Dr. Rudolph Matas¹ of New Orleans his monograph on elephantiasis, which sums up all that is known of this disease and its kindred affections up to the present time, and to which I am indebted for valuable information. Particularly do I wish to testify to the benefit derived from an operation proposed by the Greek surgeon Kondoleon, to whom Matas gives full credit.



Fig. 1.—Elephantiasis of leg, front view.

History.—Charles P., a mulatto, aged 23, was referred to me in December, 1913, by a physician in Sanford, N. C., with the suggestion that I should amputate his leg. The patient was willing to submit to amputation, since he was no longer able to do his work as a cook. Born in Virginia, he went to Philadelphia at the age of 16, and after twelve months shipped to Florida. For two and a half years he remained in that state, living at different times in Jacksonville, Tampa and Key West. Later he moved to South Carolina, and that is his present home. During the summer of 1911 his right leg and foot began to swell, following an acute attack, accompanied by pain, redness and fever. In the winter months the condition improved, but each summer the swelling, pain and fever returned. The leg has steadily increased in size until it seriously interferes with his occupation. Locomotion is difficult and wearing of ordinary trousers impossible.

* Read by invitation before the Medical Association of the State of Alabama, April 23, 1914.

1. Matas, Rudolph: *The Surgical Treatment of Elephantiasis and Elephantoid States Dependent on Chronic Obstruction of the Lymphatic and Venous Channels*, *Am. Jour. Trop. Dis. and Prev. Med.*, 1913, i, No. 1.

Examination.—This disclosed a typical Barbados leg. The enlargement was confined to the right leg and foot and did not extend above the knee. The circumference at the calf was 22 inches, above the ankle 18 inches and of the foot 14 inches. The skin was exceedingly hard, thick and rough; in some portions it was scaly, in others horny; at the bend of the ankle there was a wide fold, which prevented proper motion of the joint. There could be no difficulty in making a diagnosis of elephantiasis (Fig. 1).

Detailed investigation elicited the following: The Wassermann reaction was negative; repeated study of the blood, taken at various hours of night and day, and continued over several weeks, showed no filariae; at one time a decided eosinophilia (11.2 per cent.) was present; the urine was normal. The eosinophilia was most probably due to an accompanying hookworm infection, as the eggs were found in the feces.

Operation and Result.—In the management of the case the patient was first assured that the sacrifice of his limb must be the last resort. After going over carefully all the procedures proposed for the relief of elephantiasis, it was decided to do the Kondoleon operation. For four days previous the man was put to bed; each day the leg and foot were scrubbed in a strong mercuric chlorid solution, bandaged tightly with a Canton-flannel roller and kept elevated on pillows. As a result of this, the leg was reduced in size about 2 inches. Jan. 3, 1914, the operation was performed as follows: A long incision was made through the skin on each side of the leg, extending from knee to ankle. Wide retraction of the integument was secured by dissecting it back freely from each edge of the incision. Going from above downward, the deep fascia to the width of three fingers was dissected off the muscles and cut away in one piece of the length of the wound. Also, the same area of subcutaneous tissue was removed by splitting it off the skin. The muscles were laid bare and free hemorrhage occurred, requiring many ligatures. The skin was stitched back in position, dressings applied and the leg bandaged without a splint.

One week later the first dressing revealed primary union, except at the lower third of the incision on the outer side of the leg, where sloughing of the skin edges had occurred. Undoubtedly too much of the subcutaneous tissue had been removed, leaving the skin at that point thin and poorly nourished. The whole leg was very much smaller (17 inches at the calf) and the ridge across the ankle had disappeared (Fig. 2). One month afterward further progress was evident: the leg had diminished in size, the foot was much more flat and the patient could walk with comparative ease. Feb. 12, 1914, he was exhibited to the Wake County Medical Society. At the present time (April 23, 1914) the improvement is still evident; there has been no going back. The patient is able to get about and will probably take up his work in a short while.

The auxiliary treatment consisted, first, in the hypodermic administration of thiosinamin (fibrolysin) every three days, over a period of two weeks while the patient was in bed. On two occasions a marked reaction resulted from an ordinary dose and it had to be given in smaller quantities. Then, on April 10, an intravenous injection of salvarsan was given empirically, for the purpose of combating the possible parasitic or microbic origin of the disease, in spite of our inability to demonstrate the presence of any infective organism. Since the injection the eosinophils have reduced to 6 per cent. It is too early to predict the final result.

Comments on this case will naturally include some account of recent advances in the study of the etiology and pathology of elephantiasis. First and foremost it may be asserted that we have not yet arrived at the point of knowing the true nature of the disease. Of one important fact, however, we are quite sure—that not all cases are due to the *Filaria sanguinis hominis*, as was formerly taught. "It will be opportune to note the fact," says Matas,¹ "that the filarial or strictly tropical type of elephantiasis is practically unknown in Louisiana or on the Mexican Gulf Coast and in

the South Atlantic States." And again, "The human filaria is very rare and, as a rule, imported from the West Indies and Central American countries. Even in these tropical latitudes, where elephantiasis is common (Barbados leg), its association with filariasis is not as frequent as one would suppose." It is barely possible that even with the utmost care one might fail to find the filariae, either because the exact time of their appearance in the circulating blood had not been determined, or because of a possible permanent clumping of the organisms in the lymphatics.

In the non-parasitic type of elephantiasis a number of causes are operative—traumatism, syphilis, phlebitis, skin-diseases, etc. Chief interest is now being given to the view that the majority, if not all, of this group of cases result from infection with a streptococcus similar to or identical with that of erysipelas, and that the clinical histories will bear this out. Even in the parasitic varieties Manson, the discoverer of the filarial origin of the disease, has been quoted as saying



Fig. 2.—One week after operation.

that "a secondary microbial infection of the obstructed area is necessary to cause the tissue changes of elephantiasis." The story of my case seems to give credence to the erysipelas theory and will serve to keep before us the suggestion of Matas to administer "a systematic course of treatment with polyvalent anti-streptococcic serum to be injected in doses of 10 c.c. at least three times weekly." For the present, I shall wait for whatever effect the salvarsan may have and then decide on what further course to pursue.

It will not be necessary or expedient to rehearse the many procedures which have been employed from time to time in the alleviation of elephantiasis. Suffice it to say that no method or combination of methods has yet proved to be absolutely curative. Kondoleon's plan, with which we are here concerned, was evolved from the idea of Lanz of Amsterdam, who referred to his procedure as a "deep lymphatic derivation." But Lanz's operation is technically difficult, while the

method offered by Kondoleon is simple. The principle involved is that, by removal of the deep fascia, there is brought about an anastomosis between the deep and the superficial lymph-spaces. The operation is new and has not been performed in a sufficient number of cases to warrant any definite opinion; Kondoleon himself has done it but six times, and, though his reports were favorable, only two months had elapsed since the last operation. I can say, however, that the method appeals to me as rational and that, so far, the result in this one case is satisfactory.

At this writing, more than three months after the operation, the measurements of the affected leg are: calf $15\frac{1}{4}$ inches, above the ankle $15\frac{1}{2}$ inches and foot $13\frac{1}{4}$ inches. The sound leg shows the following: calf $15\frac{1}{2}$ inches, above ankle $10\frac{1}{2}$ inches and foot $10\frac{1}{2}$ inches. It will be noticed that very little decrease has been secured in the size of the elephantiac foot, and I would propose a similar operation in that region as the next step, provided it could be done without damage to the tendons. The skin over the whole leg is much smoother and quite movable over the underlying tissues.

TRAUMATIC DETACHMENT OF THE BLADDER FROM SYMPHYSIS PUBIS WITH COMPLETE SEVERANCE OF URETHRA

USE OF THE LABIA MINORA AS A SUBSTITUTE FOR NECROSSED ANTERIOR VAGINAL WALL

AXEL WERELIUS, M.D.
CHICAGO

Pressure necrosis of the anterior vaginal wall, due to prolonged and difficult instrumental labor, is not a very frequent complication, especially to the extent in which it occurred in the case reported below, in which the urethra had completely disappeared and the bladder was entirely detached from the symphysis, suspended only by the ureters and the peritoneum covering its posterior surface.

The literature on the subject of the traumatic separation of the bladder from the symphysis is somewhat meager, and this case seems to be the first reported as occurring from labor.

Ludolf Süssenguth¹ reports a case observed about the same time as mine. He states that he found only three other cases in the literature, those of Bartels, Grossich and Stierlin.

These cases were all produced by a sudden trauma. Whether the condition in my case was brought about by sloughing, following a prolonged and excessive pressure on the parts involved, or suddenly produced by the organ being torn loose during a difficult instrumental delivery, I am unable to determine, as I saw the case at first five months after the confinement, and in the interval the patient had never been examined. The severance of the urethra, however, took place at once, as incontinence of urine followed immediately after the labor.

Stierlin² endeavors to explain the mechanism of the injury to his patient, a young man who had the pelvis compressed between two wagons, by contending that

there was a momentary dislocation of the symphysis, the two pubic rami overriding each other, thus tearing the bladder loose.

In Süssenguth's case the most careful post-mortem exploration failed to reveal any injury to the symphysis or any of the surrounding bony structures. He reasons that the partly filled bladder extending somewhat above the pubis was forcibly pushed backward; its connections to the symphysis, being unequal to the strain, gave way, at the same time tearing the urethra.

Stolper,³ fortified by extensive researches on injuries in this region, believes that outside of a diastasis, isolated luxation of the symphysis could hardly occur. This somewhat antagonizes the theory of Stierlin, favoring the simpler explanation of Süssenguth.

Aside from the unusual pathology, my case might be of some interest from the mode of vaginal repair. After having twice vainly endeavored to close the gap left by the necrosed anterior vaginal wall, by using the remnants of this wall and nearby structures, I used the labia minora as a substitute for the absent vaginal tissue.

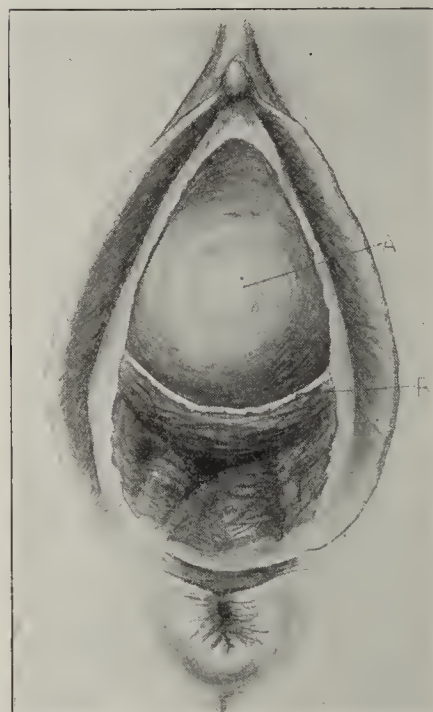


Fig. 1.—A, dislocated bladder; B, edge of necrosed vagina.

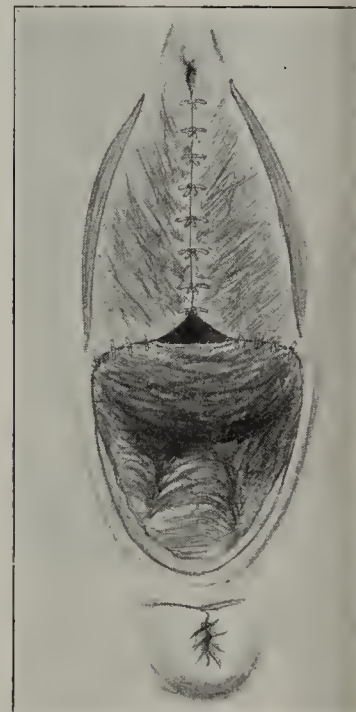


Fig. 2.—Labia minora as substitute for necrosed anterior vaginal wall (semidiagrammatic).

REPORT OF CASE

History.—The patient, a woman aged 32, was admitted to South Shore Hospital, March 5, 1913. Following a very tedious and difficult labor terminated instrumentally Oct. 7, 1912, the patient has been unable to hold her urine. For weeks subsequent to the confinement there was a foul vaginal discharge, followed later by a profuse leukorrhea, lately, at times mixed with blood. The patient also complains of pains in the pelvis, radiating down the limbs and into the back, aggravated by exertion. The appetite has lately been very poor. The bowels are greatly constipated. She is becoming more and more nervous and irritable and has lost in weight and feels very weak. The past history and family history are negative. The patient's habits are good. Menstruation is greatly lessened but regular.

Examination.—The general appearance is that of a poorly nourished young woman. Head, neck, chest and extremities are negative. The lower abdomen is somewhat tender on palpation. Vaginal examination reveals an almost complete absence of the anterior vaginal wall. On increased abdominal pressure the bladder protrudes far out of the vagina (Fig. 1); the bladder wall seems highly congested and bleeds

1. Süssenguth, Ludolf: *Deutsch. Ztschr. f. Chir.*, cxix, 490.

2. Stierlin: *Beitr. z. klin. Chir.*, lxx, 616.

3. Stolper: *Deutsch. Ztschr. f. Chir.*, lxxvii, 498.

easily. There are no signs of any urethra. The bladder seems to be suspended only from the ureters and its posterior peritoneal covering. The under surface of the symphysis is palpable. Blood examination reveals: erythrocytes 3,400,000; leukocytes 8,200; hemoglobin 65 per cent. The urine contains a large amount of albumin, but no casts.

Operation and Result.—Three attempts were made to close the defect. The first operation was done March 10. The edges of the remains of the vaginal wall were freshened and undercut, and brought together anteroposteriorly with chromicized catgut and an opening left for the escape of the urine. Two weeks later the condition was about the same as before operation. April 14 I operated again. The edges were freshened and undermined as before but united laterally with strong silk. These silk threads formed nuclei for calcareous deposits which in a few weeks almost cemented the entire vagina, causing considerable pain and discomfort. The last operation was performed May 5. The bladder was found to be held up fairly well from perivesical adhesions. The edges of the labia minora were freshened and incised along the outer and upper borders and dislocated inward over the vaginal defect and sutured with chromicized catgut as in Figure 2.

On reexamination, September 12, the patient had gained over 20 pounds. The pain had disappeared. The flaps partly held. Feb. 2, 1914, the local findings were about the same. There was no pain. The general condition was good.

1230 East Sixty-Third Street.

A CASE OF ACUTE NICOTIN POISONING OF PECULIAR ORIGIN

HARRY S. REYNOLDS, M.D., NEW HAVEN, CONN.

The following case seems worthy of brief mention not only because of the rarity of occurrence of severe acute nicotine poisoning, but particularly owing to the peculiar circumstances of its origin.

At about 10:30 a. m., April 14, 1914, Rudolph D., a well-nourished infant aged 5 months, was brought into my office *in extremis* by its mother, a Slav woman, who stated that the baby had swallowed some tobacco.

On careful questioning I elicited the following history from the mother: The patient was a bottle-fed infant, and on the preceding night, according to her usual custom, the mother had prepared a mixture of milk and water which she left in a basin on either a stove or a table in the kitchen. The patient, who had apparently been in excellent health, was fed some of this mixture at 1 a. m. and again at 4 a. m. At 5 a. m. the mother discovered some tobacco in the bottle nipple, and on investigation found some more tobacco (quantity indefinite) in the milk basin, on which she threw out this milk mixture and made up a new one, which was fed to the baby at 6 a. m. Shortly afterward she went out to work, leaving the infant in the care of his father. A little later the patient began to show signs of distress and vomited twice. The mother was summoned and later sought medical aid as above stated. On the preceding evening the father had entertained some friends at his home and apparently, as all hands were smoking, some one in the party had carelessly spilled or discarded the tobacco which was found in the basin.

The patient, when first seen by me, was cyanotic and in a state of collapse. His head was sweating profusely and his extremities were cold and clammy to the touch. There was some twitching of the muscles of the face. Both pupils were widely dilated. The pulse was weak and irregular, the circulation having a pronounced tendency to fail, but responded temporarily to stimulation. Respiration was slow and labored and marked by a loud inspiratory gasp; breathing at times became so slow that artificial respiration was resorted to on several occasions.

Atropin, strychnin, brandy, epinephrin, coffee enemas, external heat and gastric lavage were administered and early in the afternoon he was apparently much improved, but at

3:30 p. m., at a time when his condition seemed quite favorable, respirations suddenly ceased entirely and on immediate investigation the heart was found to have ceased beating.

The post-mortem appearance was remarkable, the skin becoming almost immediately covered with purple blotches, which varied from the size of a ten-cent piece to that of a half dollar—an appearance which was interpreted as indicating the results of a condition of extreme vasomotor disturbance.

As the father's company left the house at midnight, the inference would seem to be that the tobacco found its way into the milk and water mixture before the 1 o'clock feeding, nicotine having then begun to extract out, and that at the 4 o'clock feeding the infant received the maximum dose of nicotine extract.

321 Grand Avenue.

DEAF-MUTISM (LABYRINTHINE DEAFNESS) AS A RESULT OF PURPURA HEMORRHAGICA *

G. W. STIMSON, M.D., PITTSBURGH

J. D., girl, aged 4, white, American, was referred to me, Jan. 7, 1914, by Dr. R. H. Boggs of this city, the patient coming from Maryland. The complaint was deaf-mutism. The family history of the little girl was good. She was accompanied to my office by her father and mother, both of whom were healthy. The patient had been a perfectly healthy child, normal in every respect, until she reached the age of 23 months. She heard sounds readily, started at noises and responded as intelligently as any child of her age to questions and speech directed to her by her parents. She had acquired quite a vocabulary so that her speech was well advanced for a child of her age. She could repeat anything she was told. There was never the slightest question of her intelligence or her ability to hear as well as any one.

When she was 23 months old she was seized with an attack of purpura hemorrhagica. Her parents state that within a day or two after the onset "she went stone deaf and has remained so ever since."

She is a bright, intelligent-looking little girl, apparently normal in every way except as indicated.

Examination of the nose and throat showed nothing abnormal. The external ears, auditory canals and tympanic membranes were normal in every respect. As the child seemed frightened and was examined with considerable difficulty, no tests were made of the irritability of the labyrinths to stimuli, as demonstrated by use of the caloric test, the turning test or galvanism.

The child's deafness is absolute. Her attention is not attracted by any sounds or noise however loud. Tuning-forks placed on vertex and mastoid processes produced no perceptible change of expression. She has progressively lost her power of speech until now she retains only one or two words, chiefly an almost unintelligible "ma-ma."

The diagnosis seems to be obviously that of labyrinthine deafness due to severe hemorrhage into both labyrinths at the time of the attack of purpura hemorrhagica. The hemorrhage was probably of such extent that complete disorganization of the parts took place from pressure, and a return to the normal condition became impossible even though the effused blood was subsequently absorbed.

As practically all children who acquire deafness under 7 years of age, and invariably a child as young as this one, promptly forget the few words they have learned, the loss of the sense of hearing inevitably leads to the development of mutism as well, as it has done in this case.

In none of the text-books on diseases of the ear at hand is any reference made to purpura hemorrhagica as an etiologic factor in the production of acquired deaf-mutism or labyrinthine deafness.

Jenkins Arcade Building.

* Reported before the Allegheny County Medical Society, April 21, 1914.

A SATISFACTORY LOCAL ANESTHESIA FOR THE SUBMUCOUS RESECTION OF NASAL SEPTUM

JAMES JOSEPH KING, A.B., M.D., NEW YORK

Attending Laryngologist to the Hospital for Ruptured and Crippled

Realizing the difficulties encountered by many in securing a satisfactory local anesthesia for the submucous resection of the nasal septum, I offer to the profession this method, which has been very satisfactory to me in over four hundred resections. Some years ago I was not entirely satisfied with any of the methods I had seen used and I began to try out various methods in the hope of securing a technic that would eliminate the objectionable features of all methods, which are fright, nervousness, toxicity from cocain and epinephrin solution, shock, hemorrhage obscuring the operative field and the sequelae of severe headaches and toothache as the effect of the cocain wears off.

The several elements in my anesthesia are not original, but as far as I am aware the whole technic is original and is given below.

Half an hour before I begin to produce the local anesthesia the patient receives by mouth $\frac{1}{150}$ grain scopolamin hydro-mid. This drug allays the patient's fears, overcomes any nervousness and is the therapeutic antagonist to cocain. It is used extensively by neurologists in the treatment of the insane and very nervous patients.

Half an hour after the patient has taken the scopolamin, I apply with a cotton wound applicator to every portion of the mucous membrane of the septum a 20 per cent. solution of cocain hydrochlorid, first painting very gently over every portion of the septum on the right side and then on the left side. Immediately after the first application over both sides of the septum I repeat the application as before. This makes two complete applications of a 20 per cent. solution of cocain to each of the septal mucous membranes. For each application I use a fresh cotton wound applicator moistened with the 20 per cent. cocain solution.

These two applications of 20 per cent. cocain solution are followed immediately by a similar application to every portion of the septal mucous membrane of a solution of 1:1,000 epinephrin solution. I then inject under the septal perichondrium and periosteum on each side from 8 to 10 c.c. of a sterile normal salt solution to which 5 minims of 1:1,000 epinephrin solution has been added immediately before injection. This injection completes the anesthesia, infiltrates every portion of the septal membrane, blocks off the nerves preventing shock and renders the operation practically bloodless. It also aids very materially in elevating the perichondrium from the cartilage so that the dissection of the mucous membrane and perichondrium is quite easy.

I use only 5 minims of epinephrin solution in the injection because this amount does not exceed the physiologic dose by hypodermatic injection, and experience has proved to me that this amount will render the field bloodless without producing toxic symptoms.

40 East Forty-First Street.

The Cost of Pasteurizing Milk.—In Bulletin 85 of the Department of Agriculture it is estimated that the cost of pasteurizing with a properly operated plant averages for milk 0.00313 cents a gallon and for cream 0.00634 cents. Tests also show that the "flash" process, by which milk is raised to 165 F. and kept there for a moment only is more expensive than the "holder" process, by which milk is held at the temperature of from 135 to 145 F. for thirty minutes. The "holder" process has been found to require 17 per cent. less heat than the "flash" method, and there is also a saving in the expense of cooling. For hygienic reasons also, the "holder" process is to be recommended. An item of economy in the pasteurization of milk is the utilization of exhaust steam from engines and steam-driven auxiliaries. An arrangement by which the pasteurized milk is made to assist in heating up the raw milk may aid the economy of the process.

Therapeutics

SOME OVERLOOKED CAUSES OF CHRONIC ILLNESS

(Continued from page 1638)

CHRONIC DYSPEPSIA

Before a condition is termed dyspepsia, nervous dyspepsia, chronic gastritis, or intestinal indigestion, although any one of these conditions may be present, we should most carefully seek the cause. This large subject is referred to only to present some of the frequently overlooked causes of chronic indigestion; we should never be satisfied with any one of these diagnoses.

Frequent causes of these digestive disturbances are reflexes from eye-strain, or from the appendix, ulcer of the stomach or duodenum, reflexes from the gall-bladder and a loose kidney. The frequency of these etiologic factors perhaps is in the order named. Ptosis of the abdominal organs is more or less readily determined, and need not be here considered. Also, it is not necessary to refer to the classic symptoms of any of the above-mentioned causes of indigestion, but it is urged that clinicians should never be satisfied to say that the condition is one of gastric hyperacidity, or that there is insufficiency of hydrochloric acid in the stomach, or that a patient has recurrent "bilious" attacks.

Chronic appendicitis, or, perhaps as frequently, pericolicitis with adhesions around the colon in the region of the appendix, generally caused by a previous appendicitis, can give reflex pain referred to the cap of the duodenum, and can cause hyperacidity and dyspepsia, which may sooner or later cause epigastric tenderness and symptoms of disturbance in the upper abdomen. A chronic irritation of the appendix may cause only gastric flatulence. Sometimes the region of the appendix will be found entirely insensitive, but we should make repeated abdominal examinations of a patient who has indigestion and is not benefited by the ordinary corrections of diet and simple medicinal treatment. Also, we should urge that whenever the patient has an attack of pain he should be examined at once by his physician, and very often distinct, positive trouble will be found localized near the appendix.

On the other hand, prolonged irritation in the abdomen may allow ulcer of the stomach or duodenum to develop through the irritation of the mucous membrane of the stomach and destruction of the protective mucus, which results from the protracted hyperacidity. It seems to be a fact that hyperacidity of the stomach is a preliminary stage of gastric ulcer, and likewise of ulcer of the upper part of the duodenum. One factor in the cause of ulcer of the stomach seems to be the absence of normal mucus protection, and anything which will cause the mucus coating of the stomach to become normal tends to prevent erosion. We can readily understand this when we note the irritation that occurs in a dry throat, larynx or trachea; anything that tends to increase the mucus in these regions cures the condition. We should, therefore, recognize a preulceration stage of gastric or duodenal ulcer, in which there is likely to be hyperacidity; the cause may be great debility, mistakes in eating, or a chronic appendicitis. The immediate treatment of such a condition by proper diet and improving the general con-

dition of the patient, with the removal of an irritating factor, if such be found, may prevent ulcer.

A few suggestive points of diagnosis may not be out of place. In chronic appendicitis or pericolicitis there is generally (but not always) tenderness, if not pain, referred to the appendix region, also flatulence, gastric and intestinal, and constipation. There is rarely much tenderness in the epigastric region, certainly not acute. The appetite is generally poor, the tongue coated. Taking food and liquids into the stomach does not ameliorate and may increase the discomfort, which is usually not true of ulcer of the stomach. The position of the body does not change the character of the pain, distress and irritation.

Some of the symptoms of ulcer of the stomach generally present are: pain, often relieved or aggravated by a change in position, usually relieved by eating, unless the food is irritant; irregular appetite; tenderness on palpation; constipation, hyperacidity, and red tongue, unless there is gastric retention. Vomiting and bleeding are not constant, and both may be absent. If frequent projectile vomiting is present, or blood is vomited or frequently appears in the stools, of course the diagnosis becomes more positive. Pain from ulcer of the stomach is readily soothed by bland food, and especially by milk of magnesia. This is not true of referred appendix pain or of ulcer of the duodenum, although milk of magnesia (*magna magnesiae*, N. F.) may stop the pain promptly in the latter condition.

In ulcer of the duodenum the pain is likely to occur three hours or more after eating, and often awakes the patient in the night. The appetite is generally good; the tongue somewhat coated; the tenderness is rather distinctly localized; the bowels are irregular, sometimes loose, sometimes constipated, and the pain is more intermittent and not so constant as in ulcer of the stomach.

It is not necessary to refer to the classic signs of gall-stones or gall-bladder disturbances. The importance of examining the stomach contents, also the feces for occult blood, and taking roentgenograms after a bismuth meal need not be emphasized, but sometimes all kinds of examinations will still leave the diagnosis uncertain until the abdomen is opened.

It has lately been urged that in the diagnosis of gastro-intestinal disturbances we have not given sufficient importance to the determination of indican in the urine. It is asserted that all anatomic lesions of the gastro-intestinal tract will show continued indicanuria. On the other hand, a functional indicanuria may be prevented by free catharsis and regulation of the diet, and especially by several washings of the colon. If indican is repeatedly present after good catharsis and several days of a simple diet, some lesion in the abdomen should be strongly suspected.

FLOATING KIDNEY

The symptoms caused by a loose kidney vary from none to those of serious indigestion, and those produced by pressure in different parts of the abdomen or caused by the kidney dragging on its ligaments. A properly fitting abdominal bandage, with or without a kidney pad, may entirely remove all signs of trouble, and such a bandage may really be a properly made corset, as the majority of loose kidneys occur in women.

As the right kidney is most frequently the one that is loose, the symptoms sometimes simulate gall-bladder

disturbance or appendicitis, and a wrong diagnosis of the condition is often made.

Because a patient has a loose kidney, operative procedures to replace it are not necessarily indicated. On the other hand, such an operation not infrequently becomes the only means of curing the reflexes caused by such a kidney or the colics and dangers resulting from the twisting of the kidney on its pedicle.

This condition is referred to because such a kidney is so elusive and a diagnosis of this cause of the abdominal disturbance is often very difficult to make. An abdomen may be repeatedly examined and a loose kidney not discovered, while at a subsequent examination a kidney that can be depressed to the brim of the pelvis may be found.

The amount of gas in the intestine at various times may determine whether the kidney will stay in place or whether it will drop to the length that its loose ligaments allow. It is a fact, however, that without making an examination when the patient is standing, another when the patient is lying down and another after the patient has taken some rapid, deep breaths or has done some jumping (and even then there must at times be repeated examinations), it cannot positively be determined that a kidney is not loose and is not a cause of the abdominal symptoms.

PLEURISY

Pleurisy with effusion is perhaps often overlooked. Those who examine patients for entrance to tuberculosis sanatoriums understand this fact more fully than those who are not called on to note the previous history of many cases of pulmonary tuberculosis. The inflammation may be so insidious that a physician is not called before the effusion is present. The effusion may not be large, and the transmission of the voice and respiratory sounds may be so distinct that the condition is supposed to be that of a consolidated lung. Or, if on the right side, and the effusion is small, the liver may be thought to be enlarged. On the left side the condition may be taken to be an enlarged spleen. The mistaken diagnosis is serious, because pleurisy with effusion is so generally tuberculous in origin, and if adhesions are formed when the fluid remains in the pleural cavity the lung will never again expand to its proper size, and tuberculosis of the lungs readily begins. It is suggested in such cases that a long hypodermic or exploratory needle, or an aspirating needle be inserted. The simplest kind of aseptic technic will preclude any harm; and many times, in doubtful cases, we cannot make a diagnosis of the condition without such a practical test.

CERVICAL OR FALSE RIB

Some recurrent neck, shoulder and arm neuralgias, which are benefited only to recur again, may be due to this condition. Careful examination of the neck and roentgenograms may show that such a rib is pressing on a nerve trunk. Such a bone growth may also cause either disturbance in the subclavian artery, or muscle pains or contractions in the neck. Such possible causes of disturbances in the neck and shoulder region should not be forgotten. They are said to be more frequent in women than in men, and when present are bilateral in about 70 per cent. of the cases. The growth generally occurs from the transverse process of the sixth or seventh cervical vertebra.

(To be continued)

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SATURDAY, MAY 30, 1914

SOME NEWER ASPECTS OF ACIDOSIS

The modern physicochemical study of the blood has clearly shown that the reaction of this fluid undergoes comparatively little, if any, change even under conditions approaching extreme acidosis. From this point of view the blood and tissue fluids maintain an unvarying alkaline reaction or neutrality. These terms may be used interchangeably for an alkalinity which is actually so slight.

The foregoing statements, which are everywhere accepted in scientific circles, have been the occasion for not a little confusion in the minds of those who were trained in the older school of chemistry and have not fully succeeded in grasping the importance of modern physicochemical conceptions. The physical chemist measures the reaction of a fluid by the balance between the hydrogen and hydroxyl ions which it contains. Examined by this standard, the blood has an extremely low concentration of hydroxyl ions; indeed, it is scarcely more alkaline than distilled water. It is this low hydroxyl ion concentration which varies so slightly even under extreme pathologic conditions. On the other hand, there is an excess of replaceable bases over acids in the blood; and the reaction of this fluid was formerly expressed in terms of its behavior toward indicators and its ability to neutralize acids. In this sense the blood is definitely alkaline toward the majority of indicators, and it has therefore commonly been spoken of as an alkaline fluid. This behavior of the blood with indicators toward acids and bases has been termed its "titratable alkalinity," in contrast with its hydrogen ion concentration, or reaction in the physicochemical sense.

With the advent of the newer ideas and the demonstration of admirable regulatory functions by which the physicochemical reaction of the blood was maintained unchanged despite great variations in the contribution or abstraction of acid and basic radicals, doubt began to be expressed regarding the validity of the older ideas and procedures. It was suggested that the "titration" of the blood must be abandoned as a method of study, and that, primarily, in the urine is shown the result of the prompt adjustment occurring

in acidosis. For, obviously, if in this excretion the proportion of acids and alkalies formed in metabolism or otherwise introduced is such as to maintain a constant neutrality in the organism, this excretion would seem to offer the best opportunity for the detection of changed relations.

Dr. Sellards¹ of the Johns Hopkins Hospital has come to the rescue of the older scheme of estimating titratable alkalinity in the blood and has shown the value which this procedure may have from a clinical point of view. The outcome of his studies shows that changes occur which give rise to distinct qualitative differences in the reaction of normal and pathologic serums to phenolphthalein. Conditions are readily obtained under which blood-serum, during an acidosis, is neutral or acid, whereas under the same conditions all normal serums are strongly alkaline. Definite changes in the titratable alkalinity occur in experimental and spontaneous acidosis, in certain nephropathies, and in some anemias. The method also affords information of value in the differentiation of certain obscure comas. Cases of diabetes occur in which the excretion of ammonia and of acetone and related bodies is normal, but the titratable alkalinity of the blood is decreased and the tolerance to bases is increased. This affords proof of a definite impoverishment in bases in these cases.

The titratable alkalinity is of important biologic significance, while the available evidence indicates that the physicochemical reaction of the blood is maintained at a fairly constant value, even in outspoken grades of acidosis. The parallelism between the diminution in titratable alkalinity and the increase in tolerance to fixed bases in diabetes and in the nephropathies affords crucial evidence that the increase in tolerance is practically due altogether to a deficit in the body alkalies or alkali-yielding substances.

THE GROWTH AND COLOR CHANGES OF HAIR

The attempt to find an illuminating account of the factors which may modify or determine the growth of hair will usually be a vain one. The older writers, who did not always hesitate to make dogmatic statements when they were required to produce a finished account, sometimes discussed the subject with considerable freedom. Not so the modern scientific author, who realizes that every sentence from his pen is likely to be subjected to the scrutiny and criticism of some one who has studied the topic at first hand. The general descriptions of the processes of growth have been satisfactory with respect to their histology. The hair follicle and its papilla, the proliferation of the cells on its surface, the development of keratin — all of the

1. Sellards, A. W.: A Clinical Method for Studying Titratable Alkalinity of the Blood and Its Application to Acidosis, Johns Hopkins Hosp. Bull., 1914, xxv, 101.

facts concerning these processes are permanent acquisitions of physiology, but they do not commonly rise to the level of practical problems. Why does or does not the hair grow in certain regions in certain individuals? What are the conditions contributory to growth? How are the natural changes in color brought about and what determines them? The physician is frequently asked such questions as these, and for a convincing answer to them he will search with little success.

Experimental studies in this field cannot readily be conducted on man. Certain facts are, of course, matters of common observation. The beard grows anew after shaving, and this tonsorial practice is believed to stimulate the growth of the hair. Precisely why it does, is not clear; though the stimulus which shaving applies to the skin is said to produce a reaction favorable to improved local circulation and nutrition of the areas involved. For the same reason, that is, increased cutaneous activity as shown by the sweat-glands and neighboring structures, the beard is said to grow more rapidly in summer.

Surgeons sometimes observe an unexpectedly intensive growth of the hairs in the immediate vicinity of suppurating wounds or in parts exposed to hot-air treatment. This may be interpreted as the outcome of the unusual hyperemia of the regions involved. Evidence of the probable accuracy of this view has been offered by the Greifswald surgeon, Georg Schöne,¹ in experiments with white mice. When pieces of the hair-covered skin were removed from the region of the back and again transplanted thereon, many of the hair follicles were noticed to atrophy at first; but presently an abnormally rapid and intense growth of hair ensued. This was especially conspicuous at the edges of the wounds. The active metabolism in the region of the healing and regenerating tissues is assumed to account for the result.

If the pigment which produces the natural color of the hair is lacking, the hairs present a gray or white appearance. The silvery color may further be due to the presence of more or less air in the hair. To account for the blanching of the hair—the familiar accompaniment of old age and a phenomenon which frequently begins long before middle life is fairly concluded—various views have been set forth at different times. The silvery gray appearance which is seen in aging persons is doubtless characterized to some extent by the occurrence of larger numbers of air cavities, and not by the destruction of the pigment as has frequently been postulated. For the hair pigment is among the most resistant of organic substances and can be destroyed only by the most vigorous chemical treatment. Destruction of the pigment—in distinction from the artificial coloring or staining of the pigment—is scarcely conceivable without decomposition of the

hair itself. Dry hairs contain more air and therefore will appear somewhat lighter in color than moist ones; but black hair may be dried to the utmost without becoming white, and the hairs of mummies dried through the centuries still show their pigment precisely as do fresh hairs.

Some years ago Metchnikoff of the Pasteur Institute in Paris propounded a different theory of the mechanism by which black hair turns white.² According to him, the hairs are invaded at certain times by special phagocytic cells. These “chromophages” find their way to the pigment, which they engulf and carry with them in their exit from the hair. This view has, however, never been seriously accepted by those who have made first-hand studies of the subject.³

The true explanation of the familiar color-changes of the hair is probably to be found, not in a destruction of pigment already present, not in any bleaching of hairs already formed, but rather in a complete renewal of the hair. Pigmented hairs fall out and are replaced by unpigmented or white ones. The appearance of gray or white hair is therefore attributable to the formation of a new hair coat rather than by the alteration of the old one. Completed pigmented hairs never turn gray; they fall out. It is nevertheless observed that the process of pigment formation may cease during the development of a hair. In that event the tip will remain pigmented though the base appears white.

How are we to harmonize these statements, it may be asked, with the many published records of hair having turned white suddenly as the presumable consequence of fright or other profound emotion? A careful study of the reputed instances has invariably shown that they were mythical.⁴ It is popularly related that Marie Antoinette grew gray during the night after she was condemned to be executed. It is true that at her death her hair was gray; but her biographers all record that her hair had been gray long before the time of her death. This may serve to illustrate the value of hearsay evidence and popular tradition.

The conspicuous changes which the color of the fur of certain species of animals undergoes at different seasons of the year, becoming white in the winter months, affords an opportunity of investigating this pronounced transformation seemingly so closely related to what is seen in advancing age in man. The studies of Schwalbe⁵ have demonstrated that here too there is no alteration of the color of the summer fur. The dark hairs fall out as the season advances and white hairs grow in their place. No sudden mutations are found when accurate observations are instituted.

2. Metchnikoff, E.: *Etude sur la vieillesse*, I. Sur le blanchissement des cheveux et des poils, *Ann. de l'Inst. Pasteur*, 1901, xv, 865.

3. Stieda, L.: *Untersuchungen über die Haare des Menschen*, *Merkel and Bonnett's Anat. Hefte*, 1910, xl, 287.

4. Stieda, L.: *Das Haarpigment und das Ergrauen*, *Wien. med. Wehnschr.*, March 26, 1910, p. 738; *Ist plötzliches Ergrauen des Haupt-haars möglich?* *Deutsch. med. Wehnschr.*, Aug. 11, 1910, p. 1484.

5. Schwalbe: *Ueber den Farbenwechsel winterweisser Tiere*, *Ein Beitrag zur Lehre vom Haarwechsel und zur Frage nach der Herkunft des Haarpigmentes*, *Morphol. Arb.*, 1894, iii.

1. Schöne, G.: *Beobachtungen über das Wachstum der Haare*, *Die Naturwissenschaften*, 1914, ii, 388.

CARBON MONOXID AND CANARIES IN MINES

The usefulness of small animals in the detection of air vitiated by poisonous gases in mines has been well established. Their value has been attested not only in connection with possibilities of danger from this source in the ordinary processes of subterranean mining operations, but also in the rescue work which calls for the greatest of care and precaution to prevent harmful consequences to those engaged in it. Carbon monoxid, the most toxic of the mine gases, is always produced in mines in some quantity by the use of explosives in blasting. When large shots are fired, where the ventilation is poor, and the working-faces are too far ahead of the last break-through, harmful percentages of carbon monoxid and other poisonous gases may be encountered. Miners at some mines frequently go home sick from powder smoke. The latter has been reported to contain as high as 4 per cent. of carbon monoxid and the products of the explosion of gun-cotton are reputed to contain many times this proportion.¹ Carbon monoxid is the constituent of after-damp most insidious in its action, most difficult to detect, and responsible for most of the deaths caused by mine explosions. For these reasons it becomes highly desirable to have a practical and sensitive indicator of quantities of carbon monoxid which may be in even the slightest degree harmful to man.

The United States Bureau of Mines has of late undertaken an elaborate investigation to determine the relative usefulness or unsuitability of various readily available animals.² The problem here involved is not a new one. Small animals have been employed practically in connection with mine operations in England and presumably on the Continent also, for some time. The bureau has found canaries and mice to be suitable for the purposes here outlined, the birds being the more sensitive of the two species. They are, furthermore, easily obtainable and become pets of the men who have them. One of the new questions to be tested was whether canaries can be used repeatedly in exploration work without becoming less useful as indicators of carbon monoxid; that is, whether they become more or less susceptible to the poison after several or many exposures. Furthermore, it has been desirable to compare the relative behavior of men and small animals to carbon monoxid.

There is no complete agreement among the different investigators as to the comparative sensitiveness of canaries and men to the poisonous gas here under discussion. This need not entirely militate against the usefulness of the animals; for they undoubtedly give ample warning of percentages of carbon monoxid immediately dangerous to men. In defining the minimum harmful or poisonous concentration of the gas,

Haldane states that 0.05 per cent. in pure air is just sufficient to produce in time very slight symptoms in man, and the same percentage produces very slight symptoms in mice. He states that 0.2 per cent. is very dangerous to man. According to the investigators of the Bureau of Mines, when the proportion of carbon monoxid is 0.15 per cent. canaries will show distress usually in from five to twelve minutes. With 0.2 per cent. of the gas it is apparent in from two to six minutes. With these percentages much longer time is required before distress appears in men, although in the case of some persons the effects, when they do appear, may last for hours. Men cannot stand the exposure to collapse from carbon monoxid as animals can. After distress and collapse canaries and mice recover quickly if given fresh air. In man, recovery is often a matter of days; and long-standing after-effects are by no means rare in the case of an intoxication like this which may deprive the hypersensitive nervous system of its proper oxygen supply for undue periods.

From the fact that certain individuals are able to withstand atmospheres that cause distress in other members of a group, it is sometimes concluded that some persons have an idiosyncrasy to the gas. This is always at best the explanation of last resource. It must be kept in mind that after-damp in different parts of a mine (in some places quite close together) will differ in composition to the extent—where the toxic dose is so small—that at one place an insignificant amount of carbon monoxid may be present while at another place, near by, a harmful proportion may exist. One person of a party unknowingly may encounter the latter atmosphere while his comrades do not. The quantity of the poisonous gas absorbed depends, furthermore, on the air breathed. Moderate exertion may increase the volume intake per minute to several times the normal at rest. It follows, therefore, that if certain members of an exploring party work harder than others they will become poisoned more quickly than the less active members.

It is also occasionally found that men may feel distress, especially if they work hard, in the presence of 0.1 per cent. or under of carbon monoxid, when animals at rest in their cages do not distinctly show it. Sometimes different animals of the same species appear to be affected differently by the same proportion of the gas; hence more than one should be used at a time. Fortunately, no acclimatization of canaries appears to occur under the conditions surrounding recovery work in mines, so that these birds do not become less useful or a possible source of danger. They respond promptly to alternate intoxication and resuscitation; whereas guinea-pigs, for example, appear to become somewhat immune. Those who appreciate the seriousness of such situations will realize the advantage of being able by means of animals to define the danger-zone in mines.

1. Kunkel, A. J.: *Handbuch der Toxikologie*, p. 326.

2. Burrell, C. A., and Seibert, F. M.: *Experiments with Small Animals and Carbon Monoxide*, *Jour. Industrial and Engineering Chem.*, 1914, vi, 241.

THE DEATH-RATE FOR 1913

According to a bulletin of the Bureau of the Census, the death-rate of the registration area of the United States for 1913 was 14.1 per thousand estimated population. In 1912 it was 13.9, in 1911, 14.2. For the years from 1901 to 1905 the average was 16.2; from 1906 to 1910 it was 15.1. We are therefore continuing in improvement, the average for 1911, 1912 and 1913 being 14.06. These are the exact figures as stated in the report of the census bureau. What they mean in actual lives is not indicated except by closer analysis. The decrease from 16.2, the average from 1901 to 1905, to 14.1, the average for 1913, amounts to 13 per cent., or a reduction of one death in every eight. If the same rate had prevailed in 1913 as in the period from 1901 to 1905, there would have been 1,025,446 deaths recorded instead of 890,823, an excess of 134,623.

The largest percentage of decrease was shown for Rhode Island (15.7), followed by New York (12.3), New Jersey (11.2) and Massachusetts (9.6). It seems to be only a peculiar coincidence that these leaders should all be in one small section of the entire territory discussed. Slight increases which occurred in some states (Michigan, 4.5; New Hampshire, 3, and Indiana, 0.8) are believed to be due in some cases to increased accuracy of registration. The state with the lowest death-rate is Washington, with 8.5 deaths per thousand population; and then in the following order come Minnesota, 10.4; Utah, 11.0, and Wisconsin and Colorado, 11.5. The doubtful honor of possessing the highest rates falls to New Hampshire with 17.1; North Carolina, 16.8; Maryland, 16.2; Vermont, 15.8; Maine, 15.3, and Connecticut, Massachusetts, New York and Rhode Island, 15.0. It seems that in the New England states there occurred most of the higher death-rates and most of the improvement from previous years.

It is significant that the four states in the registration area which have a colored population of over 10 per cent., Kentucky, Maryland, North Carolina and Virginia, should average 15.0, while a group with equal population but fewer colored, Wisconsin, Washington, Vermont and Minnesota, averages 11.5.

Among cities of over 100,000 population, Seattle and Spokane lead by far with death-rates of only 8.4 and 8.9, respectively. Portland, Ore., follows with a rate of 9.5, so that this particular corner of the United States by comparison would seem to be more than holding its own. It seems almost obvious that location, climate and character of population are responsible for this low rate. Minneapolis and St. Paul as usual contest for next place with 11.6 and 11, Oakland and Milwaukee following with 12.5 and 12.7. The highest rates occur in Memphis, Tenn., 20.8; Richmond, Va., 20.4; New Orleans, 19.9; Albany, N. Y., 19.8; Balti-

more, 18.5; Nashville, Tenn., 17.8; Birmingham, Ala, 17.4; Atlanta, Ga., 17.4, and Washington, D. C., 17.3.

The cause of this high rate in Southern cities has probably often been mentioned and often explained, but we cannot too often point the way to betterment. In the accompanying table, the significant figures need no explanation.

| | Death-Rate per 1,000 Population | | | Increase (+) or Decrease (—) per cent. 1913 as compared with average 1901-1905 | | |
|-----------------|---------------------------------|-------|---------|--|-------|---------|
| | Total | White | Colored | Total | White | Colored |
| Memphis | 20.8 | 15.9 | 28.2 | + 7.2 | — 3.6 | +23.1 |
| Richmond | 20.4 | 16.7 | 26.8 | —12.8 | — 9.7 | —15.5 |
| New Orleans ... | 19.9 | 15.6 | 31.9 | —11.2 | —18.8 | + 2.9 |
| Baltimore | 18.5 | 16.2 | 31.0 | — 7.5 | — 9.0 | — 3.1 |
| Nashville | 17.8 | 14.7 | 24.0 | —17.2 | —13.5 | —18.9 |
| Birmingham | 17.4 | 12.3 | 25.2 | ..... | ..... | ..... |
| Atlanta | 17.4 | 13.5 | 25.2 | —17.5 | —16.2 | —14.9 |
| Washington | 17.3 | 14.4 | 24.4 | —15.6 | —12.7 | —17.3 |
| Average | 18.68 | 14.9 | 27.08 | ..... | ..... | ..... |

The arraignment is a startling one, but when comparison is made with previous years, a basis is obtained for hope that progress now started will continue, and much is being done. It is to be noted that in only two instances did the colored rate increase. Recently a conference was held at the call of the Louisiana State Board of Health to consider betterment of hygiene among negroes.¹ Five states and the District of Columbia sent delegates. Eight of the leading negroes of the South were present. Progress has been made and sincere workers are adding impetus to the beginning steps. Another decade should see a more reasonable balance between the rates accorded to the two races.

THE STREPTOCOCCI IN MILK

Living organisms, both great and small, are usually associated with a definite habitat. Conditions of transference arise, however, whereby a species peculiar to a given locality is carried to another place. We can often identify the strangers by observing their behavior and comparing it with the deportment of other known organisms. If, perchance, the characteristics of the invaders become altered through adaptation to the new environment, it is not always easy to identify them.

The bacteria found in milk are indeed a heterogeneous collection, and the true types of milk bacteria are to be sought at the sources of contamination. The fact that certain organisms are frequently found in milk does not necessarily mean that they originate in the udder, but rather directs the search toward the focus of infection from which they find their way into the secretion of the mammary gland. It is known that while the colon group is frequently found in water and milk, its natural habitat is the intestinal tract of warm-blooded animals. The experts of the Dairy Division of the Bureau of Animal Industry in

1. Conference on Betterment of Hygiene among Negroes, Medical News THE JOURNAL A. M. A., May 2, 1914, p. 1410.

Washington have been investigating the sources from which the streptococci may gain entrance into milk.¹ The foremost possibilities are: contamination with feces, which must always be considered as a possible source of bacteria in milk, which would undoubtedly include members of the lactic-acid group; the presence, in the herd producing the milk, of one or more cows with infected udders; the mouth, which is known to contain streptococci. The habit of licking the flanks and udder provides a more or less direct connection between the mouth of the cow and the milk-pail.

If it can be accomplished, the hygienic significance of the identification of the bacteria in milk with the species or types constantly found in some of these different sources of contamination must be obvious. Accordingly, the government investigators collected representative cultures of streptococci from milk, bovine feces, the mouths of cows and their udders, and compared the bacteriologic characteristics of these related organisms with each other and with those isolated from milk. In view of the extreme variability of these organisms, such a comparison is anything but easy. Indeed, it was found that the morphology varied with varying conditions and could not be correlated with the source of the culture. On the basis of physiologic manifestations, however, some suggestions were forthcoming. When the milk-cultures were considered individually, it was found that with the exception of two which clearly came from feces, they could be included in one or the other of two groups into which the udder cultures were divided.

Current Comment

THE BIOCHEMISTRY OF BACTERIA

Bacteria are known to resemble other organized forms of cellular protoplasm in a very general way in respect to the essential chemical compounds that enter into their make-up. It has been ascertained that they contain various proteins, nucleic acid derivatives, carbohydrates, phosphatids (lecithins) and representatives of the group of "lipoids" now designated as sterols, of which cholesterol is a familiar example. Bacteria are classified at present on the basis of their behavior in various mediums and also on their tinctorial properties as shown by the reaction with a few widely used stains. Both of these features of bacterial response are essentially chemical; and the differential staining of the micro-organisms is clearly an expression of the occurrence of some unlike chemical compounds in the bodies of the bacteria. We have hitherto referred to Tamura's demonstration that in certain strains, such as the tubercle bacillus and the *Mycobacterium lacticola*, for example, the acid-fast phenomena are associated with the presence of a characteristic substance,

the higher alcohol mykol,¹ in place of the more familiar cholesterol. He has now further demonstrated other chemical differences between unlike forms of bacteria, namely, the two species already mentioned and the bacillus of diphtheria, which is biologically and morphologically quite distinct from them.² The diphtheria organisms are not "acid-fast," and accordingly mykol was not found in them. They differ also from the tubercle bacilli and the *Mycobacterium lacticola* with respect to the character of the phosphatids which they yield and in the solubilities of their protein components. The amino-acid units of the latter also show variations, the proteins of the bacillus of diphtheria being, by comparison with others, rich in tyrosin and poor in phenylalanin. In all of the three species investigated, however, the Gram-staining seems to depend on the presence of lipoid substances. Such facts represent a further advance toward a comprehensive knowledge of the structural biochemistry of bacteria.

NULLIFICATION BY AMENDMENT

In spite of the fact that legislation restricting the practice of medicine to those showing adequate training and qualifications can be justified only on the ground of public good, each year, in practically every state in which the legislature meets, the medical practice act of that state is subject to attack from some source. Thus each year it is necessary for those interested in the maintenance of high educational standards to resist the assaults made on the law. One who has watched the course of legislation throughout the country for a number of years is led to wonder why a law clearly in the interest of the public must each year be defended from attack by those interested in breaking down its restrictions. In spite of the agitation against such laws under the pretext that the individual should be allowed "free choice of doctors," it is significant that the attacks on medical practice acts are always inspired and led by those who wish to treat the sick for compensation and not by those who wish the privilege of selecting some unqualified practitioner as an attendant. Another significant fact is that no matter how carefully drawn or how diligently guarded after its passage a medical practice law may be, it is eventually nullified, either partially or completely, by the passage of an amendment or the rendering of a judicial decision modifying the definitions or introducing such exemptions as will make it possible for untrained and unqualified persons to perform, under the authority of the law, the very acts which the law itself was intended to prohibit. This nullification process has occurred repeatedly in different states. No better example of it has recently been observed than the recent amendment of the Massachusetts medical practice act, which resulted in the adoption of the following amendment: "Nothing in this act shall be held to apply to registered pharmacists, registered

1. Rogers, L. A., and Dahlberg, A. O.: The Origin of Some of the Streptococci Found in Milk, Jour. Agric. Research, 1914, i, 491.

1. Some Features of Staining Technic, editorial THE JOURNAL A. M. A., Nov. 8, 1913, p. 1724.

2. Tamura, S.: Zur Chemie der Bakterien, III Mitteilung, Ueber die chemische Zusammensetzung der Diphtheriebacillen, Ztschr. f. physiol. Chem., 1914, lxxxix, 289.

dentists or registered optometrists, or to restrain the practice of clairvoyance, hypnotism or mind cure, or to apply to any person who administers to or treats the sick or the suffering by mental or spiritual means without the use of drugs or material remedies." Evidently the belief in Massachusetts in spirits, ghosts and similar superstitions has persisted even since Cotton Mather's day. The legalization by the Massachusetts legislature of the fortune-telling clairvoyants who are being put out of business as swindlers by the police in many of our states is a sad commentary on legislative conditions in a state which was once regarded as the intellectual leader of the nation. Another amendment to the bill defined the practice of medicine so as to restrict it very largely to those claiming to be scientifically educated and qualified physicians. That is, the Massachusetts law has gradually been modified by amendment from a restrictive measure into a definitive law, in which the illegal act consists, not in treating disease without proper qualifications and authority, but in claiming to be what one is not, namely, a legally qualified medical practitioner. Such a definitive law, as has been repeatedly pointed out in *THE JOURNAL*, has its advantages. It must be clearly recognized by physicians and others interested, however, that a purely definitive law is not restrictive and never can be. The amendment of the Massachusetts act furnishes another interesting chapter in the history of our complicated, contradictory and generally ineffective methods of regulating the practice of medicine by law.

POSSIBLE SOURCES OF ACIDOSIS IN INFANCY

A condition of acidosis in the diseases of early infancy is familiar to the modern pediatricist. It may be relative acidosis due to a deficiency in the supply of alkali at a period when bases are particularly needed to meet the requirements of a growing organism; or the acidosis may be a positive rather than a relative phenomenon and be attributable to a production of undue amounts of acid products which for some reason escape further oxidation or destruction in the economy. In the event of the existence of the latter condition one must call to mind, first of all, those examples of acid compounds that are known to arise under such circumstances. Most familiar are the lower members of the fatty acid series, such as the volatile formic, acetic and butyric acids. We would not imply that these are all uniformly non-metabolizable in the body, for acetic acid and its salts are as a rule readily oxidized. Formic acid, once making its appearance, is not so readily destroyed. To account for the possible origin of such compounds would not be difficult, inasmuch as they frequently represent products of the activity of micro-organisms in the gastro-intestinal canal, which is notably liable to excessive bacterial invasion in the disorders of infancy. So far as these substances escape oxidation they are excreted in the urine. Aron and Franz¹ have exam-

ined the urine of numerous sucklings in the Children's Clinic at the University of Breslau, without finding more than merest traces of volatile fatty acids therein. The quantity was not increased by an enrichment of the diet in fats; and even in acute disturbances of nutrition, in dyspepsias and alimentary intoxications, as an accompaniment of which they might have been expected to arise, the results were negative. Another organic acid resistant to metabolic destruction is oxalic acid. It has been realized for some time that this arises as a product of the fermentative decomposition of carbohydrates; and such a mode of origin has been postulated for those cases in which oxaluria could not be explained as the result of the ingestion of food (as rhubarb, spinach, etc.) said to contain considerable preformed oxalic acid.² According to Aron and Franz, the urine of infants brought up on such oxalate-free foods as milk and milk mixtures almost invariably contains oxalic acid. This is assumed to have either a fermentative origin in the alimentary canal, or an endogenous one in intermediary metabolism. Additions of cane-sugar or other nutrient carbohydrates to the diet seem to augment somewhat the urinary output of oxalic acid. No increase could be associated, however, with acute nutritive disturbances. The facts, negative and positive, here recorded point to a field for investigation that may yield fruitful suggestion with respect to the etiology of some of the obscure acidoses.

NEW HOUSES AND HEALTH

New houses are constantly offered for rent in large numbers in the United States and real-estate agents are naturally desirous to fill the houses on their lists with tenants as soon as possible. Probably a little investigation would show the desirability in this country of requiring a certificate that a new house will not endanger the health of its occupants before families are allowed to move into it. Such municipal regulations are proving valuable in England. Toward the close of 1912 the Portsmouth (England) corporation decided that thereafter no new building intended for human habitation in that borough should be occupied until it had been certified as sanitary in every respect. Dr. A. Mearns Fraser³ says: "The principal evil that it will prevent is the occupation of houses before they have had time to dry." He adds: "I would far sooner live in a house with defective drainage than in a damp house; the results from the latter are more insidious in their onset and more difficult to overcome. Dampness undoubtedly greatly favors the incidence of consumption, bronchitis, rheumatism, heart-disease and diphtheria. Probably children are more susceptible to the ill effects of damp houses than adults." The departments of health of our cities might well take up this question. Probably most American municipalities already have the legal power necessary to require such certificates and the question is only one of making the regulation and establishing the custom.

1. Aron, H., and Franz, Marianne: *Organische Säuren im Säuglingsharn*, *Monatsschr. f. Kinderh.*, 1914, xii, 645.

2. Baldwin, Helen: *Jour. Exper. Med.*, 1900, v, 27.

3. Fraser, A. Mearns: *Medical Officer*, Feb. 7, 1914.

Medical News

ARKANSAS

Colored Physicians Society Holds Meeting.—The State Association of Negro Physicians held its annual meeting in Little Rock, May 6 and 7, and elected the following officers: president, Dr. Steven W. Harrison, Fort Smith; vice-presidents, Drs. Madison M. McBeth, Plum Bayou; Harold H. Phipps, Hot Springs, and J. E. Swayzer, Arkadelphia; recording secretary, Dr. G. H. Frank Morris, Cotton Plant; corresponding secretary, Dr. Alexander H. Brown, Argenta, and treasurer, Dr. R. J. Meddaugh, Little Rock. Little Rock was selected as the place of the next annual meeting.

State Meeting.—The thirty-eighth annual meeting of the Arkansas Medical Society was held in Eldorado, May 19-21, and the following officers were elected: president, Dr. St. Cloud Cooper, Fort Smith; vice-presidents, Drs. Gus. A. Warren, Black Rock; Robert A. Hilton, Eldorado, and Rufus S. Rice, Rogers; secretary, Dr. Clinton P. Meriwether, Little Rock (reelected); treasurer and editor of *The Journal of the Arkansas Medical Society*, Dr. William R. Bathurst, Little Rock (reelected); councilors, second district, Dr. Lorenzo T. Evans, Barren Fork; fourth district, Dr. Edwin C. McMullin, Pine Bluff; sixth district, Dr. Charles A. Archer, De Queen; eighth district, Dr. William A. Snodgrass, Little Rock; tenth district, Dr. Joseph T. Clegg, Siloam Springs; delegate to the American Medical Association, Dr. Robert Caldwell, Little Rock, and alternate, Dr. Joseph T. Clegg, Siloam Springs. Little Rock was selected as the place of the next meeting in May, 1915. Resolutions were adopted discontinuing the annual banquet at the society meeting, and placing a suitable memorial tablet in the state sanatorium, Booneville, in commemoration of the work of Dr. John L. Shibley, who initiated the crusade against tuberculosis in Arkansas.

FLORIDA

State Association Meeting.—At the forty-first annual meeting of the Florida Medical Association held in Orlando, May 13-15, the following officers were elected: president, Dr. F. Clinton Moor, Tallahassee; vice-presidents, Drs. Calvin D. Christ, Orlando; Thomas Truelson, Tampa, and John A. Simmons, Arcadia; secretary-treasurer, Dr. Graham E. Henson, Jacksonville; librarian, Dr. James D. Pasco, Jacksonville, and delegate to the American Medical Association, Dr. John MacDiar, Deland. Deland was selected as the next place of meeting; and it was decided that the association publish a monthly journal, to stimulate interest in the profession in general, and in the state organization in particular.

ILLINOIS

County Secretaries Elect.—At a meeting of the County Secretaries' Association, held in Decatur, May 19, Dr. Harry F. Bennett, Litchfield, was elected president, Dr. Elizabeth B. Ball, Quincy, vice-president, and Charles W. Carter, Clinton, secretary.

Personal.—Dr. and Mrs. Robert S. Denney, Aurora, sailed for Europe, May 19.—Dr. Thomas J. Whitten, Nokomis, for forty-seven years in practice, has decided to retire, and will reside with his daughter in Peoria.—Dr. Edwin E. Williams, Streator, is reported to be seriously ill.—Dr. Halley A. Smith, a member of the staff of the Rockford Hospital, has entered the Santa Fe System medical service at Topeka.

Failures of 1913 Graduates.—Table "C" published last week in *THE JOURNAL*, on page 1648, in State Board Statistics, contained a clerical error relating to the 1913 graduates of Bennett Medical College. The table shows correctly that of the 100 "graduates of 1909 to 1913" examined during the year, 14 (14 per cent.) failed. The correct figures show, however, that 54 graduates of 1913 were examined, and of these that 3, or 5.6 per cent., failed.

Hospital Notes.—At an informal meeting of the members of the La Salle-Peru Medical Society held in La Salle, recently, a plan for an isolation hospital on the dividing line between the two cities was discussed, and it is understood that the members went on record as favoring the plan.—Sixty physicians of Peru and vicinity met in Peru, May 7, to inspect the new People's Hospital. After the opening, the visiting physicians were entertained at dinner at the Hotel Peru. The institution is a three-story structure, has been erected at a cost of \$90,000, and will accommodate fifty patients.

State Society Meeting.—At the annual meeting of the Illinois State Medical Society, held in Decatur, May 19-21, the following officers were elected: president, Dr. Albert L. Brittin, Athens; president-elect, Dr. Charles W. Lillie, East St. Louis; vice-presidents, Drs. Otto T. Freer, Chicago, and Everett J. Brown, Decatur; secretary, Dr. Wilbur H. Gilmore, Mount Vernon (reelected); treasurer, Dr. A. J. Markley, Belvidere (reelected); councilors, first district, Dr. Emil Windmueller, Woodstock; second district, Dr. Edwin S. Gillespie, Wenona; eighth district, Dr. Elmer B. Cooley, Danville; delegates to the American Medical Association, Drs. Guy L. Armstrong, Taylorville; James W. Hamilton, Mount Vernon; Fernando C. Gale, Pekin; William L. Noble, Chicago; Charles P. Caldwell, Chicago, and Henry F. Lewis, Chicago; alternates, Drs. Alden Alguire, Belvidere; Lay G. Burroughs, Collinsville, Frank Buckmaster, Effingham; Frederick Tice, Chicago, Hugh N. MacKechnie, Chicago, and Duncan R. MacMartin, Chicago. Springfield was selected as the place of meeting for 1915, and the date appointed was May 18-20. At the meeting of the House of Delegates, May 19, a gift of \$500 was made to Dr. Edmund W. Weis, Ottawa, for sixteen years secretary of the society.

Chicago

Personal.—Dr. and Mrs. Peter C. Schenkelberger, and Dr. Michael Goldenberg have gone abroad.

Council Provides Funds for Crime Investigation.—The city council at its last session passed an appropriation of \$10,000 for the work of a special committee on crime, and \$1,200 for the survey of the vice control situation to be made by the health committee.

City to Certify Babies.—Chief Justice Harry Olson of the municipal court proposes that the new psychopathic laboratory shall examine all children taken by foster parents from the morals court, and declare them to be normal before they are allowed to pass from the jurisdiction of the court.

Conference for Care of Subnormal.—A conference of Chicago charity workers to devise plans for the care of subnormal children and adults was held recently in the office of the county board. The conference was called because of the emergency which now exists in Illinois owing to the presence of 6,000 subnormals in Chicago and 18,000 in the state of Illinois, in need of institutional care, while the state institutions have a maximum capacity of 1,800.

Bills will be introduced into the next session of the legislature, and conferences will be held to determine the best legislation to be enacted.

The appointment of committees on legislation, propaganda, and to meet the Illinois state board of administration was decided on, but the members were not named. President A. A. McCormick was appointed chairman of the organization committee, which was made permanent.

INDIANA

Medical Library at Gary.—The members of the Gary County Medical Society are making preparations to start a medical library section in the Gary Public Library.

National Guard Changes.—Maj. John J. Boaz, M.C., Ind.N.G., surgeon in charge of the Field Hospital; Capt. John W. Sluss and Lieut. T. B. Victor Keene, all of Indianapolis, have resigned from the Medical Corps of the Indiana National Guard.

Meningitis in Indianapolis.—Twenty-four cases of cerebrospinal meningitis have been reported since January 1. Twelve cases and three deaths have been reported in May. The City Board of Health has urged the reporting of all cases so that a thorough investigation of each one may be made, and requests the cooperation of all physicians in stamping out the disease. Only nine deaths occurred from cerebrospinal meningitis during the year 1913.

Meat Packer Indicted by Grand Jury.—C. J. Gardner, a meat packer who was fined \$500 and costs and sentenced to jail for six months after he was found guilty in police court on the charge of having unwholesome and diseased meat in his possession with intent to sell such meat, has been indicted on a similar charge by the Marion County grand jury. The case in police court involved the carcass of a diseased sheep. It is understood the charges on which the indictment is based involves the carcass of a cow.

Hospital Notes.—The Robert W. Long Hospital, Indianapolis, is almost completed and will be dedicated next month. The building has been erected at a cost of \$250,000, exclusive of the site, and will be part of the University of Indiana

School of Medicine, and under the control of the faculty of the school. The hospital is the gift of Mr. and Mrs. Robert W. Long.—The new St. Francis Hospital, Beech Grove, will be dedicated with formal ceremonies June 21. The institution, which has been erected at a cost of \$200,000, will accommodate 200 patients and will be conducted by the Sisters of St. Francis.

Personal.—Drs. William Osenbach and Frank L. Truitt were attacked with an axe during a neighborhood quarrel in Indianapolis, May 10.—Dr. Orlando B. Williams, Andrews, who has been seriously ill, is reported to be improving.—Dr. William F. Walsh, Indianapolis, was seriously injured, recently, in a collision between his automobile and a switch engine.—Dr. Algie H. Shock, Silverlake, is reported to be ill with small-pox.—Dr. Earl P. Wagner, South Bend, who has been ill for three weeks, is reported to be convalescent.—Dr. Herschel L. Bass, Ft. Branch, coroner of Gibson County, has resigned and moved to Elberfeld.—Drs. Roscoe L. Sensenich and Stanley A. Clark, South Bend, have been appointed trustees of the County Anti-Tuberculosis Camp.—Dr. Robert W. Harris has been elected president and Dr. Anna I. McKamp, secretary, and Dr. Elihu P. Easley a trustee of the Floyd County Hospital Association. The object of the organization is to promote the erection of a tuberculosis sanatorium on the "knobs" back of New Albany.

IOWA

Personal.—Dr. Bert A. Bowers and family, Granville, have gone abroad.—Dr. Cyrus O. Callison, Albion, was seriously injured by the overturning of his automobile, May 12.—Dr. Thomas E. Powers, Clarinda, is reported to be ill with diphtheria.

Sanatorium News.—Scott County Tuberculosis Sanatorium, Davenport, is nearly completed, and will be ready for occupancy June 15. The buildings have been erected at a cost of \$75,000, and the institution will be able to accommodate forty patients.

State Society Meeting.—The annual meeting of the Iowa State Medical Society was held in Sioux City, May 13-15, under the presidency of Dr. Lee W. Dean, Iowa City. The following officers were elected: president, Dr. Henry C. Eschbach, Albia; vice-presidents, Drs. David W. Smouse, Des Moines, and John F. Herrick, Ottumwa; secretary, Dr. James W. Osborn, Des Moines (reelected); treasurer, Dr. William B. Small, Waterloo; editor, Dr. David S. Fairchild, Clinton; councilors: second district, Dr. Henry Albert, Iowa City; third district, Dr. Joseph C. Powers, Hampton; fourth district, Dr. Paul E. Gardner, New Hampton; seventh district, Dr. Corwin W. Cornell, Knoxville; eighth district, Dr. J. Frank Aldrich, Shenandoah; delegates to the American Medical Association, Drs. Lawrence W. Littig, Davenport; Mathew N. Voldeng, Cherokee, and John C. Rockafellow, Des Moines; and alternates, Drs. Walter L. Bierring, Des Moines; Daniel H. Bowen, Waukon, and Charles S. James, Centerville. Waterloo was decided on as the next place of meeting for 1915. The House of Delegates decided to purchase the *Iowa Medical Journal* from Dr. Edward Dorr, Des Moines, for \$1,000. This offer includes the exchange, advertising and subscription lists and the good-will of the publication.

MASSACHUSETTS

Testimonial to State Health Officer.—The term of service of Dr. Henry Pickering Walcott, Boston, for thirty-three years health officer and chairman of the State Board of Health, terminated May 19. On the occasion of his retirement, an address was presented to him, signed by 2,200 members of the medical profession of Massachusetts. The address sets forth the public health work done by Dr. Walcott, his establishment of a laboratory for the free production and distribution of diphtheria antitoxin, the establishment through his influence of a laboratory for the preparation of antitoxins and animal vaccines, and the many improvements in sanitary conditions carried out under his recommendation, and other great and grave problems of sanitation and hygiene, and closes with the following eulogium: "You have met the responsibilities which you have assumed with such wisdom, discretion, and rare modesty, as to make the task of your successor who would uphold the standard bequeathed to him, a difficult one indeed."

MICHIGAN

Personal.—Dr. Philip D. Bourland has succeeded Dr. M. P. Pichette as health officer of Lake Linden.—Dr. William L. Hircik, Whitehall, is reported to be seriously ill with diphtheria.

New Sanitarium.—Dr. Thomas Bennett O'Keefe, Grand Rapids, will build a new sanitarium building, three stories and a basement in height, adjoining the present building at Reed's Lake. The new building will cost \$20,000, will accommodate fifty patients, and will be completed in the early autumn.

New Officers.—Southwestern Michigan Medical Society, made up of specialists in diseases of the eye, ear, nose and throat, of Battle Creek, Kalamazoo, Grand Rapids, Lansing and Muskegon, at Battle Creek, May 4: president, Dr. Edward J. Bernstein, Kalamazoo; secretary-treasurer, Dr. Wilfrid Haughey, Battle Creek.

MINNESOTA

Tag-Day in Duluth.—On May 16 the Women of Linnaea Society held a tag-day for the aid of tuberculosis sufferers, as a result of which \$1,000 was realized.

Range Physicians Organize.—At a meeting of the physicians of Mesaba Range held in Virginia, May 11, the Range Medical Association was organized, with the following officers: president, Dr. John C. Farmer, McKinley; vice-president, Dr. Charles B. Lenont, Virginia, and secretary, Dr. Henry E. Michelson, Virginia.

MISSISSIPPI

Fever Detains Steamer.—The British steamer *Carisbrook*, from Tela, British Honduras, to Gulfport, with ballast, was detained at the quarantine station, Ship Island, on account of several cases of fever among the crew.

Colored Physicians Hold Meeting.—At the annual meeting of the Colored Medical, Dental and Pharmaceutical Association of Mississippi, held in Jackson, April 29 and 30, Dr. Daniel W. Sherrod, Meridian, was elected president; W. M. P. Harris, Vicksburg, vice-president; Dr. Lemon R. Young, Hattiesburg, secretary; and B. W. Turner, treasurer. Meridian was selected as the next place of meeting.

Pellagra in 1913.—During the first nine months of 1913, according to the report of the State Board of Health, there were 3,734 cases of pellagra reported, of which 1,689 were white and 2,045 colored. The deaths were 544, of which 106 were of whites and 406 colored. This represented 3.6 per cent. of the total deaths, 2.6 per cent. of white deaths and 4.2 colored, a ratio of nearly two to one. During the entire year the deaths were 795. It is believed that more accurate statistics would somewhat increase this figure.

MISSOURI

New State Society Officers.—At the fifty-seventh annual meeting of the Missouri State Medical Association held at Joplin, May 12-14, the following officers were elected: president, Dr. Henry C. Shuttee, Westplains; vice-presidents, Drs. James A. McComb, Lebanon; Godfrey O. Cuppidge, Moberly; William G. Estill, Lawson; Theodore A. Coffelt, Springfield, and William A. Clark, Jefferson City; secretary and editor, Dr. Edward J. Goodwin, St. Louis (reelected); treasurer, Dr. Franklin Welch, Salisbury (reelected); councilors, sixteenth district, Dr. Harry S. Crawford, Harrisonville; nineteenth district, Dr. Stephen V. Bedford, Jefferson City; twenty-second district, Dr. Garnett S. Cannon, Farnfeld; twenty-sixth district, Dr. William H. Breuer, St. James; twenty-seventh district, Dr. James H. Elliott, Westplains; twenty-eighth district, Dr. Thomas O. Klinger, Springfield; twenty-ninth district, Dr. Robert L. Wills, Neosho; delegates to the American Medical Association, Drs. Enoch H. Miller, Liberty; Andrew W. McAlister, Jr., Kansas City; Henry L. Reid, Charleston; Edward J. Goodwin, St. Louis, and Robert M. Funkhouser, St. Louis. The next meeting will be held in St. Joseph.

NEBRASKA

Personal.—Dr. Samuel K. Spalding, Omaha, has been elected medical director of the Department of Nebraska G. A. R.—Dr. Albert J. Coats, Fairbury, sails for Germany, June 26.

State Society Meeting.—At the annual meeting of the Nebraska State Medical Society in Lincoln, May 12-14, the following officers were elected: president, Dr. John P. Gilligan, O'Neill; vice-presidents, Drs. Leander B. Smith, Fremont, and John I. McGirr, Beatrice; delegate to the American Medical Association, Dr. Artemas I. MacKinnon, Lincoln; and alternate, Dr. Burton W. Christie, Omaha. There was a registration of 300 members at the general session. On April 30, 767 members had paid their 1914 dues leaving over

200 delinquents. A local committee of Lancaster County physicians secured a very suitable convention hall and committee rooms for the meetings. The social features were entertaining, instructive and unexcelled—if ever equaled—at any prior state association convention. By a majority vote of the house an invitation to hold the next annual convention in Hastings, Neb., was accepted.

NEW HAMPSHIRE

State Society Meeting.—The one hundred and twenty-third annual meeting of the New Hampshire Medical Society was held in Concord, May 13-15, under the presidency of Dr. Abram W. Mitchell, Epping. Dr. Charles F. Flanders, Manchester, presided over the medical section, and Dr. John M. Gile, Hanover, over the surgical section. The following officers were elected: president, Dr. Herbert K. Faulkner, Keene; secretary, Dr. Dennis E. Sullivan, Concord (reelected); councilors, Drs. Charles S. Walker, Keene; and Emery M. Fitch, Claremont; trustee, Dr. John M. Gile, Hanover; delegates to the American Medical Association, Dr. Irving A. Watson, Concord, and alternate, Dr. George W. McGregor, Littleton. Drs. John F. Robinson and George S. Foster, Manchester, were recommended to the governor as members of the Regular Board of Medical Examiners.

NEW JERSEY

Atlantic City Number.—The descriptive article on "The Charms of the Convention City" which appeared in the Atlantic City Number of THE JOURNAL was contributed almost wholly by Dr. C. C. Charlton.

New Hospital Directors.—The Camden County Board of Free Holders on May 13 appointed the following to take charge of the new tuberculosis hospital at Ancora: Drs. J. W. Schellenger, Joseph E. Roberts, Jr., Camden, Morgan Solly, Addison B. Reder, Camden, and John I. Hoverton.

Relief Society Election.—The thirty-second annual meeting of the Relief Society for Widows and Orphans of Medical Men of New Jersey was held in Newark, May 13, and the following officers were elected: president, Dr. Edward J. Ill, Newark; vice-president, Dr. Norton L. Wilson, Elizabeth; secretary, Dr. Charles D. Bennett, Newark; treasurer, Dr. Harold A. Tarbell, Newark, and trustees, Drs. Gordon K. Dickinson, Jersey City; Frank M. Child, Hoboken, and Christopher C. Beling, Newark.

NEW YORK

Personal.—Dr. Leverett D. Bristol, Syracuse, has been appointed head of the public health laboratory of the University of North Dakota.—Drs. S. W. Gill Wylie and Adolf Rostenberg have sailed for Europe.

Harrington Lectures.—The Harrington lectures of the Medical Department of the University of Buffalo will be delivered by Prof. Ludwig Pick, Berlin, Germany, on the evening of June 2, and the afternoon of June 2 and 3. The subject of the lectures will be "Some Recent Advances in Pathologic Anatomy." The lecture will be illustrated by lantern-slides and many lumière plates.

Buys Site for Hospital.—It is announced that the Beth Israel Association has made public its plans for the construction of one of the largest private hospitals in the city. The site purchased is on Livingston Place, facing Stuyvesant Square and contains 14,000 square feet. A sixteen story hospital building will be erected at a cost of \$1,000,000. The new hospital will provide for 500 patients and will be the last word in hospital construction and equipment.

New York City

Street Accidents in Greater New York.—During the year 1913 in the streets of the Greater City there were 119 persons killed by trolleys, 169 by horse-drawn vehicles and 109 by automobiles.

Vaccination Stations.—The Department of Health has arranged to have small-pox vaccination performed daily in all the children's clinics of the department and also on two days of each week at each infant's milk station. This action will create sixty-two offices of the department where vaccination may be obtained free of charge.

Personal.—Dr. Otto Glogau has been appointed delegate to the Third International Congress on Occupational Diseases, to be held in Vienna in September next.—Dr. and Mrs. William Lintz, Brooklyn, sailed for Europe, May 16.

Hospital Reorganization Urged.—At the fifth annual City Conference of Charities and Corrections, which was in

session May 19 and 20, Dr. Sigismund S. Goldwater outlined an improved plan for the hospital service of the city. Dr. Goldwater opposes the expansion of hospitals as health centers, holding that this work is preventive and belongs to the province of the Health Department. He thought that either a large board of trustees, a smaller board, or a single commissioner might satisfactorily administer the city hospitals. Nine ideally organized hospitals distributed among three city departments in groups of three would serve the city better than nine hospitals improperly organized, but under single control. The project to put all hospitals of the city under a new department of hospitals was received with favor by those who had recently made an investigation of the city hospitals for the mayor.

NORTH DAKOTA

Personal.—Dr. George A. Stark, Mandan, is critically ill as a result of a cerebral hemorrhage.—Dr. William Witherstine, Grand Forks, has been appointed county coroner, vice Dr. Francis E. Murphy.

Conservation of Vision.—Dr. John H. Rindlaub of Fargo has been selected as lecture bureau manager in connection with the lectures on the conservation of vision provided for under the auspices of the Council on Health and Public Instruction of the American Medical Association. It was hoped to have delivered at least one lecture a year in each county in the state. These lectures will cover the subject of ophthalmia neonatorum, the medical inspection of school children, the prevention of eye injuries in shops and factories, proper illumination of schools, halls, trains, etc., the prevention and spread of trachoma and some others. Gonorrhea is a reportable disease in North Dakota.

New Officers of State Society.—At the annual meeting of the North Dakota Medical Association, held in Grand Forks May 13 and 14, the following officers were elected: president, Dr. R. Hudson Beek, Lakota; vice-presidents, Dr. Victor J. La Rose, Bismarck, and George M. Williams, Grand Forks; secretary, Dr. Hezekiah J. Rowe, Casselton (reelected); treasurer, Dr. Charles S. Crane, Grand Forks; councilors, Drs. George A. Carpenter, Fargo; Robert Campbell, Grand Forks; and Francis R. Smyth, Bismarck; and delegate to the American Medical Association, Dr. Charles S. Crane, Grand Forks, vice Dr. James Grassie, Grand Forks. Bismarck was selected as the next place of meeting. The society recommended the following members to the State Examining Board: Drs. Alexander McCannel, Minot; Paul Sorkness, Fargo; and John Countryman, Grafton.

OKLAHOMA

Personal.—Dr. Samuel W. Wilson, Lindsay, who has been ill with rheumatism, is said to be improving.—Dr. Dumont D. Howell, Nowata, was thrown from a buggy recently fracturing his left leg above the ankle.—Dr. James McRae, Bromide, has been completely exonerated of blame following the death of B. B. Askew, Bromide, from alleged strychnin poisoning.—Dr. Roy A. Morter, Norman, has been appointed a member of the staff of the Michigan State Hospital, Kalamazoo, and has been assigned to duty in the women's department.—The offices of Drs. David M. and R. L. Montgomery, Marlow, were destroyed by fire recently.

Hospital Notes.—It is announced that a sanatorium for tuberculosis will be opened in Tahlequah in a short time.—The Sisters of Charity at McAlester have purchased Cornish property, and will open it as a hospital.—Dr. Clay Williams has purchased the building of Dr. Elmer Lumm, Stroud, and will fit up the upper rooms of the building for a sanatorium, with accommodations for ten patients.—Fire at the Alva Hospital, recently, caused damage to the extent of \$500. The patients were removed without casualty.—Work has been commenced on the new Indian hospital at Lawton, which is to cost \$40,000. The building will be ready for occupancy this fall.

State Association Meeting.—The twenty-second annual meeting of the Oklahoma State Medical Association was held in Guthrie, May 12-14, under the presidency of Dr. James Byrum, Shawnee. The following officers were elected: president, Dr. John W. Riley, Oklahoma City; vice-presidents, Drs. Charles R. Hume, Anadarko, and Edward F. Darr, Oklahoma City; secretary-treasurer and editor, Dr. Clara A. Thompson, Muskogee (reelected); councilors, first district, composed of Cimarron, Texas, Beaver, Harper, Elberton, Woods and Woodward counties, Dr. R. A. Workman, Woodward.

ward; second district, composed of Roger Mills, Beckham, Washita, Custer, Dewey, Blaine counties, Dr. Ellis Lamb, Clinton; third district, composed of Harmon, Jackson, Greer, Kiowa, Tillman, Comanche and Cotton counties, Dr. Samuel P. Rawls, Altus; fourth district, composed of Alfalfa, Grant, Garfield, Major, Kay and Noble counties, Dr. Walter H. McKenzie, Enid; fifth district, composed of Kingfisher, Logan, Oklahoma and Canadian counties, Dr. Fred Y. Cronk, Guthrie; sixth district, composed of Caddo, Grady, Stephens, McClain, Garvin and Jefferson counties, Dr. Clinton M. Maupin, Waurika; seventh district, composed of Osage, Pawnee, Creek, Okfuskee, Okmulgee and Tulsa counties, Dr. Walter E. Wright, Tulsa; eighth district, composed of Cleveland, Payne, Lincoln, Pottawatomie and Seminole counties, Dr. H. Marion Williams, Wellston; ninth district, composed of Coal, Pontotoc, Murray, Johnston, Marshall, Love and Carter counties, Dr. J. T. Slover, Sulphur; tenth district, composed of Washington, Nowata, Rogers, Mayes, Craig, Ottawa and Delaware counties, Dr. Robert L. Mitchell, Vinita; eleventh district, composed of Wagoner, Muskogee, McIntosh, Cherokee, Adair and Haskell counties, Dr. Pleasant P. Nesbitt, Muskogee; twelfth district, composed of Hughes, Pittsburg, Latimer, Sequoyah and LeFlore counties, Dr. Leonard S. Willour, McAlester, and thirteenth district, composed of Atoka, Bryan, Choctaw, Pushmataha and McCurtain counties, Dr. John L. Austin, Durant. Among the changes to the constitution and by-laws adopted at this meeting were the following: Giving the president and secretary a full vote in the Council and House of Delegates; making the term of office of secretary three instead of two years; giving the council authority to establish a physician's defense bureau, the entire assessment for membership and protection not to exceed \$5 a year; making the number of councilors subjects to change by the House of Delegates. The next meeting will be held in Bartlesville, and the meeting for 1916 in Medicine Park. The Women's Auxiliary held its seventh annual meeting at Guthrie, May 13 and 14. The chief subjects discussed by the physicians' wives were: "How Can We Best Promote Interest in, and Establish Auxiliaries to the County Societies, and in What Way Can We, as an Organized Body, be of the Greatest Assistance to the Physicians and the Public" and "The Rights of the Physician's Wife."

PENNSYLVANIA

Rules against Hospital Noises.—The supreme court of Pennsylvania, May 19, sustained a decree handed down by the lower court, ordering the operating-room in the Homeopathic Medical and Surgical Hospital of Reading to be removed to another part of the building, as it was shown the noises therefrom were annoying to the neighbors.

Typhoid Due to Coatesville.—Five children of the Embreeville School in Newlin Township, Chester County, developed typhoid within two days, and in tracing the cause of the outbreak it was found that the school water-supply was obtained from a farm, one-eighth of a mile from the school-house. As the water had to be carried, it was thought the boys have been filling the water buckets at the Brandywine Creek. The sewage from Coatesville, where several cases of typhoid have recently existed, is emptied into this stream without treatment. At a conference of the citizens of Coatesville and the state health commissioner in Harrisburg, May 22, regarding a new water-supply, Dr. Samuel G. Dixon, Harrisburg, thereon requested Attorney General Bell to begin suit against the borough of Coatesville under the act of 1905 for failing to file plans of the existing system of sewers and plans for a sewage disposal plant.

Philadelphia

Alumnae to Meet.—The Alumnae Association of the Women's Medical College of Pennsylvania, Philadelphia, will hold its thirty-ninth annual meeting at the college building, North College Avenue and Twenty-First Street, June 4 and 5, under the presidency of Dr. Eleanor C. Jones. The annual reception and dinner will be held June 4 at the Bellevue-Stratford.

TEXAS

No Quarantine Changes.—Governor Colquitt, after conferring with State Health Officer Steiner, announced, May 4, that there would be no change in the quarantine regulations for Galveston, so far as refugees from main points were concerned.

Roentgenologists Organize.—The Texas Roentgen-Ray Association was organized at Houston, May 14, and the following officers were elected: president, Dr. George D. Bond,

Fort Worth; vice-president, Dr. William O. Sauermann, Houston; secretary-treasurer, Dr. John W. Torbett, Marlin. The association is to meet each year at the time and place of the state association convention.

Tulane Alumni Meet.—The alumni of Tulane University, in attendance on the convention of the State Medical Association of Texas, held a meeting and banquet, May 13. Dr. Charles C. Green, Houston, was toastmaster, and the following officers were elected: president, Dr. William M. Brumby, San Antonio; vice-president, Dr. Charles C. Green, Houston; and secretary-treasurer, Dr. M. M. Brown, Mexia.

State Association Meeting.—At the forty-eighth annual meeting of the State Medical Association of Texas, held in Houston, May 12-14, the following officers were elected: president, Dr. Frank D. Boyd, Fort Worth; vice-presidents, Drs. Granville T. Hall, Big Springs; Leopold H. Recves, Decatur, and Khleber H. Beall, Fort Worth; councilors, second district, Dr. Newton J. Phenix, Colorado (reelected); seventh district, Dr. Thomas J. Bennett, Austin (reelected); eighth district, Dr. Walter Shropshire, Yoakum, (reelected); ninth district, Dr. W. Wallace Ralston, Houston (reelected); tenth district, Dr. Arthur R. Sholars; fourteenth district, Dr. Alva W. Carnes, Hutchins; trustee, Dr. R. R. White, Temple, to succeed Dr. John S. Lankford, San Antonio, term expired; delegates to the American Medical Association, Dr. Charles E. Cantrell, Greenville, and Marvin L. Graves, Galveston; alternates, Drs. Witten B. Russ, San Antonio, and Albert Woldert, Tyler. Fort Worth was selected as the next place of meeting.—A Council on Medical Defense, for the purpose of investigating and defending all damage suits against members of the profession, was created by the House of Delegates, May 13.—A resolution was introduced providing that the president appoint a committee to look into the question of providing for indigent members of the association, with a view to establishing a home for such members.—A resolution was introduced providing for the appointment of a committee to formulate a list of drugs which should not be sold except on prescription of a physician was adopted.—A resolution was introduced by Dr. Joseph E. Dildy, Lampasas, providing for the recommendation of the enactment of a law to protect children of the state from disease, by medical inspection of schoolchildren and such other means as may be decided on.—On May 12 memorial exercises were held by the association in honor of members who had died during the last year.

WEST VIRGINIA

Personal.—Dr. Edgar B. Plant has been appointed physician of Ohio County.—Dr. A. Maywood Forsythe, Maynard, who has been seriously ill with pneumonia, is reported to be improving.

Anti-Tuberculosis League Organized.—The Anti-Tuberculosis League of Kanawha County has been incorporated at Charleston by George S. Laidley, F. M. Staunton, Louise F. Jackson, Ethel Ruffner and Virginia A. Payne.

State Society Meeting.—The annual meeting of the West Virginia Medical Society was held in Bluefield, May 13-15, and the following officers were elected: president, Dr. Henry P. Linsz, Wheeling; vice-presidents, Drs. Joseph B. Kirk, Elkhorn, Theodore K. Oates, Martinsburg, and Isaac N. Houston, Moundsville; secretary, Dr. J. Howard Anderson, Marytown; and treasurer, Dr. Hugh G. Nicholson, Charleston; and delegate to the American Medical Association, Dr. Frank L. Hupp, Wheeling. Huntington was selected as the next place of meeting.

WISCONSIN

Personal.—Dr. Albert Jenner, Milwaukee, has sailed for Europe.—Dr. and Mrs. Edward B. Felter, Plymouth, sail for Europe, June 18.

Health Conference Called.—Dr. Cornelius A. Harper, secretary of the State Board of Health, has called a conference of heads of health departments to be held in Madison, June 16 and 17.

Contract for Tuberculosis Camp Awarded.—The State Board of Control has awarded the contract for the construction of the tuberculosis camp on Tomahawk Lake for \$8,000. The camp is to be completed by September 1.

New Isolation Hospital.—At a meeting of the members of the State Commission, the County Board of Supervisors and the Douglas County Medical Association, held in Superior, May 13, a campaign was inaugurated for a new city and county isolation hospital.

Sanatorium to Be Used for Insane Patients Only.—Patients of the Douglas County Tuberculosis Sanatorium, Superior, are to be transferred to the Eau Claire or Manitowoc institution, and the hospital will be converted into a state hospital for insane patients afflicted with tuberculosis.

Needs of Emergency Hospital.—Dr. Dennis J. Hayes, president of the Milwaukee County Medical Society, has appointed the following committee of ten to inquire into the needs of an emergency hospital: Drs. Franz Pfister, Lewis G. Nolte, John R. McDill, Albin A. Krygier, Robert G. Sayles, Frederick J. Gaenslen, Frederic C. Gillen, Hubert F. Jermain, Charles H. Lemon and William T. Lochemes.

GENERAL

Anesthetists to Meet.—The second annual meeting of the American Association of Anesthetists will be held at the Hotel Chelsea, Atlantic City, June 22, under the presidency of Dr. J. Tayloe Gwathmey, New York City.

Leper Escapes.—John Early, a leper, has escaped from Diamond Head Quarantine Station, near Port Townsend, Wash. His escape, says Surgeon-General Blue, demonstrates again the necessity of having a national leprosarium.

Examination Date Changed.—An official notice says that the next examination by the State Board of Health of Kentucky has been changed from June 3-5, 1914, to June 15-17, and will be held at the Hotel Henry Watterson, Louisville.

Pennsylvania Surgeons to Meet at Atlantic City.—The annual convention of the Association of Surgeons of the Pennsylvania Lines, East and West of Pittsburgh, will be held at St. Charles Hotel, Atlantic City, June 19 and 20. One of the chief topics of discussion will be the standardizing of methods of treating fractures in railway accidents.

Bequests and Donations.—The following bequests and donations have recently been announced:

Hospital for Deformities and Joint Diseases, New York City, \$25,000; Presbyterian, Mount Vernon, and Episcopal hospitals, each \$20,000, by the will of Mrs. A. Gertrude Cutter.

Cancer Hospital, and Little Sisters of the Poor, New York City, each \$1,000, by the will of Mary F. Kennedy.

New York Foundling Hospital and St. Vincent's Hospital, New York City, each \$2,160, by the will of Mary Guerin.

Federated Orthodox Jewish Charities, Chicago, a donation of \$1,000 by Samuel Phillipson.

Albany (N. Y.) Medical College, \$5,000, by the will of Sylvester McDonald.

FOREIGN

Measures for Suppressing Plague in Japan.—Surgeon B. W. Brown, U. S. P. H. S., on duty at Yokohama, in *Public Health Reports*, May 15, gives a full translation of the regulations adopted for the eradication of plague from the city. He says that during the epidemic of October and November, 1913, in spite of all efforts to stamp it out, twenty-one cases occurred and ninety-nine infected rats were found, and the infection spread to various parts of the city. Money and men were provided and the most thorough measures adopted, and Brown suggests the value of the report to American cities threatened with this infection.

Foot and Mouth Disease in Switzerland.—Consul David F. Wilbur of Zurich has reported that the live-stock and related industries of Switzerland have suffered greatly because of the foot-and-mouth disease, which was present in some of the cantons during the entire year. The cases began to increase and the disease to spread in June, and until the arrival of cold weather in December the ravages of the disease seemed practically uncheckable. It attacked not only cattle, but also to a less extent the hogs, sheep, goats, etc. To combat the spread of the disease the various cantons enacted decrees against neighboring cantons as well as against neighboring foreign countries, which regulated or prohibited the introduction of all live stock into their respective territories. In this way all traffic and trade in live stock was not only greatly hindered, but in some instances it was entirely forbidden.

Deaths in the Profession Abroad.—Bonner Harris Mumby, M.D., Aberdeen, 1881; for eighteen years medical superintendent of the borough asylum, Portsmouth, England; and a member of the Council of the British Medical Association; died suddenly in a motor car between Portsmouth and Southampton, April 29, from angina pectoris.—John Abercrombie, M.D., Cantab, 1880; F.R.C.P.Lond., 1886; consulting physician to Charing Cross Hospital and the Foundling Hospital, London; for several years editor of the *Medical Times and Gazette*; a specialist in diseases of children; died at his home in Brough, Westmoreland about

April 30, from heart disease.—H. v. Wyss, privat-docent for internal medicine at the University of Zurich, aged 33. His publications on metabolism have been valuable. His latest research was on the development of edema under the influence of sodium bicarbonate and he had collected extensive data which he was able only partially to utilize.—A. Pasquale, professor of tropical pathology at the University of Naples and chief of the Scuola d'Igiene Navale and Scuola di Sanita marittima at that place.

CANADA

Floating Hospital.—A floating hospital on the St. Lawrence River is the plan for the reduction of infant mortality during the summer months. It will accommodate about 150 children at a time, and will be reserved for those actually sick. The age limit will be 5 years.

New Department of Analysis.—Montreal is creating a department of analysis. It will be entirely independent of the medical health department and will be a municipal chemical and bacteriology department, under the charge of Dr. Henri St. George, who has been in the employ of the city for eight years.

For Betterment of Health Department.—Dr. Séraphin Boucher, municipal health officer of Montreal, has asked for an appropriation of \$5,000, to put the department on a more efficient basis. The plans include the appointment of more efficient sanitary and food inspectors, and the establishment of a civic laboratory, for the analysis of food and other commodities, by an efficient staff.

Physicians Resign.—Nine Montreal physicians have withdrawn from the Herzl Institute, a benevolent medical dispensary for the Jewish population of Montreal. Recently a new directorate was appointed, who immediately proceeded to appoint a new medical board or staff. The retiring staff threatens proceedings against the directorate for having illegally appointed a new staff contrary to the constitution of the institute.

Personal.—Dr. Samuel M. Henry has been elected mayor of Harrison, Ont.—Dr. James G. Scott, Seaforth, Ont., narrowly escaped death, May 17, when a locomotive struck a hind wheel of his buggy. He was hurrying to cross the track in front of the train.—Drs. Edward O. Steeves, Moncton; Francis J. Desmond, Newcastle, and F. S. Walker, St. John, have been reappointed members of the Board of Health of New Brunswick.—Dr. Walter H. Delaney, M.P.P., Quebec has returned from Italy.—The physicians of Peterborough County, Ont., gave a dinner in Peterborough, May 14, in honor of Dr. Samuel Payne Ford, Norwood, in celebration of the semicentennial of Dr. Ford's entry into practice. Dr. James T. I. Halliday officiated as toastmaster.—Dr. Arthur W. Moody, Winnipeg, has been appointed chief surgeon of the Manitoba division of the Northern Pacific Railroad, vice Dr. Robert J. Blanchard, resigned.—Dr. Louis de L. Harwood, medical supervisor of the Notre Dame Hospital, Montreal, who was operated on in Paris recently, is reported to be convalescent.

CANAL ZONE

Removal of Tuberculosis Wards.—The tuberculosis and isolation wards on the Ancon Hospital reservation have been removed to La Boca and converted into dwellings. The residence of the governor of the zone will be located on the site of the tuberculosis wards. The isolation wards will be reerected on the site of the hospital garden.

Precautions against Plague.—During April the health officer of the Zone condemned 129 small one and two-story structures in Panama on account of their dilapidated condition and the opportunity afforded by them for harboring rats in the walls and under the floors. The building regulations of Panama require single walls and floors of cement or wood laid on cement. War on rats is being conducted daily and they are examined for plague. The presence of plague at Mantua, Ecuador, forty-eight hours from Panama, makes these operations important.

Quarantine Against Plague at Panama.—On May 20 the government authorities at Panama declared a seven-day quarantine against Colombia on account of bubonic plague which had appeared at several points in that republic. The exact extent of the outbreak is unknown. In connection with this report the comment has been made that the canal will have a great and wide influence on sanitation in countries not now giving sufficient attention to sanitary matters. The prohibition of the use of the canal by shipping from infected ports will induce the government of these countries to clean up

LONDON LETTER

LONDON, May 15, 1914.

The Clinical Congress of the Surgeons of North America

The program of the congress, which will take place in London from July 27 to August 1, is now completed. During each day members of the congress will be the guests of various hospitals and clinics, and will attend operations and demonstrations by well-known surgeons. The General Surgical Division will hold its meetings in the grand hall of the Hotel Cecil, and the Division of Surgical Specialties in the ballroom of the Savoy Hotel. The American surgeons will be welcomed by Mr. Page, American Ambassador. Dr. John B. Murphy will preside over the congress.

GENERAL SURGICAL DIVISION, GRAND HALL, HOTEL CECIL

Monday, July 27: Address of welcome by Sir R. J. Godlee, president of the Royal College of Surgeons; welcome to American surgeons by the American Ambassador, Mr. Page; address to retiring president, Dr. G. E. Brewer. Inauguration of the president, Dr. J. B. Murphy, and the vice-president, Dr. G. E. Armstrong. "The Choice of the Operative Method for Ulcer of the Stomach," A. von Eiselsberg, Vienna; discussion by Sir Watson Cheyne. Presidential address, "Arthrodesis and Bone Transplantation: Its Limitations and Technic," Dr. J. B. Murphy, Chicago.

Tuesday, July 28: "Cure of Hernia by Tissue Inlaying or Fascial Implantation," Dr. E. W. Andrews, Chicago; discussion by Mr. Lawrie McGavin. "Certain Derangements of the Knee-Joint and Their Treatment," Mr. R. Jones, Liverpool.

Wednesday, July 29: "Typhoid Perforation," Dr. G. E. Armstrong, Montreal; discussion by Sir Anthony Bowlby. "Transplantation of Ovaries," Professor Tuffier, Paris. "Primary and Late Results of Operations for Exophthalmic Goiter or Hyperthyroidism," Dr. Charles H. Mayo, Rochester, Minn.; discussion by Mr. James Berry.

Thursday, July 30: "The Principles of Non-Operative Treatment of Carcinoma," Dr. Krönig, Freiburg. "The Treatment of Inoperable Carcinoma of the Uterus by the Application of Heat," Dr. J. F. Percy, Illinois. "Radical Operative Treatment of Cancer of the Uterus," Mr. T. Wilson, Birmingham; discussion by Dr. T. Watts Eden, Mr. W. E. Miles, London, and Dr. J. C. Bloodgood, Baltimore.

Friday, July 31: "The Use of the Levator Ani Muscle and the Uterosacral Ligament in Prolapse Treatment," Dr. Henry Jellett, Dublin; discussion by Dr. Herbert Spencer. "Surgery of Intestinal Stasis," Dr. J. C. Bloodgood. "Intestinal Stasis," Sir W. Osler, Oxford; discussion by Sir Arbuthnot Lane.

SURGICAL SPECIALTIES, BALLROOM, SAVOY HOTEL

Tuesday, July 28: "The Results of Operations (Laryngofissure) for Cancer of the Larynx," E. Schmiegelow, Copenhagen; discussion by Sir St. Clair Thomson. "The Intranasal Surgery of the Lacrimal Apparatus, after an Experience with over 255 Operations," Dr. J. M. West, Berlin; discussion by Dr. D. R. Paterson, Cardiff.

Wednesday, July 29: "The Application of Skiagraphy to the Mastoid Region and Its Use in the Detection of Disease," Dr. A. Logan Turner, Edinburgh; discussion by Mr. Sidney Scott. "Some Considerations Which Determine the Extent of an Operation in Septic Invasion of the Lateral Sinus," Mr. Hugh E. Jones, Liverpool; discussion by Mr. Hunter Tod.

Friday, July 31: "The Sclerocorneal Trephining Operation for Glaucoma," Lieut.-Col. R. H. Elliott, I. M. S., Madras; discussion by Mr. Treacher Collins. "Operative Procedure for Strabismus," Mr. F. Richardson Cross, Bristol; discussion by Mr. N. Bishop Harman. "Operation for Senile Cataract," Mr. J. B. Story, Dublin; discussion by Mr. Holmes Spicer.

The Membership of the British Medical Association

As explained in previous letters, a large accretion took place to the British Medical Association when the profession considered itself threatened by the national insurance act. In the year 1912 the number of new members was 2,500, producing an increase of membership of 1,267. At the end of the year the crisis came and the association attempted to prevent the working of the act, but failed. The profession was divided into two camps, "panel" and "antipanel," and as the latter formed the great majority of the members, the former considered that their interests could not be properly safeguarded by the association. This led to defection which was

increased by raising the annual subscription from \$6 to \$8.50. The result was shown by the resignation of 2,675 members in 1913, causing a decrease of 2,192 in the membership of the association. In Ireland, where the conditions are peculiar, and medical benefit under the insurance act does not exist, the raising of the subscription was especially resented and the membership fell from about 1,000 to 756. It has also been felt that the association has not been of as much political use to Irish members, as its working has been adapted almost entirely to the very different conditions existing in England. An attempt has now been made to retrieve the position by establishing a separate office in Ireland with a whole-time medical secretary. As, however, an Irish Medical Association with a subscription of only \$5 a year already exists for the same political purpose, it is very doubtful whether the Association will benefit either itself or the Irish profession by this new departure.

PARIS LETTER

PARIS, May 8, 1914.

Personal

At its session, May 5, the Académie de médecine elected Dr. Routier, surgeon to the Necker Hospital, a member in the section of operative medicine, to fill the place left vacant by the lamented death of Dr. Lucas-Championnière. Dr. Routier is known especially for his numerous works on abdominal surgery and gynecology. It was he who in 1890 performed the first interval operation for appendicitis in France.

A Sanitary League against Rats and Flies

A *Ligue sanitaire française contre la mouche et le rat* has just been formed. It purposes the extermination, not only of flies and rats, but also of all disease-carrying vermin, and will institute a propaganda of education in hygiene and sanitation.

The Fight Against Alcoholism in Morocco

Since alcoholism has already begun its ravages in Morocco, the government of the protectorate has deemed it necessary, following the example of the Ivory Coast, to pursue the only really efficacious method: the absolute interdiction of absinthe to Europeans as well as to natives. A decree of the sultan has just been issued which formally prohibits the importation, manufacture, circulation, sale, or detention with a view to selling, of absinthe and similar products in the French portion of the country. Absinthe and similar products may not be made or sold except by pharmacists, under the classification of medicinal products. Every infraction of this decree is to be punished by a fine of from 300 to 3,000 francs (\$60 to \$600). For a repeated offense, the penalty is imprisonment for from three months to three years. Moreover, any public house in which the sale of absinthe and similar alcoholics is permitted will be closed for six months, aside from the penalty imposed on the proprietor. In case the offense is repeated, the establishment will be closed permanently.

BERLIN LETTER

BERLIN, May 9, 1914.

Volunteer School Nurses for Berlin

In Berlin, as elsewhere, advice given to parents by school physicians is not always followed through carelessness, want of judgment or poverty. In many places school nurses have been instituted who take care that the orders of school physicians are followed. As Berlin has not yet installed school nurses, the Berlin Society for Domestic Sanitation will, by order of the city school deputation, establish a school-nurse service, at first in three school physicians' districts. This society has nine district committees in various parts of the city, which through many years' experience in detailed philanthropic work, are familiar with the conditions of the needy residents of their districts and can rely on trained volunteer assistance.

Annual Meeting of German Internists

At the *Kongress für innere Medizin*, which took place from April 21 to 23 at Wiesbaden under the presidency of the Munich clinician, Professor von Romberg, two topics excited the greatest interest, namely, the address of von Behring on his diphtheria prophylactic and the report by Werner of Heidelberg on radiotherapy of neoplasms of the internal organs.

BEHRING'S METHOD OF PROPHYLAXIS OF DIPHTHERIA

At the meeting last year, Behring announced his new prophylactic, which consists of a mixture of diphtheria toxin and antitoxin. From two to three thousand persons have been given the prophylactic, but exact painstaking observations have been made only on about one thousand. To Behring it seems a quite justifiable expectation that by regular and exact use of the T.-A. method, diphtheria may be made an exotic disease just as small-pox has become since the time of Jenner wherever vaccination has been carried out systematically and under the direction of expert physicians. To be sure, Behring admits that the scientific basis and the practical application do not as yet furnish sufficient guarantees for the fulfilment of this hope to its full extent in his lifetime.

In none of the single injections, which number about 7,000, has any harm been done. This results chiefly from the animal experimentation by which Behring secures positive evidence, first, that the preparation intended for the treatment of human beings contains not even a trace of the paralyzing element of the toxin, second, that the toxic power has been exactly determined by trial on guinea-pigs, and third, that especially in horses the capability of producing antitoxin has been learned to a certain degree of reliability. Further, Behring requires the testing of every new lot by his standard preparation M. M. 1, which has retained its toxic and immunizing properties for fifteen months unchanged.

In his first communication Behring could already report that in many cases such a dose of his remedy as is intended for the new-born would cause a marked reaction in older persons, especially in children of school age. An explanation of this fact may be found in the assumption of a specific sensitization in consequence of previous introduction of diphtheria bacilli which renders the individuals hypersensitive to the T.-A. For the great majority of cases, this must be regarded as correct, but in addition we have also a non-specific hypersusceptibility. This was in many cases extraordinarily great in tuberculous and scrofulous persons, in whom, in addition to the intense local reaction, an inclination to a painful swelling of the lymph-nodes appeared. Furthermore, among a large number of new-born and older infants, there were found some which reacted positively to as small doses as the schoolchildren among whom a second trial likewise was positive. Such cases deserve marked attention in reference to prophylactic vaccination against diphtheria because in them the positive reaction is not a sign of production of antitoxin in adequate amounts for protection against diphtheria.

For the purpose of a statistical investigation, intended to show the protective action of the new remedy, Behring would like, for the present, to have the lymphatic constitution and other similar conditions regarded as contra-indications for this method of prophylactic vaccination. He would also exclude from this treatment for the present atrophic infants and infants less than 9 months old.

The subcutaneous injection is recommended as the best method of application. There can be no doubt that, in many cases, a single injection produces a sufficient protection. Such persons are, as a rule, those who have been already sensitized by diphtheria bacilli. For the ordinary run of cases, at least two injections should be made. The first injection then plays the part of a sensitizer; sensitization, experience shows, occurs after from ten to fourteen days, which leads to the requirement that the second injection should not be made until after an interval of not less than ten days.

There are several preparations of T.-A.; T.-A. 8 has the lowest toxicity and has an equivalent value to that of the standard preparation M. M. 1, while T.-A. 7 is ten times and T.-A. 6, twenty times as strong in its toxic and immunizing power for man.

ANTITOXIN IN THE BLOOD

Systematic examination of the blood for antitoxin has shown a surprisingly large number of untreated cases in which the blood already contains antitoxin. Antitoxin could be demonstrated in the blood of not less than from 60 to 80 per cent. of the new-born. The children of the ages which furnish the greatest proportion of cases of diphtheria, however, more rarely show a positive reaction. The fear expressed by some that a protective remedy is not indicated in persons who are already under the influence of an imported diphtheria toxin has been finally dissipated by practical experience. Not one of the numerous bacillus-

carriers that have been injected with T.-A. have sickened from diphtheria. Whether or not the active immunization with T.-A. will help them to get rid of the diphtheria bacilli is an open question.

VIENNA LETTER

VIENNA, May 5, 1914.

The Program of Lectures for the Summer Term

The official program of the lectures for the coming term of the Medical Faculty of Vienna has recently been published. Primarily, the lectures and classes are arranged for the medical students and only a few of them are intended for doctors of medicine. The latter are expected to attend the postgraduate classes, notices of which are published from time to time. On application from a certain number of men (from six to eight) any one of the professors or lecturers will be willing to arrange a special class or course. The students' courses will number 429, lasting between sixteen and fifty hours each. They will comprise the whole field of medicine. Naturally, internal medicine (with ninety-eight different classes) and surgery (with forty-two classes) lead. The prominence of rhinolaryngology and otology is shown by the twenty-two classes on these subjects. Anatomy, bacteriology and serology are not in such demand. A staff of 114 professors, eighty-five of whom are eminent, together with 133 docents and assistants, will direct the work.

The program contains also some figures as to the number of students in the last (winter) term. At the University of Vienna, from a total of 10,310 students, 3,018 were medical students, of whom 190 were women. The seven other universities of Austria had 31,397 students, of whom 7,330, or 23 per cent., were medical students. There were 320 female medical students, or a little over 4 per cent. of the total; 2,280 students, or 30 per cent., did not speak German.

The German constituent comprises 45 per cent. of the population of this country. It seems, therefore, that the other nations are attempting to make up for the previously wrong national distribution of qualified men. Within the last ten years the total number of medical students has risen from 18 to 30 per cent., and the increase of first-year medical students, against which there was such a bitter complaint, is due chiefly to this fact. It is also gratifying to learn that the number of foreign doctors attending the Vienna University is also increasing. Last term the number rose to 16 per cent.

The Third International Congress for Occupational Diseases

During September an international congress on occupational and industrial diseases will be held in Vienna. It will be associated with an exhibition which will illustrate the development and prevention of diseases caused by certain occupations and the influence of certain occupations on health and hygiene in general. The following subdivisions of the field to be covered have been made and the men named will speak on the subject: 1. "Fatigue," the physiology and pathology of labor on the nervous system, on the bones static factors and night-work, Professor Durig, Vienna. 2. "Work in Moist and Hot Air," Professor Carozzi, Milan. 3. "Anthrax," Professor Schattenfroh, Vienna. 4. "Pneumoconiosis," Prof. L. Devoto, Milan. 5. "Injuries by Electricity in Industries," Professor Langlois, Paris. 6. "Industrial Poisons," Professor Lehman, Wurzburg. (This will also include the commercial handling of poisons in large quantities.) 7. "Injuries to the Auditory Nerves by Occupations." Several will speak on this subject.

In connection with the congress, excursions will be conducted to the large industrial establishments in which the modern equipments for the prevention of industrial injuries will be studied, including trips to the mines, and paraffin and kerosene wells.

Health of Vienna in the First Quarter of This Year

The official monthly report for March of the Board of Health includes the facts of the two preceding months. Thus the year 1914 has been extremely favorable in the mortality and morbidity rates from infectious diseases. A marked drop is noted, especially in scarlet fever and diphtheria while the foggy weather of February has been characterized contrary to expectation, by constant temperature and low morbidity. The mortality is now below 15 per cent., the yearly average being 16.2 per cent. The infant mortality is still high, causing 21 per cent. of total deaths, while senility causes 3 per cent. of deaths.

Marriages

WILLIAM EMERY HARRINGTON, M.D., Waukita, Okla., to Miss Evelyn Epperson, in Enid, Okla., recently.

SYDNEY SMITH CARRIER, M.D., Pittsburgh, Pa., to Miss Lillian Simrall Hunter of Louisville, Ky., May 14.

EDMUND W. MEISENHOLDER, JR., M.D., to Miss Francis Foust, both of York, Pa., in Harrisburg, May 9.

WILLIAM MECKLENBURG POLK, M.D., to Miss Maria H. Dehon, both of New York City, May 12.

FRANKLIN HERBERT SISLER, M.D., to Miss Blanche Virginia Deitrick, both of Sun, W. Va., May 13.

P. A. SURG. EDWARD URBANE REED, U. S. N., to Miss Nellie Hall Bayles of Denver, Colo., May 12.

ELIJAH A. LAMBERT, M.D., Denton, Ga., to Miss Mary Lawrence of Ashburn, Ga., April 30.

ANDRE WILLIAM REGGIO, M.D., to Miss Marian Shaw Lovering, both of Boston, recently.

FRANK B. SORGATZ, M.D., to Miss Vera Van Winkle, both of Oklahoma City, Okla., May 3.

WAVERLY DANIEL BRETZ, M.D., to Miss Vera Canz, both of Memphis, Tenn., May 8.

Deaths

Niles Theodore Quailes, M.D. Rush Medical College, 1866; a Fellow of the American Medical Association; and Nestor of the Scandinavian physicians of the Northwest; died at his home in Chicago, May 23, from pneumonia, aged 83. He was born in Hardanger, Norway; had his preliminary education in Norway and Denmark, and in 1859 came to Chicago. On the outbreak of the Civil War, he enlisted; and at its conclusion entered Rush Medical College. He was first intern in the old Cook County Hospital; and during the small-pox epidemic of 1868-1870, he was city physician and director of the small-pox hospital then located near the lake on North Avenue. He was also in charge of the United States Marine Hospital until the Chicago fire of 1871. In 1894 he was made president of the Scandinavian-American Medical Society; and in 1910 was honored by King Haakon of Norway with the Order of Saint Olaf. He was the founder of the Norwegian Old People's Home, Norwood Park; and was always prominent in charitable work among the Scandinavians of the city. At his funeral, May 26, members of the Scandinavian-American Medical Society officiated as pallbearers.

Julia Dyer Merrill, M.D. Northwestern University Women's Medical School, Chicago, 1895; formerly superintendent of nurses in the North Adams, Mass., Training School; and after her graduation in medicine, assistant to Dr. A. C. Cotton, Chicago, for several years; assistant clinical professor of pediatrics in Rush Medical College from 1897 to 1913; and a member of the pediatric staff of Presbyterian, Tabitha, Chicago Maternity, Maimonides and Mary Thompson hospitals; and deeply interested in various orphanages, sanatoriums for babies, and other infant welfare organizations; a member of the Chicago Milk Commission from its inception until 1913; a Fellow of the American Medical Association; died at her home in Chicago, May 17, from infectious endocarditis complicated with pneumonia, aged 53.

Charles Enfield, M.D. College of Physicians and Surgeons in the City of New York, 1870; a Fellow of the American Medical Association and American Academy of Ophthalmology and Laryngology; a member of the American Association for the Advancement of Science, and the American Association of Railway Surgeons; a veteran of the Civil War, in which he served in the Hospital Corps of the First New York Volunteer Infantry; a practitioner of Jefferson, Iowa, since 1871; died at his home in that place, May 7, from pneumonia, aged 71.

Thomas Mackaness Ludlow Chrystie, M.D. Bellevue Hospital Medical College, 1867; a member of the Medical Society of the State of New York; an ensign in the Navy during the Civil War; for many years a practitioner of New York City, and for quarter of a century physician to the New York State Branch of the Order of the Cincinnati; died at his home in Rye, N. Y., May 19, aged 72.

Carl Robert Feld, M.D. Rush Medical College, 1891; a Fellow of the American Medical Association, and secretary of the Jefferson County (Wis.) Medical Society, since its organization; for twenty years clerk of the Board of Education of Watertown, Wis.; a member of the state legislature in 1885, 1887 and 1889; for nearly twenty years health commissioner of Watertown and the township of Lebanon; died at his home in Watertown, May 12, from diabetes, aged 55.

Gustavus Brown Thornton, M.D. New York University, New York City, 1860; a Fellow of the American Medical Association; regimental, brigade and division surgeon in the Confederate service throughout the Civil War; local surgeon of the Memphis Division and Terminal, Illinois Central and Southern Railway; for many years superintendent of the Memphis City Hospital, and president of the Board of Health of the city; died May 13, aged 79.

Henry Clay Devilbiss, M.D. College of Physicians, Baltimore, Md., 1877; a Fellow of the American Medical Association; formerly president of the Medical Society of Franklin County, Pa.; treasurer of the Cumberland Valley Medical Association; and since its organization, a member of the medical staff of the Chambersburg Hospital; died at his home in Chambersburg, Pa., May 17, aged 65.

J. K. Robinson, a non-graduate of Randolph County, Mo., who practiced for a year under his preceptor, and then became a clergyman; died at his home in Clark, Mo., March 23, from endocarditis, following influenza, aged 70.

Robert Hughes Hayes, M.D. Washington University Medical School, St. Louis, 1879; a member of the Medical Association of the State of Alabama; died at his home in Union Springs, Ala., May 3, from heart disease, aged 56.

John McCroskery, M.D. Bellevue Hospital Medical College, 1887; a Fellow of the American Medical Association; of New York City; died suddenly from heart disease while making a professional call, May 9; aged 49.

William Francis Gleason, M.D. Harvard Medical School, 1886; a member of the Rhode Island Medical Society; formerly chairman of the school committee of Providence; died at his home in that city, April 29, aged 52.

Philander Palmer (license, Michigan, twenty-four years of practice, 1900) a veteran of the Civil War; one of the oldest practitioners of Grand Haven, Mich.; died at the home of his son in that city, May 4, aged 77.

David Alexander Ryan, M.D. Dearborn Medical College, Chicago, 1906; formerly a member of the staff of the German Hospital; died at his home in Chicago, May 15, from a nervous breakdown, aged 55.

James W. La Force, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1856; a pioneer practitioner of Eldon and Floris, Iowa; died at the home of his daughter in Bloomfield, Iowa, May 4, aged 87.

James F. Keith, M.D. Missouri Medical College, St. Louis, 1871; president of the Citizens' Bank of Sturgeon, Mo.; died in a hospital in St. Louis, about April 30, from disease of the bladder, aged 64.

Hiram O. King, M.D. Detroit Medical College, 1876; a member of the Indiana State Medical Association; died at his home in Kendallville, Ind., May 5, from disease of the spinal cord, aged 62.

Robert King, M.D. New York Homeopathic Medical College, 1863; for thirty years a practitioner of Emporia, Kan.; died at his home in that city, May 2, from malignant disease, aged 74.

Ira Young Kezartee, M.D. University of Michigan, Ann Arbor, 1867; for twenty-two years a practitioner of Battle Creek, Mich.; died at his home in that city, May 4, aged 69.

John Alvin Graham, M.D. Western Pennsylvania Medical College, Pittsburgh, 1890; died at his home in West End, Pittsburgh, May 1, from disease of the stomach, aged 47.

Thomas Harding Ellis, M.D. Medical College of Virginia, Richmond, 1884; formerly of Montebello, Va.; died at his home in Glenwood, N. C., March 25, aged 51.

Alonzo N. Sheffner, M.D. Bennett Medical College, Chicago, 1873; a veteran of the Civil War; died at his home in Hay Springs, Neb., April 30, aged 73.

Mary C. Farnham, M.D. Hahnemann Medical College, Chicago, 1881; died at her home in Denver, Colo., May 2, from pleuropneumonia, aged 71.

Phillip Heldrich, M.D. University of Maryland, Baltimore, 1883; formerly of Elmira, N. Y.; died at his home in Baltimore, May 1.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

LIQUID PETROLATUM OR "RUSSIAN MINERAL OIL"

Report of the Council on Pharmacy and Chemistry

The following report was submitted to the Council by a referee and its publication authorized by the Council.

W. A. PUCKNER, Secretary.

Petroleum has been in use as a medicine from time immemorial. It was known to Herodotus 400 years before Christ and is mentioned by Plutarch, Dioscorides, Pliny and other early writers. It was extensively used by the Arabians and evidently played an important part in the practice of medicine in India, being known to the Bengalese as Muthe Katel. The raw product was the substance used in earlier times and differed much in character and composition, as obtained from different sources.

As an internal remedy it was early employed in chronic pulmonary affections, in obstinate skin diseases, in rheumatism, and for the expelling of tapeworms. It was extensively used for these several purposes in France under the name of "Oleum Gabianum" and in North America as "Seneka oil."

The internal use of the refined product may be traced to a patent granted to Robert A. Chesebrough of New York, in June, 1872, for the manufacture of a "new and useful product from petroleum, named vaseline." This name was originally applied only to a semisolid preparation, but later a liquid product known as liquid vaseline was marketed and for a time exploited as a cure for coughs, colds, consumption and a number of other diseases and conditions.

The liquid petrolatum has since become known under a variety of names, proprietary and otherwise, in addition to being used as a substitute or an adulterant for other, more costly, fats and oils. Some of the names applied to the product are:

| | |
|---------------------|---------------------------|
| Adepsine oil | Neutralol |
| Amilee | Olo |
| Atoleine | Paraffin Oil |
| Atolin | Paroline |
| Blandine | Petralol |
| Crysmalin | Petro |
| Deeline | Petrolax |
| Glyco | Petrolia |
| Glycoline | Petronol |
| Glymol | Petrosio |
| Heavy petroleum oil | Rock Oil |
| Liquid Albolene | Russian liquid petrolatum |
| Liquid Cosmoline | Russian mineral oil |
| Liquid Fossiline | Russian paraffin oil |
| Liquid Geoline | Russol |
| Liquid Paraffin | Saxol |
| Liquid Petrolatum | Terraline |
| Liquid Saxoline | Terralbolia |
| Liquid Vaseline | Usoiline |
| Mineral Glycerin | Water-white mineral oil |
| Mineral Oil | White paraffin oil. |

A preparation similar to that official in the Pharmacopeia of the United States as liquid petrolatum has been included in many, if not all, of the foreign pharmacopeias, the official titles under which this preparation is recognized being as follows:

Petrolatum Liquidum, U. S. Pharmacopeia; Paraffinum Liquidum, pharmacopeias of Great Britain, Germany, the Netherlands, Japan, Belgium, Austria, Denmark, Switzerland, Sweden, Servia, Italy, Hungary and Russia; Oleum Paraffinae, Spanish Pharmacopeia; Vaselineum Liquidum, French Pharmacopeia, and Oleum Vaselini (as a synonym) pharmacopeias of Denmark and Russia.

The requirements of the several pharmacopeias differ somewhat and the specific gravity as given is as follows:

| | | | | |
|--------------------------------------|-------|----|-------|----------|
| U. S. P. VIII, 1905..... | 0.870 | to | 0.940 | at 25° |
| Ph. Brit. IV, 1895..... | 0.885 | to | 0.890 | at 15.5° |
| B. P. C. II, 1911, usually..... | 0.875 | or | lower | at 15° |
| Ph. Germ. V, 1910, at least..... | 0.885 | | | at 15° |
| Ph. Ross. VI, 1910..... | 0.880 | to | 0.885 | at 15° |
| Ph. Hung. III, 1909..... | 0.88 | to | 0.89 | at 15° |
| Ph. Ital. III, 1909..... | 0.875 | to | 0.890 | at 15° |
| Ph. Fr. V, 1908, about..... | 0.875 | | | at 15° |
| Ph. Serb. II, 1908, about..... | 0.880 | | | at 15° |
| Ph. Svec. IX, 1908..... | 0.88 | to | 0.90 | at 15° |
| Ph. Helv. IV, 1907..... | 0.880 | to | 0.885 | at 15° |
| Ph. Dan. VII, 1907, at least..... | 0.880 | | | at 15° |
| Ph. Austr. VIII, 1906, at least..... | 0.880 | | | at 15° |
| Ph. Belg. III, 1906, not below..... | 0.880 | | | at 15° |
| Ph. Japon. III, 1906..... | 0.875 | to | 0.945 | at 15° |
| Ph. Ndl. IV, 1905, not below..... | 0.860 | | | at 15° |
| Ph. Hisp. VII, 1905..... | 0.840 | | | at 15° |

For pharmaceutical purposes, liquid petrolatum may be divided into two grades, the lighter or more limpid oil used extensively as a vehicle for oil sprays, and the heavier more viscid oil generally recognized in European pharmacopeias and used as an ingredient of ointments and more recently as a remedy in the treatment of intestinal stasis.

Under petrolatum liquidum the U. S. P. recognizes a mixture of hydrocarbons, chiefly of the methane series, which occurs as a colorless or very slightly yellowish, oily, transparent liquid without odor or taste and having a specific gravity of about 0.870 to 0.940 at 25 C. For the U. S. P. IX, it is proposed to change this requirement somewhat so as to have it apply to a transparent liquid free from fluorescence, without odor or taste and having a specific gravity of from 0.845 to 0.940 at 25 C.

Such a requirement would include all of the available paraffin oils irrespective of origin. The now commonly available commercial liquid petrolatum, used for pharmaceutical purposes, is practically colorless and all of the better grades are free from odor or taste. The specific gravity varies from 0.855 to 0.895. The lighter oils, having a specific gravity of from 0.860 to 0.870, are usually preferred in the making of oil sprays or solutions of substances to be used as local applications. The product having a specific gravity above 0.875 evidently contains a considerable amount of dissolved solid paraffin which separates out at temperatures at or below 0 C., but readily dissolves again at temperatures above 10 C.

There is considerable difference in the chemical composition of the paraffin oils obtained from various sources. The American oil consists largely of hydrocarbons of the methane series, while the Russian oil contains naphthene or hydrocarbons of the benzene series, having the empirical composition of ethylene, (C₂H_{2n}) which may be considered as hydrogenated aromatic hydrocarbons, though they behave with reagents very much in the same way as do the hydrocarbons of the methane series.

Mineral oils with a naphthene base are best suited for making white petrolatum, and at the present time the production of the colorless water-white liquid petrolatum appears to be confined largely or almost exclusively to the crude product of the Baku district of Russia, though it is asserted that it is now also made from the Hanover (Germany) crude oil and that some is being produced by "cracking" the white solid paraffin.

It is also said that the American oil can be made water-white but that it is not being so produced at present for economic reasons; the yellowish oil, free from fluorescence, having a very wide sale, both as a lubricant and as a substitute for lard oil and other of the more costly lubricating oils.

From a pharmaceutical point of view it would appear important to note the physical characteristics of the oil and to insist on absence of color, absence of odor and taste, absence of acid and of alkali and a specific gravity in harmony with the purposes for which the oil is to be used.

During the past year or two liquid petrolatum has attracted considerable attention as a remedy in the treatment of intestinal stasis or chronic constipation, the practice of using it having been developed largely through the recommendation by Sir W. Arbuthnot Lane and his associates. This use of liquid petrolatum and of petrolatum products

generally is by no means novel. N. A. Randolph¹ of Philadelphia, was among the first to suggest its use for this purpose in an article published in 1885. Randolph also appears to have been the first to experiment with petrolatum and to determine its non-absorbability from the intestinal tract. In an article² in 1884 he concludes that "pure petrolatum while entirely unirritating to the digestive tract is valueless as a foodstuff."

The experiments recorded by Randolph were evidently prompted by the fact that vaseline and a number of imitation products then on the market were being sold as substitutes for lard and butter, and opinions regarding the food value of petroleum products appear to have differed very materially. Following the experiments of Randolph, Robert Hutchison in 1899 made a series of experiments to demonstrate that petroleum, petrolatum, paraffin and related products were absolutely unassailable by any of the digestive fluids, despite the "large vogue that had of late years been given to various petroleum emulsions, chiefly by ingenious and unterrified advertising." He came to practically the same conclusions arrived at by Randolph fifteen years earlier and pointed out that "liquid paraffin in one sense may be regarded as an artificial intestinal mucus and might in that way have some value on certain forms of constipation."

William Duffield Robinson³ reports on the use of a perfectly refined colorless and odorless petrolatum, supposedly of American origin. He was able to show that all of the product passed unchanged through the intestinal tract and could be regained from the feces. In his conclusions he expressed the belief that the effect of the administration of these petroleum products is far more than as a simple intestinal lubricant. In over fifty selected cases in which nutrition, digestion and body-weight were impaired, and the purest oil administered in 1- or 2-dram doses each day for a period of from four to six months, there was in every instance an improvement of weight, health and feeling of well-being. The administration of refined paraffin oil gave no discomfort in any instance, even in cases in which nearly a pint was given in a few hours.

William Ewart⁴ suggests liquid paraffin as a safe agent for the local treatment of the lesions in typhoid fever. He says in part: "Mineral oil, such as petrolatum or paraffin, is neither absorbed nor dissolved; therefore, after all absorbable ingestions are taken up by the lacteals, it will still remain in the bowel. In this way pure liquid paraffin is valuable, precisely because it is inert; moreover, it might some day, perhaps, be made the vehicle for effective topical remedies."

A. D. Schmidt⁵ quotes Stubenrath as having given liquid paraffin in the treatment of chronic constipation, and he himself gave as much as 20 gm. of liquid paraffin to adults without observing any injurious effect whatever. He says, "As a result of the administration of liquid paraffin, the feces are softened considerably and are found under the microscope to contain numerous minute globules of paraffin." He was, however, unable to recover from the feces the entire quantity of paraffin administered and believes that a certain portion of it, probably the fractions with a low boiling-point, are absorbed or possibly oxidized in the organism.

Maurice Vejux Tyrode⁶ also refers to the use of liquid petroleum in the treatment of constipation.

Sir W. Arbuthnot Lane in his recommendations of liquid petrolatum calls it an ideal remedy for stasis, but cautions against the use of the lighter oil as extensively prescribed in this country as a vehicle for sprays in nose and throat work.

Paraffin oil is not absorbed from the alimentary tract and so far as known exerts no deleterious influence. It is usually given in quantities of from 10 to 20 c.c. half an hour

or an hour before meals or in larger doses, from 30 to 50 c.c., at one time on retiring. From available evidence it appears that comparatively huge doses may be administered without the production of any untoward results. According to many observers, liquid paraffin should not be given with or after meals because of the inhibiting influence that it may have on the digestion of food. It is not soluble in water or the ordinary solvents and therefore cannot be diluted. The denser oils are preferably slightly warmed or drunk with warm water so as to obviate the disagreeable slimy sensation that persists when taken cold.

Volatile oils may be used in moderate amounts to give a distinctive taste to the otherwise rather insipidly tasteless paraffin oil. Among the more desirable oils to be used for this purpose would be oil of peppermint, oil of cinnamon, oil of betula or methyl salicylate and oil of cloves. From 2 to 10 drops of any of these oils can be added to a pint of the oil. When larger doses of the oil are to be given at one time, it would, of course, be advisable to use a comparatively smaller quantity of the volatile oil as a flavor.⁷

From the foregoing it would appear that apart from the Pharmacopeia of the United States, practically all other known pharmacopeias describe a water-white mineral oil under the title "Paraffinum Liquidum" or "Liquid Paraffin" as a colorless, odorless, tasteless, non-fluorescent, oily liquid, free from acids, alkalies and organic impurities. As explained before, the specific gravity of the preparation as recognized in other countries and as offered on the American market at the present time varies considerably, and there appears to be some difference of opinion as to the exact nature of the product that is preferable for use for different purposes. This matter requires further investigation.

Since the definition of liquid petrolatum in the U. S. Pharmacopeia permits the use of fluorescent products of widely varying specific gravities, it is recommended that physicians who desire the water-white non-fluorescent (Russian) mineral oil should use the term "Petrolatum Liquidum, Grave," or "Paraffinum Liquidum, B. P.," if the heavy product recommended by Lane is desired, and "Petrolatum Liquidum, Leve" if the light varieties are required. It is further recommended that under the foregoing names, manufacturers and pharmacists be requested to dispense the products, in accordance with the following descriptions:

Petrolatum Liquidum, Grave.—Heavy (Russian) Liquid Petrolatum.—Paraffinum Liquidum, B. P., liquid paraffin.—A transparent, colorless, tasteless, non-fluorescent, oily liquid, odorless when cold but giving off a faint petroleum odor on heating. This preparation should correspond to the requirements of the British Pharmacopeia for liquid paraffin and have a specific gravity of about 0.885 to 0.890 at 15 C. It is insoluble in water or alcohol but soluble in boiling absolute alcohol and readily soluble in ether, chloroform, carbon disulphide, petroleum benzin, benzene and fixed and volatile oils. It serves as a solvent for volatile oils and related substances like camphor, menthol and thymol.

This is the type of preparation used by Sir W. Arbuthnot Lane, and his associates for internal administration. It is also used as a basis for ointments and salves and as a local application to wounds, ulcers and in certain forms of skin diseases in which a simple protective is desired.

Petrolatum Liquidum, Leve.—Light (Russian)—Liquid Petrolatum.—A transparent, colorless, tasteless, non-fluores-

7. In addition to the articles referred to in the preceding footnotes, the following are of interest in connection with this subject:

Editorial, Therap. Gaz., 1885, ix, 353.

Junker, F. A.: Med. Record, London, 1885, xiii, 506.

Editorial, Med. News, 1886, xlviii, 105.

Dunbar: Deutsch. med. Wchnschr., 1896, xxii, 33.

Stubenrath, Franz Casimir: München. med. Wchnschr., 1897, xlv, 639.

London Letter, Med. News, 1899, lxxiv, 504.

Hutchison, Robert: Brit. Med. Jour., 1899, i, 724.

Schlesinger, E. G.: Boston Med. and Surg. Jour., 1913, clxix, 14.

Lane, W. Arbuthnot: Brit. Med. Jour. 1913, ii, 1126; Proc. Roy.

Soc. Med., 1913, vi, 49; Surg. Gynec. and Obst., 1913, xvi, No. 6.

Jordan, Alfred C.: Practitioner, London, February, 1913.

Chrysospathes, J. G.: Zentralbl. f. Chir., 1913, No. 45; abstr., THE

JOURNAL A. M. A., Dec. 13, 1913, p. 2201.

1. Randolph, N. A.: Therap. Gaz., 1885, ix, 732.

2. Randolph, N. A.: Proc. Acad. Nat. Sc., Philadelphia, 1884, p. 281.

3. Robinson: William Duffield: Med. News, 1900, lxxvii, 56.

4. Ewart, William: Brit. Med. Jour., 1902, ii, 1505.

5. Schmidt, A. D.: München. med. Wchnschr., 1905, lii, 1970.

6. Tyrode, Maurice Vejux: Boston Med. and Surg. Jour., 1910, clxii, 673.

cent, oily liquid, odorless when cold, but giving off a faint petroleum odor on heating. In other respects this preparation should correspond to the pharmacopeial tests for liquid petrolatum and have a specific gravity of about 0.860 to 0.875 at 15 C. Like the heavy variety of liquid petrolatum, it is insoluble in water and alcohol, but soluble in boiling absolute alcohol and readily soluble in ether, chloroform, carbon disulphide, petroleum benzin, benzene and fixed and volatile oils. It serves as a solvent for volatile oils and related substances like camphor, menthol and thymol.

This is a type of preparation extensively used as a vehicle for the oily sprays in nose and throat work. It is also being used as one of the constituents in the now popular paraffin oil cold cream and has been used to some extent for internal administration in the treatment of chronic stasis. Being more limpid than the preparation preferred by Lane, it is more readily taken, though greater care must be exercised in securing a sample devoid of the lighter fractions of petroleum distillates.

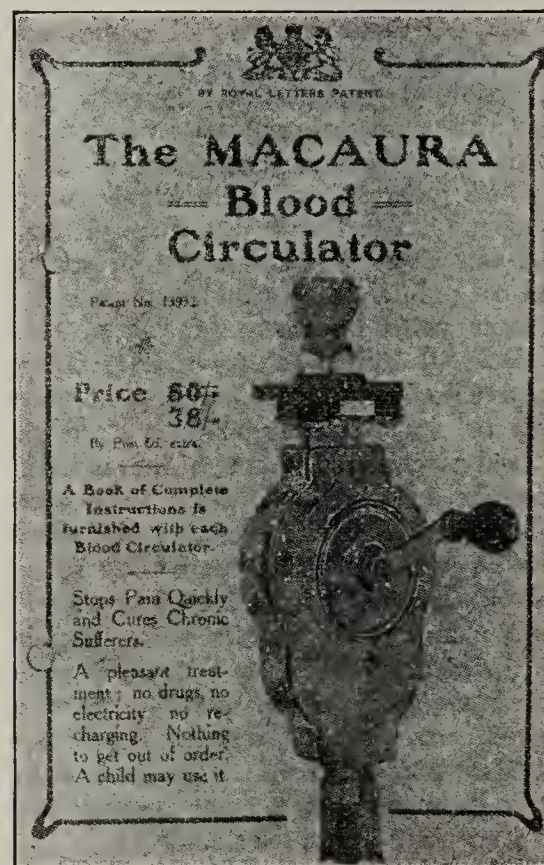
GERALD MACAURA—INTERNATIONAL QUACK

An American Impostor who Defrauded the British with Impunity but was Unappreciated by the Germans and French

Gerald Macaura is a quack of international notoriety who calls himself "doctor" and claims to be a graduate of the National Medical University of Chicago. The official list of the alumni of the National Medical University of Chicago does not contain Macaura's name. Even if it did, Macaura would have nothing to brag about, for the National Medical University, now defunct, was an institution of the sun-down variety whose reputation was so unsavory that it was not recognized by the authorities of the very state in which it did business.

Gerald Macaura calls himself a "vibrotherapist." In 1904 he was in Baltimore. About a year later he transferred his

time that he brought out his "blood circulator" which, he assured his dupes, was "Protected by His Majesty's Royal Letter Patent." The "blood circulator" he first christened the "Pulsator," but later changed its name to the "Pulsocon." Finding the English so naively gullible Macaura soon decided that Manchester offered too small a field for his talents, and in 1910 went to London. It was here that he gave full play to his advertising genius—for the swindler undoubtedly has genius in this line. He rented the Albert Hall, one of the largest auditoriums in London, and opened his campaign with a two-night "show" that was widely advertised in the London newspapers. Macaura spent tens of thousands of pounds on newspaper advertisements.



Photographic reproduction of the back cover of Macaura's booklet showing the vibration device sold in England under the name "Pulsocon" and in the United States as the "Cirkulon."



Greatly reduced reproduction of some of the advertisements run by Macaura in the London newspapers during his campaign in that city. Note the way in which the late editor of the English *Review of Reviews* was made an advertising asset by this quack. Macaura opened his advertising campaign by hiring the Royal Albert Hall, later he used Clavier Hall.

activities to Dublin, Ireland, where in partnership with another quack, one Dick Sorelle, he conducted a medical institute under the title the "American Doctors." Like other quacks—medical and otherwise—he commercialized his country's emblem by floating the Stars and Stripes above his fakery. In those days, it seems, Macaura had not started his vibrotherapy fraud, but was relieving the gullible of their money *via* the "electric treatment" route.

In 1908 Macaura crossed the Irish channel and opened another "institute" in Manchester, England. It was at this

As a master-stroke of advertising, Macaura was able to interest the late W. T. Stead in his faking and page after page of the London papers were filled with Macaura's blatant advertisements in which Stead's name was capitalized and used as a huge advertising asset. Mr. Stead was undoubtedly honest in his belief that Macaura had something of value in his widely heralded treatment. In this instance, as in some others equally well known, the late editor of the English *Review of Reviews* showed a sincerity of purpose that was exceeded only by his appalling lack of judgment on things medical. A few years before, Mr. Stead had advocated the notorious Count Mattei "cancer cure" which investigation showed to consist of nothing but water; later, he came to the support of an equally worthless cure for cancer—violet leaves; then it was Macaura's "Pulsocon." Needless to say, Macaura took full advantage of the publicity given him by his champion, Mr. Stead, and he reaped a golden harvest. Needless to say, too, when Mr. Stead finally admitted the worthlessness of Macaura's "treatment" the publicity given this admission was practically nil.

How beautifully Macaura worked the British public can be gathered from the following incident. One of the cheaper evening London papers in the summer of 1910 contained this news item:

WELL-KNOWN DOCTOR'S CHAUFFEUR FINED

At Beaconsfield Police Court yesterday the chauffeur employed by Dr. Gerald Macaura, inventor of the Macaura machine, was fined £5 and £3 8s 6d costs for exceeding the speed limit.

Dr. Macaura explained that he was behind with his appointments with several important patients, and was at the time on his way to the residence of the Earl and Countess Roberts at Ascot.

Eight guineas and six pence is certainly dirt cheap for such a magnificent puff. What plebeian cockney, with "a sneaking liking for a lord," could withstand the subtle suggestion that by purchasing one of Macaura's "Pulsocons" he would be able to obtain the same "treatment" as that given to Earl Roberts?

In time, as in all such cases, the British realized what Macaura was, and his blatant and mendacious advertising was insufficient to overcome the counter-force of the knowledge of his inefficiency and fraud. Then in the autumn of 1911 the quack announced that he was coming back to the United States. At the time, *THE JOURNAL*¹ felicitated London on being well-rid of a most undesirable citizen. For some reason Macaura changed his mind and instead of returning to the United States transferred his fraudulent operations to the continent. In Germany he found a paternalistic government that interfered with his swindle, and in the latter months of 1912 the newspapers announced that Macaura was expelled from Prussian State Territory on the charge of "attempt to cheat." In Paris he fared even worse, although

The "Cirkulon" is exploited by the Cirkulon Institute, 1109 Grand Avenue, Kansas City, Mo. In Great Britain Macaura's device sold for 38 shillings (about \$9.50). When purchased in Kansas City, however, \$15 is the price. At present the "Cirkulon" is not being pushed extensively. We may expect three years hence, when its "inventor" is able to put aside his convict's suit and again don civilian garb that an energetic campaign will be started. So long as gullibility remains rampant—so long will swindlers of the Macaura type flourish.

Association News

"MEMBERSHIP" AND "FELLOWSHIP" DEFINED

Members Must Qualify as Fellows to Participate in Scientific Assembly at Annual Session

In order that the distinction between membership and Fellowship in the Association shall be fully understood, attention is called to the following excerpts from the By-Laws:

MEMBERS.—The members in good standing of the constituent state and territorial medical associations of the American Medical Association shall be members (Sec. 1, Chap. VIII).

FELLOWS, ASSOCIATE FELLOWS, HONORARY FELLOWS.—Any member of this Association, who on the prescribed form shall apply for Fellowship and subscribe for *THE JOURNAL*, paying the annual dues for the current year, shall be a Fellow.

Commissioned medical officers of the United States Army, United States Navy and the United States Public Health Service shall be Fellows of this Association so long as they are engaged actively in their respective service, and thereafter if they have been retired on account of age or physical disability. These Fellows shall not be required to pay dues and shall not receive *THE JOURNAL* of the American Medical Association except by personal subscription.

There shall be associate and honorary Fellows who shall be elected and shall qualify in accordance with the provisions set forth in these By-Laws.

Members, associate members and honorary members of this Association at the time of the adoption of this By-Law shall be respectively Fellows, associate Fellows and honorary Fellows; and in interpreting these By-Laws, "membership" in the Association at the time of the adoption of this By-Law shall be construed as Fellowship (Sec. 4, Chap. VIII).

As is clearly indicated, the relationship of the individual to the organization is in no wise changed from what it was prior to the 1913 session. The only change is that those who were formerly called "members" are now termed "Fellows." As indicated in the following quotation from the By-Laws, Fellows, in contradistinction to those now holding membership only, are entitled to register at the annual session of the Association:

None but Fellows, associate Fellows, honorary Fellows and invited guests shall be allowed to register or take part in the scientific meetings of the Association.

No Fellow shall be eligible to register at an annual session until he has paid all of his current indebtedness.

No Fellow shall take part in the proceedings of the Association, or of any of the sections, until he has registered his name and address in the registration office (Chap. IX).

Correspondence

How the Eugenic Marriage-Law Works Out

To the Editor:—A great deal has been written on this much-mooted question, but this is probably the first report of the practical working out of the law in two specific cases—specific, both in the practical working out of the law, and specific pathologically and I might say psychopathically.

CASE 1.—A man about 36 years of age came to me, April 17, and told me he was about to be married and wanted me to examine him and sign his marriage certificate.

On my refusal to sign his certificate without his having taken a Wassermann test, he went to one of a group of physicians connected with a certain maternity hospital, who had sent out word to the public through the press that they would sign marriage certificates without the applicant having



One of Macaura's advertisements appearing in the London *Daily Mirror*. Notice his claim to have been graduated by the National Medical University of Chicago. The official list of the alumni of the National Medical University does not give Macaura's name. If it did Macaura would have nothing to be proud of as this "university" was a night school not recognized by the Illinois authorities.

he found several Parisian papers that were willing to share in the fraud money he obtained from the sick. The public prosecutor accused Macaura of illegal practice of medicine and the quack was arrested on the charge of swindling. The case was decided a few days ago when, according to the Associated Press reports, Gerald Macaura was sentenced to three years' imprisonment and a fine of \$600 on a charge of fraud.

After Macaura has served "time" he will probably return to the United States, where he may feel tolerably safe in conducting his quackish operations, provided he does not come in conflict with the federal laws. In fact, the device by which he has swindled so many thousands, has come to the United States ahead of its self-styled inventor. In this country it is not sold as the "Pulsocon" but as the "Cirkulon."

1. "Macaura Comes Back," editorial, *THE JOURNAL A. M. A.*, Aug. 5, 1911, p. 485.

to take a Wassermann test. Anyway, one of these physicians signed his certificate, evidently without much energy wasted in a physical examination, and took his three dollars, which is the fee established by the eugenic law. I say "without much energy wasted in a physical examination," because while he was at my office I discovered on a cursory examination a distinct suspicious specific scar. His voice was also suspicious, being husky and guttural. After obtaining the marriage certificate as above stated, he came back to me for advice. I advised him to have a Wassermann taken, and he went to Dr. Hopkinson's laboratory, and the doctor reported to me that it was distinctly positive. When I told him that he had syphilis and should not get married until at least two years from now, he said that he could not help it now, as everything was arranged for the wedding, and asked me what was the next best thing to do. On my advice, he took an intravenous injection of neosalvarsan the day before he was married, which was Friday, April 24. Now, his having syphilis, according to this much-boasted law, should have prevented the marriage ceremony, and my only object in reporting this case is to show that there are physicians in Milwaukee and probably elsewhere in the state who think that they are getting easy money by putting their names to these slips, which is, without doubt, perjury, in some instances.

CASE 2.—This is another example of the manner in which this much-boasted law worked out. While this case has not come directly under my observation, it has appeared in the public press, and is known to all. A woman has been posing and masquerading as a man in Milwaukee for the past ten years. She has held numerous positions of a masculine character, from bell-hop to bookkeeper. She recently developed an unnatural affection of a psychopathic type for another girl, and wanted to marry her. In order to carry out the rulings of the eugenic law, she had to get a certificate that "he" was free from all venereal diseases, from a physician. She went to a physician, who, by the way, is a member of our county and state medical societies, and he signed her certificate, thinking all the time that she was a man.

What kind of an examination could have been made? It is stated in the press that the doctor made a blood examination, but we rarely, or never look for the gonococcus of Neisser in the blood. Both physicians referred to in the above report are members of the Milwaukee County Medical Society.

The certificates provided by the Wisconsin Eugenic Law, read as follows:

I, _____ being a legally licensed physician, do certify that I have this _____ day of _____, 19____, carefully and thoroughly examined _____, having applied the recognized clinical and laboratory tests of scientific search and find him to be free from all venereal diseases, so nearly as can be determined.

The word "search" in the certificate I have never heard accounted for, but we know that it probably means "research."

Section 7 of the Wisconsin Eugenic law reads as follows.

Any physician who shall knowingly or willingly make any false statement, in the certificate provided for in Subsection 1, of this section, shall be guilty of perjury, and a conviction under this subsection shall revoke the license of such physician to practice in this state.

What is to stop some innocent victim, a wife, for instance, from bringing suit for damages against the physician for signing a marriage certificate without complying with the law, if she should develop syphilis or gonorrhea from her newly married husband? All she will need is the proof, which can easily be obtained if these physicians continue to take "easy money" without proper and necessary examination. In the name of common decency, if we are to have such a law, let us uphold it, and not make ourselves the laughing-stock of the public.

The following comment from the Milwaukee *Free Press* shows the layman's attitude on the subject:

The eighteenth century, in spite of its boasted "reign of reason," was gullible to a degree. Theophile Gautier stands second to no writer in *raffinement* of imagination. Yet we doubt that the gullibility of the one or the imagination of the other would have been equal to swallow-

ing or inventing anything equal to this seriocomic defeat of a eugenic marriage law in twentieth century Wisconsin.

Were not the subject so desperately ticklish, one might long for the pen of an Aristophanes, a Plautus or a Jonson to turn this sex adventure into a blazing satire on the folly of half-baked and half-enforced legislation.

The whole medical profession suffers when one or more of its members persist in slipshod and unethical methods. I will say this to the credit of the Wisconsin medical societies, both county and state, that not one of the five physicians now awaiting trial for abortion, here in Milwaukee, belongs to the medical societies. And I am glad to say that this speaks well for the morality of the greater number of the medical men in Wisconsin.

A. J. CAFFREY, M.D., Milwaukee, Wis.

The Tuberculosis Problem

To the Editor.—I am extremely interested in the articles on "The Tuberculosis Problem" which have been appearing in THE JOURNAL (Department of Therapeutics, March 14 to April 25). They contain a great deal of information of importance to the general medical profession and are very timely. I disagree, however, with a statement which is of far-reaching significance and which should not be left unchallenged.

In considering a case of tuberculosis in a home as a source of infection to those who live in it, great emphasis is laid on the communicability of the disease to children. Close contact of children with tuberculous persons is regarded, in this article, as a factor in the incidence of active tuberculosis among children, which infection either results fatally or, in a majority of cases, becomes latent, these latent foci constituting the determining factor in the production of active tuberculosis in adults.

In emphasizing this theory of von Behring's, the article falls into the error of minimizing the danger of tuberculous infection in adult life to the point of suggesting that even the term "communicable" ought to be modified or more carefully explained. It is our experience, however, that close contact with uncontrolled "open" cases of tuberculosis in homes does lead to infection of adults, as shown by the everyday experiences of tuberculosis workers, dispensaries, sanatoriums, etc., all over the land.

The tentative theory (not fully proved) is that infection in childhood is *one* of the important factors determining the incidence of tuberculosis among adults. The repeated infections of the adult by an uncontrolled tuberculous case in a home is, however, also a factor of importance in causing the existing prevalence of tuberculosis. The implantation of the germ in the child should be prevented; it should also be prevented in the adult (be he a carrier of latent foci or not). Should the statement made in your Department of Therapeutics be correct, patients with advanced cases of tuberculosis ought to be hospitalized only in instances in which children are in contact with the source of infection. Our present arrangement is designed, however, to give protection not only to the child but to the adult as well.

I greatly appreciate the educational value of these important articles on the tuberculosis problem, and yet I consider it my duty to raise the question in reference to the above-mentioned important point.

THEODORE B. SACHS, M.D., Chicago.

[COMMENT.—It was not intended to convey the idea that open tuberculosis cases could not convey infection to adults, and it was hoped that the entire discussion emphasized the proper care that such patients should receive, not only for their own sake, but also to prevent the infection of others. It was intended to declare the belief that by far the greatest danger in infection of others is to children, and that an intelligent adult, under medical supervision and having received, and acting under careful instructions, is a menace to no one, unless he is helpless and in bed, in which case it is the nurse who should act under instructions.

Dr. Sachs' letter is welcomed, as evidently these points were not made plain.—Ed.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MEDIUMS FOR OIL-IMMERSION LENSES

To the Editor:—Is there any reason why one should not use glycerin with an oil-immersion lens in microscopy? It is much easier to clean from the lens and slide after using than the usual cedar oil. Unless it can be harmful to the lens in some manner, I do not see why it is not more in use. I have used it for some time.

M. A. LEE, M.D., Superior, Wis.

ANSWER.—Objectives intended for immersion are specially corrected for the specific medium to be employed. Four mediums have been used: water, cedar oil, monobromid of naphthalin and glycerin. Water has a refractive index of 1.33, and when used with ordinary glass, must have a correction applied. The objective will not receive so many rays from the object when used with cedar oil, whose refractive index is 1.52, nearly the same as that of the glass employed for the cover-glass. Monobromid of naphthalin has a higher refractive index, 1.567, and special flint cover-glasses must be employed with it. Glycerin has a refractive index of 1.478, which is not far from the refractive index of the ordinary cover-glass, so that it probably could be used without much inconvenience.

THE MOSZKOWICZ TEST

To the Editor:—Please describe the methods of Moszkowicz and Sandrock for examination to determine where to operate in gangrene, etc.

HORACE FOX, M.D., Bath, Me.

ANSWER.—The test of Moszkowicz is applied as follows: The affected limb is elevated until a marked pallor of the skin occurs. A circular, broad, elastic bandage is applied around the thigh as high up as possible, and the constrictor is allowed to remain in place five minutes. When the constrictor is removed, the hyperemic blush spreads over the limb but is much less intense as the ischemic areas of the foot or leg are approached. The contrast between the red and pale areas is marked in proportion with the extent of the arterial obstruction. An operation within the pale zone is likely to end in a sloughing of the flaps, but amputation may be made with safety anywhere within the line of the pink or hyperemic skin. This method is not accepted as reliable by all authorities.

We are unable to give the Sandrock method.

STATES WHICH RECIPROCATE WITH MAINE

To the Editor:—What states have reciprocal relations with Maine?

F. J. M.

ANSWER.—Maine has reciprocal relations with Arkansas,* Colorado,* Delaware,* District of Columbia,* Georgia, Illinois,* Indiana, Iowa, Kansas, Kentucky, Louisiana,* Maryland,* Michigan, Minnesota,* Missouri, Nebraska, New Jersey,* Ohio, South Carolina, Tennessee, Texas,* Utah, Vermont,* Virginia,* Wisconsin and Wyoming.* Those marked with an asterisk (*) reciprocate on the basis of an examination only; the others reciprocate on the basis either of an examination or of a diploma from a reputable medical college without examination if the diploma and license were granted prior to July 1, 1901.

An Estimate of the Scientist.—When the intellectual history of this time comes to be written, nothing I think will stand out more strikingly than the empty gulf in quality between the superb and richly fruitful scientific investigations that are going on and the general thought of other educated sections of the community. I do not mean that the scientific men are as a whole a class of supermen, dealing with and thinking about everything in a way altogether better than the common run of humanity, but that in their own field they think and work with an intensity, an integrity, a breadth, boldness, patience, thoroughness and faithfulness that (excepting only a few artists) puts their work out of all comparison with any other human activity.—H. G. Wells, "Marriage."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, July 7-8. Sec., Dr. John Wix Thomas, Phoenix.
CALIFORNIA: Los Angeles, June 16. Sec., Dr. C. B. Pinkham, 135 Stockton St., San Francisco.
COLORADO: Denver, July 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
DELAWARE: Dover and Wilmington, June 16-18. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.
FLORIDA: Palatka, June 17-18. Sec., Dr. E. W. Warren, Palatka.
GEORGIA: Atlanta and Augusta, June 3. Sec., Dr. C. T. Nolan, Marietta.
IOWA: Iowa City, June 11-13. Sec., Dr. Guilford H. Sumner, State House, Des Moines.
KANSAS: Kansas City, June 9-12. Sec., Dr. H. A. Dykes, Lebanon.
KENTUCKY: Louisville, June 15-17. Sec., Dr. A. T. McCormack, Bowling Green.
LOUISIANA: New Orleans, June 4-6. Sec., Dr. E. L. Leckert, Macheca Bldg., New Orleans.
MAINE: Augusta, July 7-8. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.
MARYLAND: Baltimore, June 15. Regular Board: Sec., Dr. J. McP. Scott, Hagerstown. Homeopathic: Baltimore, June 15. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.
MICHIGAN: Ann Arbor, June 9. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
MINNESOTA: Minneapolis, June 2-5. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.
MISSISSIPPI: Jackson, June 16-17. Sec., Dr. E. H. Galloway, Jackson.
MISSOURI: St. Louis, June 15-17. Sec., Dr. J. A. B. Adcock, Jefferson City.
MONTANA: Helena, June 30-July 2. Sec., Dr. Wm. C. Riddell, Helena.
NEW HAMPSHIRE: Concord, July 1-2. Regent, Mr. H. C. Morrison, Concord.
NEW JERSEY: Trenton, June 15-16. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.
NEW YORK: June 23-26. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.
NORTH CAROLINA: Raleigh, June 9. Sec., Dr. Benj. K. Hays, Oxford.
NORTH DAKOTA: Grand Forks, July 7. Sec., Dr. G. M. Williamson, Grand Forks.
OHIO: Columbus, June 2-5. Sec., Dr. George H. Matson, State House, Columbus.
OREGON: Portland, July 7-9. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.
PENNSYLVANIA: Philadelphia, June 1-3. Sec., Mr. Nathan C. Schaeffer, Harrisburg.
RHODE ISLAND: Providence, July 2-3. Sec., Dr. Gardner T. Swarts, State House, Providence.
SOUTH CAROLINA: Columbia, June 9. Sec., Dr. A. Earle Boozer, 1802 Hampton Ave., Columbia.
TEXAS: Austin, June 23-25. Sec., Dr. W. L. Crosthwait, Waco.
VIRGINIA: Richmond, June 23-26. Sec., Dr. Herbert Old, Norfolk.
WASHINGTON: Seattle, July 7. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.
WEST VIRGINIA: Elkins, July 1. Sec., Dr. S. L. Jepson, Wheeling.
WISCONSIN: Milwaukee, June 29. Sec., Dr. John M. Beffel, 3200 Clybourn St., Milwaukee.
WYOMING: Laramie, July 9-11. Sec., Dr. H. E. McCollum, Laramie.

Missouri Reciprocity Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports that 38 candidates were licensed through reciprocity from May 1 to Dec. 10, 1913. The following colleges were represented:

| College | Year Grad. | Reciprocity with |
|--|------------|---------------------------|
| University of Colorado..... | (1911) | Colorado |
| Georgia College of Eclectic Med. and Surg. (1905) Georgia; (1911) Georgia; (1912) Georgia. | | |
| Hospital Medical College, Eclectic, Atlanta..... | (1910) | Georgia |
| Northwestern University | (1911) | Illinois |
| Rush Medical College (1881) Iowa; (1884) Louisiana; (1893) Kansas | | |
| Medical College of Indiana..... | (1905) | Indiana |
| State University of Iowa, Coll. of Homeo. Med.... | (1908) | Iowa |
| State University of Iowa, Coll. of Med. (1906) Iowa; (1910) Iowa; (1912) Iowa. | | |
| University of Kansas (1906) Kansas; (1911) Kansas; (1912) Kansas; (1912) Kansas. | | |
| University of Louisville..... | (1905) | Illinois; (1910) Kansas |
| Johns Hopkins University..... | (1907) | Maryland; (1911) Maryland |
| Barnes Medical College..... | (1910) | Illinois |
| Ensworth Medical College..... | (1911) | Nebraska |
| Homeopathic Medical College of Missouri..... | (1908) | Illinois |
| Kansas City Hahnemann Medical College (1905) Kansas; (1912) Kansas. | | |
| Kansas City Medical College..... | (1895) | Kansas |
| St. Louis University..... | (1908) | Illinois |
| Washington University | (1906) | Illinois |
| University Medical College, Kansas City (1903) Kansas; (1905) Kansas; (1910) Kansas. | | |
| John A. Creighton Medical College.. | (1906) | Iowa; (1912) Nebraska |
| Cornell University | (1903) | Kansas |
| University of Cincinnati | (1899) | Nevada |
| University of Nashville | (1903) | Texas |

Book Notices

CHRONIC COLITIS: ITS CAUSATION, DIAGNOSIS AND TREATMENT. By George Herschell, M.D., and Adolphe Abrahams, M.D., Medical Registrar to the London Temperance Hospital. Cloth. Price, \$2. Pp. 273. New York: Longmans, Green & Co., 1914.

A careful study of a single disease by the refined diagnostic means of modern research is presented in this book. The physician of a past generation could shrewdly guess that his patient who complained of chronic diarrhea with pain and occasionally bloody stools was suffering from colitis, but he did not dream of such a condition when constipation was the principal symptom. In such cases he had no reliable means of examination which would determine whether or not his surmise was correct. The symptoms were often referred to nervousness and, indeed, a large number of cases passed under the name of colica mucosa as due to a purely nervous secretion of mucus. The authors base their description of the disease on the results of examinations by the sigmoidoscope and the laboratory methods of examination of the feces. The methods of diagnosis are systematic, but sometimes lacking in detail. Although the statement is made that "one can not only palpate the colon, but can determine its exact position, its condition of emptiness or fulness, etc.," no directions for making such an examination are given except a reference to the work of Vincent. The directions for the examination of the feces are reasonably full. About half the work is given to the subject of treatment. The removal of a probable cause is insisted on, and due credit is given to diseases of the teeth, the nasopharynx and the stomach as causes of the intestinal affection. The consideration of the diet is especially thorough and detailed. Minute directions are given for the use of enemas, irrigations, etc. The question of the possibility of entering the colon by a soft tube is presented and the opposing opinions of Combe and of Kemp are quoted, but no decision is given. A long list of medicinal agents is mentioned which are supposed to act as intestinal antiseptics, and their actions and classification according to Combe are described. Here again the opinion of Combe is quoted, but the authors give no final decision, although they seem inclined to favor the opinion that these agents act as efficient intestinal antiseptics. The untenability of the opinion that charcoal cures flatulence by absorbing gases is recognized, but the authors think that it is efficient against flatulence by some unexplained action on the intestinal wall. Practically no proprietaries are mentioned except such as have received general approval like ichthyol, aspirin, etc. The authors state that so far as they know theirs is the first English manual that has appeared on this subject, and they are to be congratulated on having produced a book of so high a grade which at the same time is so adequately adapted to the needs of the general practitioner. It is gratifying to note the care with which they acknowledge the sources of their information and the considerable extent to which they have made use of the work of American investigators.

A TEXT-BOOK OF HISTOLOGY ARRANGED ON AN EMBRYOLOGICAL BASIS. By Dr. Frederic T. Lewis, Assistant Professor of Embryology at the Harvard Medical School and Dr. Philipp Stöhr. Second Edition. Cloth. Price, \$3 net. Pp. 539, with 495 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

This book, which is largely the work of Lewis and retains but little of Stöhr's original text, is arranged on an embryologic basis, the development of each organ being described as an introduction to the study of its microscopic structure in the adult. This method of presentation, which is a new departure in text-books on histology, is logical and pedagogically practicable. It proceeds from simple arrangements to those which are complex, and it emphasizes fundamental features in distinction from those which are secondary. Anatomy is likewise accorded an important place. References to a selection of recent papers are given. The general arrangement is similar to that of other works on this subject. There is a chapter on microscopic technic. The illustrations are numerous and good.

Medicolegal

Construction of Pure-Food Law with Reference to Adulteration

(*United States vs. Lexington Mill & Elevator Co. (U. S.), 34 Sup. Ct. R. 337*)

The Supreme Court of the United States says that the statute on its face shows that the primary purpose of Congress was to prevent injury to the public health by the sale and transportation in interstate commerce of misbranded and adulterated foods. The legislation, as against misbranding, intended to make it possible that the consumer should know that an article purchased was what it purported to be; that it might be bought for what it really was, and not on misrepresentations as to character and quality. As against adulteration, the statute was intended to protect the public health from possible injury by adding to articles of food consumption poisonous and deleterious substances which might render such articles injurious to the health of consumers.

The fifth subdivision of Section 7 provides that food shall be deemed to be adulterated "if it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health." Congress has here definitely outlined its inhibition against a particular class of adulteration. It is not required that the article of food containing added poisonous or other added deleterious ingredients must affect the public health, and it is not incumbent on the government in order to make out a case to establish that fact. The act has placed on the government the burden of establishing, in order to secure a verdict of condemnation under the statute, that the added poisonous or deleterious substances must be such as may render such article injurious to health. The word "may" is here used in its ordinary and usual signification.

In thus describing the offense, Congress doubtless took into consideration that flour may be used in many ways, in bread, cake, gravy, broth, etc. It may be consumed, when prepared as a food, by the strong and the weak, the old and the young, the well and the sick; and it is intended that if any flour, because of any added poisonous or other deleterious ingredient, may possibly injure the health of any of these, it shall come within the ban of the statute. If it cannot by any possibility, when the facts are reasonably considered, injure the health of any consumer, such flour, though having a small addition of poisonous or deleterious ingredients, may not be condemned under the act.

This court affirms the judgment of the circuit court of appeals reversing a decree condemning certain flour as adulterated by bleaching because the trial court permitted the statute to be read without the final and qualifying words concerning the effect of the article on health, rendering a new trial necessary.

Time for Commencement of Action for Being Made a Morphin User

(*Gillmore vs. Gillmore (Kan.), 137 Pac. R. 958*)

The Supreme Court of Kansas holds that an action for damages because of the defendant having induced the plaintiff to become a user of morphin, in ignorance of its nature, is not for relief on the ground of "fraud," within the meaning of that term as used in the statute of limitations. The running of the statute of limitations, on an action for damages because of the defendant having induced the plaintiff to become a user of morphin, is not wholly suspended by the fact that the plaintiff, knowing the manner in which the habit was induced, and having acquired knowledge of the effects of the drug, has been so affected mentally as not to be capable of protecting his own interests. Such an action can be brought only within one year from the time that mental capacity is restored, under the Kansas statute of limitations.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

American Academy of Medicine, Atlantic City, June 19-21.
American Climatological Association, Atlantic City, June 19-20.
American Gastro-Enterological Association, Atlantic City, June 22-23.
American Laryn., Rhin., and Otol. Society, Atlantic City, June 19-20.
American Orthopedic Association, Philadelphia, June 18-20.
American Proctologic Society, Atlantic City, June 22-23.
American Urological Association, Philadelphia, June 18-20.
Conf. of State and Prov. Boards of N. America, Washington, June 19-20.
Maine Medical Association, Portland, June 10-11.
Massachusetts Medical Society, Boston, June 9-10.
Montana State Medical Association, Lewistown, July 8-9.
New Jersey Medical Society, Spring Lake, June 29.
North Carolina Medical Society, Raleigh, June 16.
Rhode Island Medical Society, Providence, June 4.

AMERICAN ASSOCIATION OF PHYSICIANS

Twenty-Ninth Annual Meeting, held at Atlantic City, N. J., May 12 and 13, 1914

The President, DR. SIMON FLEXNER, New York, in the Chair
Officers

The following officers were elected for the ensuing year: president, Dr. S. J. Meltzer, New York; vice-president, Dr. Henry Sewall, Denver; secretary, Dr. George M. Kober, Washington, D. C., reelected; recorder, Dr. Thomas McCrae, Philadelphia, reelected; treasurer, Dr. J. P. Crozer Griffith, Philadelphia, reelected.

Advance in Medical Knowledge

DR. SIMON FLEXNER: The extension of the boundaries of knowledge has compelled medical colleges to become departments of universities. This rapid extension of knowledge coincided with the active pursuit of physiology, pathology, bacteriology and pharmacology, either alone or in association with clinical studies for which special laboratories and institutes came to be established. Independent institutions for medical research have exercised a distinct influence on medical practice, but the foundation of these institutions was impossible until medical schools furnished an adequate supply of students whose training approximated that of the older European countries. All these conditions have acted more powerfully on clinical teaching. The professor of medicine in the university medical school ceased long ago to be a general practitioner. The function of the clinical teacher has been newly defined within one or two decades. The American Association of Physicians has sympathized with every movement affecting the progress of medical education, and it favors this latter step with the single hope that if it be in the real interest of medical progress, it may be given a chance to succeed.

Chronic Interstitial Gastritis

DR. JOSEPH SAILER, Philadelphia: A man, aged 45, had been subjected to various forms of medical treatment, without avail. An exploratory operation showed the condition of the stomach entirely in accord with the clinical picture. The stomach walls were very thick. The stomach was adherent posteriorly and around the pylorus. Gastro-enterostomy would have been difficult, in addition to giving no definite relief. There were no enlarged glands along the lesser curvature, but the adhesions were dense along the greater curvature, and a definite gland mass could not be felt. There was no evidence of metastasis. The abdomen was closed and the patient made a satisfactory recovery from the exploratory operation.

DISCUSSION

DR. DAVID RIESMAN, Philadelphia: Recently I saw a typical case of leather-bottle stomach which was very malignant, because the patient had cachexia and ascites. Both of these conditions in this case were sufficient to determine that the condition was cancerous. The man died in a few weeks. There were no evidences of metastases in the liver, and the liver was not enlarged at any time. Another case

that came to necropsy showed no metastases from any of the viscera, but marked enlargement of the glands along the greater curvature of the stomach.

The Nature of Peristalsis and the Action of Magnesium Sulphate

DR. S. J. MELTZER, New York: Peristalsis is a complicated condition in which the phenomenon of inhibition plays an important part, and magnesium sulphate acts by affecting this inhibitory force.

Clinical Study of One Thousand Cases of Gastric Cancer

DR. JULIUS FRIEDENWALD, Baltimore: The cases occurred in 10,416 patients, affected with various gastro-intestinal disturbances. The maximum liability to the disease occurred between the fortieth and sixtieth years. The greatest proportion of cases occurred in males, 588 to 412 females. A hereditary history of cancer appeared in 9.4 per cent. of cases, a history of trauma in 1.9 per cent., and anemia was present in 82 per cent. Chronic endocarditis was present in 11.4 per cent., arteriosclerosis in 69.6 per cent. A history of former indiscretions in diet was obtained in 32.1 per cent.; of alcoholism in 15.2 per cent.; of syphilis in 7.9 per cent.; hyperchlorhydria in 4.9 per cent.; hypochlorhydria in 2.8 per cent., and anacidity in 89.2 per cent. Lactic acid was present in 81.9 per cent. Oppler-Boas bacilli were obtained in 79.3 per cent. Dysphagia existed in 6.9 per cent. of all cases. Loss of weight existed in 88.5 per cent. Anorexia was present in 89.3 per cent., and vomiting in the same percentage. Occult blood was present in the stools in 92.5 per cent. Masses in the form of tumors were detected in 71.9 per cent. Dilatation of the stomach existed in 46.7 per cent. Perforation occurred in 2.3 per cent. Metastasis existed in 67.2 per cent.

When and How to Use Tuberculin Preparations in Private Practice

DR. S. SOLIS-COHEN, Philadelphia: My modification of Latham's method: tuberculin residue (T. R.) triturated with milk-sugar is given with skim-milk, whey or beef-juice. The initial dose is 0.000001 mg. Both subjective and objective symptoms of reaction are watched for. The dose is repeated once or twice weekly, according to result. It is gradually increased by increments of 0.000001 mg. to the reaction-point, and then dropped one point lower, and so continued for some weeks. Later, a further increase is attempted, and if reaction is not shown, is proceeded with in a similar gradual way. The arbitrary increment of 0.000001 mg. is maintained during this remittent progression, until 0.0001 mg. has been reached. After that, the increment may be raised to 0.00001. Thus by successive stages, a maximum dose is attained at a point determined for each individual by all the factors in the case, including the rapidity of increase, character and intensity of reaction and maintenance of tolerance, as well as the focal and general signs of improvement. The treatment is continued with intermissions, for many months, and may be resumed, if necessary, from time to time over a period of years.

In the majority of advanced cases tuberculin is likely to be harmful. Experienced observers may employ it cautiously under conditions that seem to call for its use, but others should avoid it, especially in cases which show a tendency to continuous fever, or in which there is, or has been recently, active softening. In the great bulk of early cases it is needless. Under proper treatment, medicinal as well as hygienic recovery will take place without it. Its field of action is in the treatment of cases which have not passed beyond the stage of infiltration and which have shown a certain degree of improvement under proper food, fresh air, judicious rest and exercise, and other approved measures, including the right drugs, but in which improvement becomes sluggish or ceases, or retrogression takes place. The slight additional stimulus afforded by an appropriate tuberculin preparation administered at well-chosen times, and in correct dosage, will often reawaken the defensive and restorative processes of the organism, and be followed by complete recovery.

DISCUSSION

DR. ABRAHAM JACOBI, New York: I have used tuberculin in doses of from 0.00001 up to 0.0002, and I have never seen any unpleasant symptoms. I have given it in combination with other treatments or remedies. My routine treatment in chronic cases of pulmonary tuberculosis consists in the internal administration of guaiacol and arsenic with tuberculin, and I have observed no disagreeable symptoms which I could attribute to the tuberculin.

(To be continued)

LOUISIANA STATE MEDICAL SOCIETY

Thirty-Fifth Annual Meeting, held at New Orleans, April 20-23, 1914

(Concluded from page 1587)

Autoplastic Bone-Grafting

DR. JOHN F. OECHSNER, New Orleans: Autogenous transplantation of bone is an established surgical procedure. Whether dependent for growth on periosteum, or on the graft as a scaffolding for the development of blood-vessels, transplants for the present should be provided with both, particularly plenty of periosteum. Non-absorbable suture material had better be avoided, whenever possible, dovetailing and absorbable material being used in their stead. It is highly probable that organized bone-tissue will take the place of foreign material now used in fractures. Bone-grafting should never be done in the presence of an active infection. The most rigid asepsis should be exercised. Bone-grafts owe their virility and ultimate success probably to the rapidity of blood-vessel development plus the presence of osteoblasts wherever they may be.

Modern Diagnostic Methods in Genito-Urinary Surgery

DR. H. W. E. WALTHER, New Orleans: The foundation of diagnostic methods in genito-urinary surgery is urinalysis. We have in the Buerger cysto-urethroscope an instrument by means of which it is possible to obtain absolutely true pictures of the bladder-neck and the posterior urethra. The relatively modern progress attained in perfecting the technic of kidney, ureteral and vesical surgery has made the use of the cystoscope and the ureteral catheter a necessity in the diagnosis of all bladder, ureteral and kidney lesions as well as in the differential diagnosis of many abdominal conditions. The newer methods for determining the functional capacity or activity of the kidneys include cryoscopy, the estimation of the electrical conductivity of the urine, the production of temporary glycosuria by the subcutaneous injection of phlorizin, the production of experimental polyuria and chromocystoscopy, that is, the elimination by the kidneys of certain color substances, as methylene blue, indigocarmine and phenol-sulphonaphthalein. Pyelography is helpful in demonstrating the normal kidney pelvis; the amount of dilatation of the pathologic pelvis; the position of the outlet of the pelvis of the kidney; the condition of the calices and pyramids; localization of shadows within the kidney; the differentiation of abdominal tumors and extrarenal shadows; congenital deformities of the kidney, and the condition of the ureters.

Treatment of Bladder Tumors by the High-Frequency Current

DR. JOSEPH HUME and DR. SAMUEL LOGAN, New Orleans: We have treated ten cases embracing almost every form of tumor encountered in bladder growths. In 4 cases of papilloma, 3 patients are apparently well, and 1 has just begun treatment; in 4 cases of malignant papilloma, 1 patient has gone home apparently cured, 2 are still under treatment, and 1 died during treatment from nephritis; in 2 cases of cancer, one patient dying from nephritis, the tumor when last seen was controlled; and one patient is still under treatment, seemingly better.

Pituitary Extract in Obstetric Practice

DR. M. THOMAS LANAUX, New Orleans: Pituitary extract should not be given in normal labor. Its use should be

limited to cases of primary or secondary inertia, to postpartum hemorrhages and in cesarean sections as a substitute for ergot. In cases of inertia in any stage of labor it should not be employed unless anesthesia is at hand for immediate use and preparation has been made for immediate delivery. When obstructions exist in the second stage of labor, small tentative doses of pituitary extract can be given, not with complete delivery by means of the drug in view, but to bring the head within easy reach of a single simple forceps delivery. In the second stage of labor it is a most valuable addition to our resources for the treatment of inertia.

Cancer

DR. C. JEFF MILLER, New Orleans, introduced the following resolution, which was adopted:

Resolved, That the society approves of a public educational campaign for the control of cancer and endorses the purposes of the American Society for the Control of Cancer.

It urges the State Board of Health to open its laboratories for the examination of tissue and to supply through its bulletin the necessary details for collecting and mailing specimens, and that the society appoint a permanent committee on cancer that shall collect data, furnish as a committee articles for the lay press, and encourage the study of cancer throughout the state.

DR. F. W. PARHAM, New Orleans: Primary cancer of the small intestine in at least 40 per cent. of cases gives rise to obstruction much earlier than in the case of the large intestine. Sixteen cases of operation before complete occlusion gave a mortality of 18.7 with 13 cures; 10 cases after occlusion gave 70 per cent. mortality with only 3 cures.

DR. ISADORE DYER, New Orleans: It is difficult to catalogue all the lesions of the skin which might be listed under the title of precancerous lesions of the skin, for the reason that experience shows that almost any inflammatory process with destruction of tissue may end in carcinoma.

DR. WILLIAM H. HARRIS, New Orleans: A specific histopathologic picture for the so-called precancerous stage has not been recognized by pathologists, but a careful cooperation between the surgeon and the pathologist in such considerations is capable of bringing forward information of equal value to the patient as if the precancerous stage were a definite entity.

DR. WILLIAM KOHLMANN, New Orleans: Since 1908 I have performed the radical (Wertheim) operation for carcinoma of the uterus in thirty-two cases, and a good number of these patients have been far beyond the stage at which a cure could be expected. Only a very few of them have been clearly within the limit that may be called operable, and these have been operated on only in the last three years. In the years 1908 and 1909 I operated on thirteen patients; three died, three were temporarily improved, and seven were free from symptoms for one or two years. They were all advanced cases.

Gunshot Wounds of the Abdomen

DR. J. G. MARTIN, Lake Charles: I have operated in two cases successfully. One had a perforation of the small intestine and of the bladder. The other had three perforations of the ileum and one of the transverse colon. In the latter case, in which I operated about one hour after the receipt of the injury, the patient would have died from hemorrhage, if not from peritonitis, as active bleeding was going on from one of the mesenteric vessels.

Treatment of Compound Fractures

DR. L. B. CRAWFORD, New Orleans: I favor the use of Lane plates in the treatment of these fractures. My results in four cases strengthen my conviction that this method of treating compound fractures is worthy of some note.

Postoperative Management of Surgical Cases

DR. E. DENEGRÉ MARTIN, New Orleans: Results depend on a more intimate knowledge of patients, the better management of operations, and on the exercise of judgment, which can be gained only by experience—not the mistaken experience of the useless administration of unnecessary drugs, but the experience of non-interference.

THE AMERICAN DERMATOLOGICAL ASSOCIATION

Thirty-Eighth Annual Meeting, held in Chicago, May 14-16, 1914

The President, DR. JAMES MACFARLANE WINFIELD, Brooklyn,
in the Chair

Officers Elected

The following officers were elected for the coming year: president, Dr. S. Pollitzer, New York; vice-president, Dr. Martin F. Engman, St. Louis; secretary and treasurer, Dr. Oliver S. Ormsby, Chicago. Place of next meeting, New York.

Teaching of Dermatology—The Care of Lepers

DR. JAMES MACFARLANE WINFIELD, New York: Dermatology is coming into its own, and is being recognized among medical men as one of the most scientific, difficult and important of the medical specialties; but in spite of that even now there are comparatively few schools that teach the subject properly. The time has come when we of dermatologic thought and teaching should make a united effort to improve and unify the teaching of skin diseases. It should be our endeavor to do everything possible to correct the custom that still prevails in many of our medical schools of having syphilis taught by the chair of genito-urinary diseases. Granting that syphilis is a constitutional systemic disease, the cutaneous specialist is the one who is trained to recognize its varied manifestations. Is it not logical that he would also be better able to teach it than any one else? We may look still farther beyond, and begin to advocate now the establishment of a special department and chair of syphilology in all of our medical schools and hospitals, in order that the whole subject may be taught systematically by men especially trained for this work. Owing to the influx of people from those countries where leprosy is endemic, and the increased number of these cases in the United States it would seem to me that this association should join hands with other medical bodies in urging on the United States government the necessity for a national law and the establishment of a national home or homes for lepers. I would therefore suggest that a committee of this association be created to draft a memorial to be presented to the President of the United States, and the Senate and House of Representatives, setting forth the dangers of the leper at large, and urging the need of his detention in a place under national control, where he could receive the proper care, and where scientific investigations could be carried on with a view to the relief of the unfortunate himself, the prevention of the further spread of the disease, and the eventual eradication of it from the world.

[In accordance with this recommendation a permanent committee on leprosy was appointed and the association adopted resolutions as recommended by the president.]

PARONYCHIA: ETIOLOGY AND TREATMENT

DR. HOWARD MORROW and DR. A. W. LEE, San Francisco: In considering the subject of paronychia, we shall limit it to an inflammation of the nail-bed and nail-fold due to organisms apart from those considered to be the etiologic factors in lues, tuberculosis, tinea, blastomycosis, etc. Of sixteen cases studied by us, two were acute and fourteen of long standing, and all have been caused, as shown culturally, by the *Staphylococcus pyogenes albus*. No definite conclusions could be drawn from this limited number of cases as to whether age, sex or occupation bears any distinct relation to the pathologic condition. Thirteen of these cases remained as uncomplicated paronychia, while three progressed to onychia, with exfoliation of the nail. In only one case did the pathologic condition involve the feet, and in this case all of the toes were affected. Of the hand cases, all the nails were involved in only two instances, and the remainder varied from one to six diseased nails. In fourteen of the cases the condition started about the nails and remained confined to that location until cured. In two cases the disease was secondary to pyogenic dermatitis on other portions of the body. In each case it was possible to obtain from the lesions a pure culture of the *Staphylococcus pyogenes albus*, and,

singularly enough, no other organisms grew on the culture mediums employed, namely, blood-serum and agar. Notwithstanding this experience, it is probable that the *Staphylococcus pyogenes aureus* is responsible for a certain percentage of cases.

For some years we have followed the treatment by ointments, compresses, powders and, in recent years, by vaccines. A large percentage of the cases treated by these measures have given unsatisfactory results, probably because of the fact that aside from vaccines these applications do not penetrate into the affected areas. In our hands vaccine therapy did not give the same satisfactory results as the method to be described. The preparation used with the greatest amount of success was a saturated solution of chrysarobin in chloroform. This combination was found more satisfactory than the usual preparation of chrysarobin with a fatty base. The reason for using chloroform as a menstruum is that it has a high tissue-penetrating index. The reason for using chrysarobin is that it has a high staphylococcic bactericidal influence. The following method of using this preparation was employed: The plica unguis should be raised from the nail and the affected area swabbed with the chrysarobin preparation. This should be done once daily until there is no longer any pus formation. The latter condition usually subsides after a few applications. It must be remembered, however, that chrysarobin occasionally causes an intense dermatitis, even after one application, and in such cases this treatment should be pursued with caution. By this method all of our patients were cured in from one to three weeks.

DISCUSSION

DR. CHARLES J. WHITE, Boston: Paronychia is not a particularly common infection in the Massachusetts General Hospital, but when we do see it, it is very apt to be in Jewish housewives. The explanation for this apparently is that they are not allowed to use soap in the washing of their dishes for fear that there may be some pig fat in the composition of the soap.

DR. A. RAVOGLI, Cincinnati: I have seen a great many cases of eczema of the nail-bed, which I would not exactly call paronychia, because there was not suppuration, but only a little oozing, with swelling and formation of a crust around the nail-bed. These cases I have found to be exceedingly stubborn. I have seen these cases in women employed in factories, and also in those who use the typewriter. The nail has very seldom been affected in these cases. I have also had some cases of true paronychia, with a great deal of suppuration present, and also raising up of the nail, but in these cases incision and removal of the pus have given good results. To correct the eczematous condition referred to, I have found the application of a tincture of iodine, going inside the nail-bed, in the fold of epidermis, a very good measure.

DR. D. W. MONTGOMERY, San Francisco: A great number of these cases are certainly due to the streptococcus. In order to get a culture of the streptococcic infective agent, though, it is necessary to cultivate it anaerobically. The suggestion made by Jadassohn is of very great importance, namely, to use a platinum needle of exceeding fineness, and drive down into the culture-medium, so that you get an anaerobic cultivation—otherwise it dies out. The suggestion of Sabouraud of cultivating a streptococcus by a blood-medium, excluding the air by a device of an attenuated culture-tube, finely drawn out, in my opinion is not nearly so good as that of Jadassohn. Of course, I recognize also that paronychia is very frequently an accompaniment of eczema.

DR. GEORGE H. FOX, New York: Some one has recently called attention to manicuring the nails and perhaps over-rated the evil results from it; but recently the newspapers even in New York have had a number of special articles on the question of forcing the manicurists to obtain licenses, on account of the bad results from their work.

DR. HOWARD MORROW, San Francisco: As referred to by Dr. Ravogli, applications of tincture of iodine are very efficacious, as are also those of silver nitrate.

(To be continued)

MEDICAL SOCIETY OF THE STATE OF NEW YORK

*One Hundred and Eighth Annual Meeting, held in New York City,
April 28-30, 1914*

(Continued from page 1686)

Uterine Hemorrhage in Young Girls

DR. HENRY C. COE, New York: In the absence of any discovered cause for the hemorrhage, local or general, the practitioner is thrown back on experimental medicine and must interrogate rigidly the ductless glands, with more or less doubtful results. Organotherapy must be regarded as the best curative agent along this line. The prognosis must depend on the actual or supposed cause of the condition. Care should be exercised in making caustic applications to the endometrium which are not absolutely controllable and may cause irreparable injury to the delicate organ in subjects of tender years. One of my colleagues has had success in the treatment of obstinate hemorrhage in young women by ligation of the uterine arteries by the vagina which is practically out of the question in young children. I can conceive of cases in which exploratory abdominal section might be elected, even when pelvic examination was negative, but it would be a desperate case indeed in which both ovaries would be removed, not to speak of supravaginal amputation of the uterus.

DISCUSSION

DR. HARVEY P. JACK, Hornell: I have had many cases of hemorrhage in young girls. In several repeated curettements, hygienic measures, parotid gland and thyroids have been administered without relief. These patients seem hardly to recover from the exhausting hemorrhage of one menstruation before another begins. Thyroid extract in small doses, long continued, has proved of great benefit in a few cases, but the agent that has cured every one of these severe cases so far is calcium chlorid. One girl in particular has been brought from a bleached-out nervous wreck to brilliant health by the use of this drug alone.

Sterility in Women

DR. WILLIS E. FORD, Utica: Formerly, I was accustomed to use galvanism for a considerable period in these cases to develop the uterus after slitting the posterior neck and divulsion, and I have the history of many cases in which pregnancy followed, even after a lapse of a number of years of sterility. This treatment had to be carried on, however, for several months, and the results were good for a time, but I do not think they compare with the shorter and more simple procedure advocated by Pozzi, especially with respect to the permanency of results. I have been at work long enough to follow the history of many young girls for ten years or more and up to the time of their marriage, and even afterward, and I am convinced that if early and complete drainage is secured through the uterus by this simple procedure in the few cases of cervical deformity, many serious conditions encountered later in life can be prevented and sterility can be avoided in many instances.

Dysmenorrhea

DR. ROSALIE SLAUGHTER MORTON, New York: Many gynecologists consider pain at the menstrual period normal. Martin of Germany designates as dysmenorrhea those disturbances which most women experience at the time of menstruation, such as pains in the back, discomfort, continual desire to urinate, etc., and says that these are attendant symptoms which are borne by women prudently. Antelexion is more commonly associated with pain. I have seen these patients do well with systematic regulation of diet, the drinking of sufficient water, proper hours of sleep and graduated outdoor and indoor exercises, with a strict attention to the minor troubles, bringing these patients from semi-invalidism to efficiency. The working classes are troubled with dysmenorrhea, the percentage depending largely on the development of the individual. Kelly finds 75 per cent. of the college women suffer from dysmenorrhea. I have found poorly nourished, overworked store employees to the extent of 7 per cent. with no pain at the menstrual period. In several

young patients with habitual constipation, with no definite pain at the onset of menstruation, with uterus and adnexa normal, but with prolapse of the sigmoid the dysmenorrhea has disappeared after correction of this condition. I recommend postural treatment.

DISCUSSION

DR. CAROLINE S. FINLEY, New York: Most mothers ask me whether or not they should keep their girls in bed the first day during the menstrual period, and I always advise them, if the girls are normal, not to do so. Pain during menstruation may be due to intestinal indigestion. By relieving the constipation you help the mild cases of dysmenorrhea. Again, many patients say that their daughters have leukorrhea. I find on examination that it is simply a serous discharge which comes before the menstrual flow and which is one of its safeguards.

DR. I. C. RUBIN, New York: Theoretically, there is every reason to agree with Dr. Morton on the question of pelvic congestion as causing a lot of pain which is common in dysmenorrhea. If one uses $\frac{1}{75}$ grain of atropin, taken in tablets, three times a day, it will bring about the cessation of pain. It must be taken a few hours before the expected period. The atropin is supposed to affect also the uterine muscles. A great many unmarried girls, especially factory girls, suffer more from dysmenorrhea than girls in better social states.

DR. MARY T. ROSE, New York: There is one point which the general practitioner should emphasize, and that is, the congestion in these cases is due to retention in the rectum. We find this especially in our women with dysmenorrheic symptoms. I have found that a good deal of their trouble is primarily retention of fecal matter in the rectum.

Pregnancy in a Tuberculous Woman

DR. E. PARRY, New York: If a woman with tuberculosis is pregnant, she may bear the first pregnancy well, the second pregnancy not so well, and the third one not at all. After parturition, tuberculosis advances rapidly. A woman who has tuberculosis should never become pregnant. Ninety-seven cases of laryngeal tuberculosis are reported in the literature, and of this number ninety patients died. Active tuberculous patients should be forbidden to marry, or if they do marry they should not become pregnant, or if they become pregnant a therapeutic abortion should be performed.

DISCUSSION

DR. RALPH W. LOBENSTINE, New York: Not infrequently pregnancy, especially if too rapidly repeated, will lay the foundation for the development of tuberculosis. That point is generally overlooked. Either pregnancy or the act of parturition aggravates the existing tuberculosis in a large percentage of cases. In von Bardeleben's cases 40 per cent. proved fatal. In my series 50 per cent. of the severe cases terminated fatally within two months after parturition. In the bad cases the patients lose ground rapidly either during labor or within three weeks afterward. During the puerperium the tuberculosis may assume a fulminating character and cause death in a surprisingly short time. The cause of rapid changes post partum are briefly these: prolonged muscular exertion of labor, loss of blood, use of anesthesia, only slightly, and the possibility of renewed toxins or tubercle bacilli being forced into the system from the placental site, all of which are serious and far-reaching in their results. Therapeutic abortion is indicated in the early months in all active cases. Tuberculous persons should, if possible, be forbidden to marry. I feel strongly that if they marry they should be forced to keep from propagating.

DR. JOHN O. POLAK, Brooklyn: I am in full accord with the position taken by Dr. Lobenstine and Dr. Parry regarding tuberculosis and pregnancy as being incompatible in certain stages of the disease, and when we have the indications, as we do in any active process, for interference, I want particularly to speak of the method of emptying the uterus. My considerable experience has shown us that unless the uterus is emptied early in these cases we have a very prolonged abortion, so to speak, by the ordinary expectant plan. Under

local anesthesia these patients can be delivered by a vaginal hysterotomy at the third month. Before the eighth week ordinary curettage can be done without the slightest difficulty. After that time, when placental formation has taken place, I would advocate anterior vaginal hysterotomy under local anesthesia or under spinal anesthesia.

Infection with *Bacillus Coli Communis* Complicating Pregnancy

DR. EDWARD P. DAVIS, Philadelphia: Colon bacillus infection of the large intestine complicating pregnancy is seen in women who have neglected hygienic precaution during pregnancy, who have remained obstinately constipated or who have taken irritant drugs to empty the bowels. The pain is usually localized in the intestine and not in the peritoneum. The colon bacillus may affect the new-born infant, causing icterus and ophthalmia. It may be the cause of septic abortion or of septic infection. In cases of infection of the uterus and appendages by the colon bacillus, as determined by an examination of the contents of the uterus, the treatment does not differ from puerperal infection of other origin, except that a tendency to mixed infection and pus formation must be remembered. In these cases pelvic abscess may be expected and demand drainage.

(To be continued)

MISSISSIPPI STATE MEDICAL ASSOCIATION

Forty-Seventh Annual Meeting held at Columbus, April 14-16, 1914

(Concluded from page 1685)

Some Surgical Conditions Affecting the Biliary Tract

DR. J. W. BARKSDALE, Winona: Barring gynecologic and appendix cases, affections of the gall-bladder and bile-ducts are more frequently encountered than any other abdominal ailment. Excepting malignancy and neoplasms, these are all due to bacterial invasion. These cases are exclusively surgical.

DISCUSSION

DR. JOHN DARRINGTON, Yazoo City: If the gall-bladder is drained, the chances are that the patient will have subsequent trouble again and again until he finally comes to the surgeon for a complete removal. It is extremely important that the surgeon should have a keen appreciation of the condition of the gall-bladder while the abdomen is open.

DR. W. W. CRAWFORD, Hattiesburg: It is astonishing how many of these cases have gone on year after year without being recognized by us, and how many of them have been treated for indigestion. The symptoms are so like those of ulcer of the stomach that one is pardoned for concluding that the patient has some trouble of that kind, and the great fallacy is that so many of these patients who are dieted improve. The strange thing is that though the bladder may be filled with stones, the patient will improve when placed on a rigid diet, to such a degree that he feels practically well. But he has a series of relapses year in and year out until finally the gall-bladder is either drained or removed.

Prostatectomy

DR. JOHN DARRINGTON, Yazoo City: The conscientious surgeon approaches these cases with much anxiety, since prostatic enlargement comes with advancing years when degenerative changes have occurred in the vital organs. The choice between the perineal and suprapubic routes should be dependent on the conditions found in the individual case.

DISCUSSION

DR. J. W. BARKSDALE, Winona: I have a decided preference for the perineal operation. The patient can get up in from forty-eight to seventy-two hours, and with these old patients that is certainly an advantage. Drainage is another factor, and they can be drained better by the perineal method than by the suprapubic route.

DR. E. M. HOLDER, Memphis, Tenn.: The question of the route by which we shall approach the prostate is an impor-

tant one. The suprapubic route is gaining; men who were favoring the perineal route five or six years ago are now advocating the suprapubic. The operation which appeals to me in most cases is to open the bladder and introduce a catheter through the urethra into the bladder. In very old patients and with cases with the usual bad kidneys and cardiac changes that go along with this trouble, I have found it well to do the operation in the two-step way.

Appendicitis Twenty-Four Hours after the Attack

DR. L. D. DICKERSON, McComb: If fever subsides and pain is relieved, operate after twelve days. If the reverse is the case, operate at once. While waiting, use opiates and ice-bags. The patient should have absolutely nothing by the mouth.

Head Injuries

DR. G. W. CALE, St. Louis: Fracture of the skull is of serious moment in proportion to the complications that may accompany it. Each individual case of head injury should be studied from the anatomic and physiologic points of view, with the assistance of the Roentgen ray. After a diagnosis is reached, the plan of treatment is usually easily determined.

DISCUSSION

DR. H. T. INGE, Mobile, Ala.: Treatment of head injuries is not different in many particulars from the treatment of all other forms of injury. The same amount of care in handling a case of head injury will make that injury amenable to treatment just the same as an injury in any other part of the body. In December, in a terrible railway wreck, 169 men were injured. The predominating injuries were head and face injuries. There were several cases in which the brain substance escaped through the wound. There were extensive lacerations of the scalp; and the emergency treatment adopted was not by a surgeon, but by a member of the Hospital Corps, applying the emergency dressing which every United States soldier carries with him. Every soldier hurt in this wreck, as soon as placed in a hospital, was given an immunizing dose of antitetanic serum. His wounds were then dressed by the surgeons and not a single case of infection occurred.

Treatment of Fracture

DR. S. W. JOHNSTON, Vicksburg: No fracture should be put in a permanent splint until apposition has been demonstrated by the Roentgen ray. When accurate alignment cannot be secured by the usual methods, an incision should be made and a plating done. All compound fractures should be treated by the "open" method.

The Need of General Information on Infant-Feeding

DR. R. N. WHITFIELD, Florence: The average physician says that he is too busy to spare the time necessary to perfect himself in the details of infant-feeding. One reason is that so much of his time is taken up in treating the conditions caused by improper feeding of infants. Another is that average milk-production is faulty. Milk laboratories are necessary—to get them we need cooperation among physicians and money. A clean dairy, a trained nurse and a couple of delivery-boys would supply our average town, and the nurse would have time to spare in which she might visit the homes of the poor where infants are being artificially fed.

Convulsions in Infancy and Childhood

DR. A. W. MCNEAL, Ruleville: The most common cause is toxemia from intestinal disturbances. Rachitis has not been a factor in my practice.

Chorea

DR. S. A. MAJURE, Dixon: Arsenic has given me the best results. General tonics are indicated and rest is essential. I have never seen a case in a negro.

Infantile Paralysis

DR. J. C. MCNAIR, Fayette: We had nineteen cases of infantile paralysis in Jefferson County in 1911. No more than two cases were within 5 miles of each other. My first

case showed high temperature and rigidity of muscles, especially of the back and lower extremities. In another, the only fatal case, there was involvement of the respiratory muscles. In one there was loss of function of both lower limbs, the mother not thinking it necessary to call in a physician until she found that her child could not walk. The symptoms preceding the paralysis are not the same in all cases; they may be so insignificant as to be disregarded.

Quinin Amaurosis

DR. W. M. BIGGS, Rome: The patients in the cases which I report were aged, respectively, 2, 4, 6 and 4 years. The first three were brothers. The first received 2 grains every three hours for three days and then 4 grains every hour for a day; the second 6 grains every four hours for a day; the third 8 grains every four hours for a day and then 10 grains of quinin with urea hypodermatically. The fourth was given 40 grains of quinin and urea hypodermatically in two doses, six hours apart.

DISCUSSION

DR. E. C. PARKER, Gulfport: I should like to know if Dr. Biggs had his quinin thoroughly examined to see whether or not there were any impurities in it.

DR. A. W. MCNEAL, Ruleville: There was recently a case of quinin amaurosis in my settlement. It resulted from the administration of something like 8 grains at four-hour intervals. That treatment was kept up for a day and eight hours, and the woman became totally blind. The quinin was discontinued and Fowler's solution begun in that case. The patient remained partially blind for something like a week after withdrawal of the quinin, but finally regained complete sight.

Rabies

DR. F. M. RANCK, A. and M. College: Rabies may last from three to thirteen days and is most always fatal. It is not advisable to kill suspicious animals if they may be kept under observation. In the treatment of the wound, antiseptics and caustics are recommended. Bier's ligature is sometimes helpful.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago May, VII, No. 5, pp. 337-408

- 1 *Intestine in Health and Catarrh, as Pathway of Infection to Tubercle Bacillus. L. Findlay, Glasgow.
- 2 *Congenital Elevation of Scapula (Sprengel's Deformity) of Familial Type. Report of Nineteen Cases. H. Neuof, New York.
- 3 Respiratory Infections in Infants' Wards. W. F. Chappell and A. Brown, New York.
- 4 Recent Contributions to Our Knowledge of Nephritis. R. M. Smith, Boston.

1. **Tuberculous Infection.**—Healthy animals were killed by Findlay at short intervals varying between four and ten days, after the introduction of an exceedingly virulent culture (three weeks old) of tubercle bacillus and, with one exception (when the dose was 10 mg.), each capsule contained 5 mg. Emulsions of one lung and all the mesenteric glands from each case were made and introduced intraperitoneally through a small abdominal wound in rabbits, which were used for the secondary inoculations. Three of the animals inoculated with an emulsion of lung died too soon to give the disease time to develop, but in all the others ample time was allowed. In two of the animals inoculated with mesenteric glands, tuberculosis developed, thus showing that living tubercle bacilli had migrated to the mesenteric glands, but in not one instance were living bacilli demonstrated in the lungs by animal experiment. Both of the above mentioned infected animals had lived for a period of fifty-three days, and yet the disease was slight. It consisted of small tubercles situated chiefly in the omentum, but also in the mesentery

and diaphragm, and apparently spreading by the lymphatics; the disease had infected the pleural cavities, several small subpleural nodules being visible. Films of the nodules revealed very scanty tubercle bacilli.

In one rabbit inoculated intraperitoneally with a very minute dose of the same culture as was used in the primary experiments, death occurred at the end of three days, when the peritoneum was found studded with minute tubercles containing abundant tubercle bacilli. In the inhalation experiments with the same type of organism, but another culture the lungs were absolutely solid within thirty days. This very different picture, Findlay says, would seem to show that tubercle bacilli in their passage through the intestinal mucosa diminish considerably in virulence, but, the fact remains, that living tubercle bacilli can pass through the apparently healthy mucosa and reach the mesenteric glands within a period of six days, but such is not of very frequent occurrence.

In the second series of experiments the bacilli were introduced in greater quantity (10 mg.) after the animal had recovered from an intestinal catarrh induced by an infusion of senna leaves. In only one case out of five were living tubercle bacilli demonstrated in the mesenteric glands, but in not one instance were they shown to have reached the lungs within a matter of six days.

In a third series of experiments the animals were kept alive a sufficient time for the disease to develop. The dose of the culture varied between 10 and 20 mg. and was administered in a gelatin capsule with the stomach-tube. The majority of the animals (87 per cent.) which lived forty-six days or longer developed tuberculosis. In all the positive cases the gastro-intestinal tract presented lesions visible to the naked eye, and, with one exception, where undoubtedly insufflation had occurred, the intestinal foci were the most extensive. The appendix and adenoid patch at the ileocecal valve invariably, and in the earliest cases these parts alone were the seat of the mischief. In one experiment, however, of only forty-six days' duration the cecum was in addition studded throughout with small nodules, and the mesenteric glands were extensively involved, presenting numerous caseous foci. In the majority of the positive experiments the mesenteric glands were also affected, and in those rabbits which had survived fifty days or longer infection of the Peyer's patches was found, and in those killed seventy days or more after inoculation an occasional nodule was encountered in the lungs. In no case was the spleen observed to be the seat of tuberculosis. These experiments prove that rabbits can be infected by feeding with tuberculous material. In every instance the most extensive mischief was situated locally in the intestine, and thus they lend absolutely no support to the idea that primary tuberculosis of any organ other than the bowel, can arise from bacilli which have gained admission by the intestinal route.

Of seventeen rabbits with diarrhea infected experimentally which lived longer than nineteen days, fourteen, that is, 82 per cent., developed tuberculosis, and all those that survived at least thirty days, that is, 100 per cent., showed definite infection of the gastro-intestinal tract. As in the healthy animals the earliest lesions were situated in the appendix and lymphoid area at the ileocecal valve in the form of small whitish nodules about the size of a pinhead lying immediately under the peritoneal coat. When the animals had lived for at least forty-one days the mesenteric glands invariably presented caseous foci, and the cecum and lungs were as a rule the seat of tuberculosis. It is thus seen that in the animals which had previously suffered from enteritis the lesions were on the whole similarly distributed to those occurring in rabbits not so affected.

Findlay also found that healthy rabbits may be infected by the ingestion of large amounts of the human tubercle bacillus. Rabbits just recovered from intestinal catarrh constantly, and within a much shorter period, develop tuberculosis after the ingestion of human tubercle bacilli. With the human type of organism a local intestinal lesion is always present, and when present is slight in comparison with the diseased foci in the mesenteric glands or lungs.

Apparently primary pulmonary tuberculosis can be caused in rabbits by the ingestion of large amounts of human tubercle bacilli.

Findlay believes that the best means of combating the spread of bovine infection in childhood is in the avoidance of everything likely to cause intestinal catarrh, and in the sterilization of milk intended for the use of infants and children.

2. Sprengel's Deformity.—As a result of the study of 19 cases Neuhof concludes that congenital elevation of the scapula occurs in a familial form; unilateral and bilateral congenital elevation of the scapula are varieties of one affection. The deformity of the scapula and the defects in the trapezius (as well as other coexisting anomalies) are parts of a more general fault in development, i. e., Sprengel's deformity is a manifestation of atavism when it prevails in a familial form. It is probably a manifestation of atavism when it occurs in isolated instances. Neuhof is convinced that if sought for, more instances of congenital elevation of the scapula of familial type will in all probability be found.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

May, LXIX, No. 5, pp. 753-908

- 5 *Experiences with Spinal Anesthesia in Pelvic Surgery. B. M. Anspach, Philadelphia.
- 6 Clinical Significance of Sarcomatous Change in Uterine Fibromyoma. S. H. Geist, New York.
- 7 *Treatment of Necrosis of Uterine Fibroma. G. E. Shoemaker, Philadelphia.
- 8 Prevalence of Puerperal Sepsis in Gynecologic Wards of Philadelphia Hospitals. J. A. McGlinn, Philadelphia.
- 9 Present Status of Puerperal Infection in Private Practice—Practical Methods of Prevention and Treatment. C. Foulkroel, Philadelphia.
- 10 Primary Malignant Tumors of Female Urethra. B. P. Watson, Toronto.
- 11 Perithelioma of Uterus. B. P. Watson, Toronto.
- 12 Experiences with Method of Immediate Repair of Perineal Lacerations. G. Baughman, Richmond, Va.
- 13 Spontaneous Evolution in Shoulder Presentation, with Report of Three Cases. G. L. Brodhead, New York.
- 14 Post-Typhoid Suppuration of an Ovarian Cyst Infected by Bacillus Typhosus of Eberth. F. H. Maier, Philadelphia.
- 15 Pregnancy Complicated by Typhoid with Hemorrhage and Relapse; Delivery at Term. S. Berkowitz, New York.
- 16 Simple Method of Testing for Formalin after Administration of Hexamethylenamin. G. L. Kaufmann, Chicago.

5. Spinal Anesthesia in Pelvic Surgery.—Spinal anesthesia even in expert hands, according to Anspach will have a higher immediate mortality as a routine anesthetic than ether, chloroform or nitrous oxid. It has no postoperative mortality or morbidity, and in this respect is superior to ether, chloroform and infiltration anesthesia, but it is not superior in this respect to nitrous oxid and oxygen. It is more troublesome to the surgeon than ether, chloroform or nitrous oxid and oxygen anesthesia. Anspach advises that spinal anesthesia should not be used unless the surgeon has familiarized himself thoroughly with all the details of the technique; he also should be aware, fully, of the complications which may arise, and be ready to meet them at a moment's notice. Well given it is the best form of anesthesia in selected cases, but it should be reserved for those operations in which the dangers of general anesthesia are increased, or in which nitrous oxid and oxygen and local anesthesia are unsuitable or unsatisfactory.

7. Necrosis of Uterine Fibroma.—The best treatment of necrotic fibroma, Shoemaker says, is preventive. That is, the removal of all large or growing tumors, or those which cause symptoms, before they become necrotic. The Roentgen ray is a temporizing expedient which will result in many deaths, either from overlooked malignancy, or from late complications. Whenever possible, Shoemaker states, the tumors should be removed by the vagina, leaving the uterus if possible, and leaving the ovaries if hysterectomy is done. The actual cautery is a valuable help in the vaginal cases or after-treatment of the tumor site. The mortality will depend on the degree of infection present when the operation is performed, and should be lowest in those treated by the vagina.

American Journal of Public Health, Boston

April, IV, No. 4, pp. 289-390

- 17 Statistical Study of Measles. F. S. Crum, Newark, N. J.
- 18 Result of Experimental Employment of Hypochlorite Treatment to Portion of Chicago City Water-Supply. G. B. Young, Chicago.
- 19 Marriage Registration: One Way Out. W. J. V. Deacon, Topeka, Kan.

Archives of Diagnosis, New York

January, VII, No. 1, pp. 1-100

- 20 Importance of Subjective Symptoms for Early Recognition of Cancer. I. Levin, New York.
- 21 Bismuth Meal Roentgenogram in Diagnosis. W. A. Bastedo, New York.
- 22 Acute Gastrectasis. R. W. Wilcox, New York.
- 23 Periarticular Suppuration of Pure Gonococci Origin. D. Stetten, New York.
- 24 Dysmenorrhea. S. W. Bandler, New York.
- 25 Prostatic Incident in Diabetes. H. Stern, New York.
- 26 Epistaxis as an Expression of Systemic Disease. H. Hays, New York.
- 27 Tuberculosis of Cecum. H. E. Stein, New York.
- 28 Diagnostic Pitfalls in Pediatrics. Miliary Tuberculosis. Acute Intussusception. Pylorus Stenosis. H. B. Sheffield, New York.
- 29 Hyperthyroidism—Its Etiology and Symptomatology. W. H. Good, Philadelphia.
- 30 *Murphy Button Almost Entirely Digested Within Four Years. O. Kiliani, New York.

30. Murphy Button Almost Entirely Digested.—In 1904 a posterior gastro-enterostomy by means of a Murphy button was done by Kiliani. After that, the patient was perfectly well for five months, then he began to suffer from the same symptoms as before operation, namely, vomiting and epigastric pain, but never as severe. Before operation he often vomited blood, but never after that. During all these four years whenever he got an attack of pain and vomiting, he would stop work for a week or so, until it subsided, and then resume his work.

His history before the last operation was as follows: Lately attacks have become more severe, and from four to five weeks he has had continual pain in the epigastrium, with exacerbation of very agonizing pain, coming on especially at night, not after meals. He thinks pain is relieved by eating, but it returns with increased force, one to one and a half hours after meals. Pain radiates to back and is very intense there, chiefly on left side, also shoots to region of heart, never to shoulder or downward. Soon after the pain comes he has to vomit, usually one to one and a half hours after meals. Often vomits large quantities; sometimes he vomits food which he took the day before. He has not vomited blood, appetite good, but afraid to eat on account of pain and vomiting. Has lost about 10 pounds. Bowels constipated, has to take cathartics. Stool usually hard and black. Urination normal. The patient says he did not pass the Murphy button which was used for his gastro-enterostomy, four years ago. Just before operation a roentgenogram was made of the umbilical region. No button was seen. Another was made of the region above this, which showed a shadow suggesting Murphy button—not as clear, though, as shadow of a metal substance should be.

In 1909 Kiliani operated again; gastrostomy then done. Without much difficulty a wire spiral spring from Murphy button was withdrawn from the pylorus. The latter was patent, and admitted tip of index finger. The remainder of stomach was then palpated, but nothing else abnormal found. The old gastro-enterostomy was carefully felt for with one finger inside of the stomach and the other one outside, but no opening could be found. Apparently it had closed entirely.

Archives of Ophthalmology, New Rochelle, N. Y.

May, XLIII, No. 3, pp. 231-356

- 31 Fifth Case of Acute Disseminated Myelitis with Retrobulbar Inflammation of the Optic Nerves. W. A. Holden, New York.
- 32 Case of Permanent Impairment of Vision Following Gastro-Intestinal Hemorrhage. G. H. Grout, New York.
- 33 Successful Treatment of Corneal Tumor with Radium, with Remarks on Radium in Ophthalmology. A. F. Mattice, New York.
- 34 Anatomic Study of Case of Temporal Conus (Coloboma) in an Hyperopic Eye. E. V. L. Brown, Chicago.
- 35 Department of Conservation of Vision. H. C. Greene and G. S. Derby, Boston.

Archives of Pediatrics, New York*April, XXXI, No. 4, pp. 241-320*

- 36 *Malaria in Infants. W. Weston, Columbia, S. C.
- 37 Congenital Malaria. M. H. Bass, New York.
- 38 Significance of Mineral Salts in Digestive Disturbances of Infants. C. I. Wood, Ann Arbor, Mich.
- 39 Etiology and Symptomatology of Nervousness in Infancy. D. J. Levy, Detroit.
- 40 Unilateral Congenital Hypertrophy of Leg and Big Toe. J. Speese, Philadelphia.
- 41 Guaiacol Poisoning by Absorption. Report of Case. L. A. Saxon, New York.

36. **Malaria in Infants.**—If seen during the early part of the paroxysm Weston gives a hot mustard bath, applies an ice cap to the head, and if the infant is having convulsions gives bromid of soda and antipyrin also. If the infant is in this stage, frequent tepid spongings give great relief. The bowels should be promptly and freely opened by the use of frequent small doses of calomel. Other medicinal treatment consists in the administration of quinin, preferably bisulphate in aqueous solution. The stomach of infants suffering from malaria is almost invariably very irritable, and it is therefore important that quinin should be given only at those times when it will be most effective in destroying the parasites. Weston advises that in benign attacks no quinin be administered for at least three hours after the temperature becomes normal. Then administer 2 grains bisulphate in aqueous solution every two hours day and night for twenty-four hours, then 2 grains of the solution every four hours for twenty-four hours, then 3 grains morning and evening for three weeks. It absorbs more readily when the stomach is empty. If difficulty is found in retaining the bisulphate, euquinin or the tannate may be tried. In pernicious malaria quinin hypodermically is the only method to be relied on.

The best salt of quinin for injection in Weston's opinion is the bimuriate. The tablets of bimuriate of quinin and urea are convenient and reliable. The 3-grain tablets contain about $2\frac{1}{2}$ grains of the quinin salt. The tablet should be dissolved in distilled water or merely sterilized water. The needle and syringe must be sterile and the skin sterilized. The solution is then injected deep into the muscles. This procedure may be repeated every six hours. Finally the rectal administration of quinin may be resorted to. Here the bimuriate in doses three times as large as would be given by the mouth or intramuscularly should be given in 2 ounces of warm water. This injection should be given high up in the rectum. It is well to add 5 drops of tincture of opium to the solution to prevent tenesmus and aid retention.

Boston Medical and Surgical Journal*May 14, CLXX, No. 20, pp. 745-780*

- 42 Territorial Autonomy in Cerebral Circulation and Its Rôle in Genesis of Symptoms in Psychoneuroses. J. W. Courtney, Boston.
- 43 *Ten Tests for Determining When a Patient Is Cured of Gonorrhea. C. M. Whitney, Boston.
- 44 Some Hygienic Tests Applied to Orthopedic Conditions. H. W. Marshall and H. L. Langnecker, Boston.

43. **Determining when Patient is Cured of Gonorrhea.**—The ten points mentioned by Whitney are an examination of the discharge, the urine, instrumental examination of the urethra, urethroscopic examination, examination of the prostate and vesicles, test by alcohol, coitus, discharge induced by irritating antiseptics, bacteriologic examination of the expressed vesicular and prostatic secretion by culture and slide, and the complement fixation test.

California State Journal of Medicine, San Francisco*May, XII, No. 5, pp. 167-218*

- 45 George Chismore. D. W. Montgomery, San Francisco.
- 46 Review of Early Vaccination Controversy. P. K. Brown, San Francisco.
- 47 Reminiscences: Transition of Surgery to Antiseptic Surgery. M. Regensburger, San Francisco.
- 48 Presentation of Patient Twenty Months after Operation for Uterine Cancer Complicated with Umbilical Hernia. C. J. Teass, San Francisco.
- 49 *Green Operating-Room at St. Luke's Hospital. H. M. Sherman, San Francisco.
- 50 Blindness Following Injuries to Back of Head. L. Newmark, San Francisco.
- 51 Recollections of Listerian Epoch. C. G. Levison, San Francisco.

- 52 Removal of Cervical Lymph-Nodes in Malignant Disease of Head and Face. H. A. L. Ryfkogel, San Francisco.
- 53 Basic Principles in Eczema. E. D. Chipman, San Francisco.
- 54 Case of Extraperitoneal, Intraligamentous Dermoid Cyst and Pregnancy. H. J. Kreutzmann, San Francisco.
- 55 Artificial Cultivation of Gonococcus. E. A. Victors, San Francisco.
- 56 Early Diagnosis of Renal Tuberculosis by General Practitioner. M. Krotoszyner, San Francisco.
- 57 Ununited Fractures. J. T. Watkins, San Francisco.
- 58 Myxolipoma of the Knee-Joint. G. M. Barrett, San Francisco.
- 59 Artificial Pneumothorax in Advanced Lung Tuberculosis. L. S. Mace, San Francisco.
- 60 *Iodin Specific Germicide in Respiratory Affections. S. Blum, San Francisco.
- 61 Hygienic Shoeing—Anatomic Facts vs. Convention and Style. C. C. Crane, San Francisco.

49. **Green Operating Room.**—The discomfort Sherman has had in the present-day white operating rooms led him to suggest dark floors and wainscots in these rooms, so that the operator who looks up from a wound shall not encounter a glare of light and find his eyes useless for a moment, as he looks back into the less illuminated wound. The color scheme, it seemed to him should start from the red of the blood and of the tissues, therefore he advised that green, the complementary color to red, should be chosen for the color of the floor and wainscot. The particular shade of green to be selected was that which was complementary to hemoglobin, and it was found to be the green of the spinach leaf. A room painted in this way, the floor, and the walls for six feet from the floor, a bright spinach green, and all about a glazed white, was matched for use against a room painted a glazed white—floor, walls and ceiling—in the operating pavilion at St. Luke's Hospital. Sherman says that no one who could get into the green room to do an operation ever went into the white room. Above the level of the six-foot green wainscot is white encaustic tiling to the ceiling, and the ceiling itself is a bright buff. Sheets, towelings and gowns and the coverings for the instrument tables are of black.

60. **Iodin Specific Germicide in Respiratory Affections.**—In the treatment of respiratory affections Blum has employed with equally beneficial results hydriodic acid and the iodides of potassium, ammonium, sodium and strontium. The syrup of hydriodic acid, he says, is especially applicable for adults with sensitive digestion and for children. Apart from this consideration the desideratum is to give sufficient iodid to definitely affect the respiratory secretion without causing unpleasant and unfavorable symptoms—coryza, lacrimation and digestive disturbance.

Cleveland Medical Journal*May, XIII, No. 5, pp. 307-374*

- 62 Early Types of Man. T. W. Todd, Cleveland.
- 63 *Persistent Hereditary Edema of Legs (Milroy's Disease) with Acute Exacerbations. Report of Two Cases. J. Phillips, Cleveland.
- 64 "Climatic Cure" of Pulmonary Tuberculosis in Its Relation to Other Methods of Treatment. G. W. Moorehouse, Cleveland.
- 65 New Pharmacopeia. W. C. Alpers, Cleveland.
- 66 Sediment Test for Milk. H. O. Way, Cleveland.
- 67 History of Physiology of Digestion. R. G. Pearce, Cleveland.

63. **Persistent Hereditary Edema of Legs.**—Phillip's first patient, male, aged 40, complained of severe cough, which was due to a subacute bronchitis, and this cleared up quickly under treatment. In the course of the physical examination it was discovered that there was a well-marked painless edema of the left leg, extending from the knee downward. The edema was not so well marked over the foot and ankle because it was reduced by wearing his shoe. On further questioning, the patient stated that this condition had been present from the first year of his life. It had never caused him any great inconvenience, except that at times his affected leg would become red, swollen, hot and very tender. At these times he would feel very ill and feverish, and there would be some disturbance of his stomach. He could assign no cause for these acute attacks other than at times it would follow slight injuries. This condition would subside in the course of three or four days. These attacks began at the age of 10 years, and occurred once or twice a year until the past eight years, when they have been growing much less

frequent. His right leg was unaffected and his left leg was normal above the knee. With the exception of this condition there was nothing abnormal found on physical examination.

The second patient, a boy, aged 6 years, son of the first patient, showed a condition similar to that seen in his father, except that the right leg was affected. The general character of the swelling was the same except that there was greater edema over the dorsum of the foot because he had been going about in his bare feet all summer. His mother had first noticed the swelling of his leg when he was 4 months old, and it had gradually increased and remained since that time. The boy had suffered no inconvenience from his enlarged leg until the time he was first seen. In October, 1913, after a slight scratch on his right foot, he developed in a few hours a red brawny swelling extending to the knee. This was very painful and tender to the touch. The upper border of the swelling was raised and sharply defined. His temperature rose to 104 F. and the patient had severe nausea and vomiting. The physician who saw him at that time thought that the condition was one of septic infection and advised operative procedures, but the mother refused consent, because she knew that his father suffered similar attacks and quickly recovered. That her judgment was correct was shown by the fact that the pain, redness and swelling disappeared, and the temperature returned to normal three days later. Since then he has had no more acute attacks.

Illinois Medical Journal, Chicago

May, XXV, No. 5, pp. 285-356

- 68 Some Fallacies in Open-Air Treatment of Pulmonary Tuberculosis. C. W. Leigh, Chicago.
- 69 Acute and Chronic Miliary Tuberculosis. E. Wrightsman, Chicago.
- 70 *Hydrocephalus Internus, Lumbar Drainage by Utilization of Meningocele Sac as Drainage Tube. H. P. Cole, Mobile, Ala.
- 71 Importance of Urinalysis During Pregnancy and Significance of Positive Findings. J. H. Beard, Urbana.
- 72 Version and Breech Presentations. F. F. Kitzing, Chicago.
- 73 Disorders of Cardiac Mechanism; Their Modern Interpretation. J. Sherlaw, Chicago.
- 74 Spondylotherapy in Exophthalmic Goiter. J. A. Hirsch, Edwardsville.
- 75 Drainage of Gall-Bladder in Typhoid Carriers. E. L. Lobdell, Chicago.
- 76 Insanity with Special Reference to Diagnosis and Prognosis of Its Common Forms. T. B. Throckmorton, Des Moines, Iowa.
- 77 Spirocheta Pallida Demonstrated in Smears from a Paretic Brain by Giemsa's Stain. G. W. Brock, Peoria.
- 78 Depressed States Apparently Not in Manic-Depressive Group. S. N. Clark, Kankakee.

70. Abstracted in THE JOURNAL, Feb. 7, p. 485.

Journal of Abnormal Psychology, Boston

April-May, IX, No. 1, pp. 1-71

- 79 Psychoanalysis. P. Janet, Paris.
- 80 Dream Interpretation and Theory of Psychoanalysis. J. J. Putnam, Boston.
- 81 Recent Literature on Juvenile Suicides. L. M. Terman, Stanford University, Cal.
- 82 International Congress of Medical Psychology and Psychotherapy. R. Assagioli, Florence, Italy.

Kentucky Medical Journal, Bowling Green

April 15 and May 1, XII, Nos. 8-9, pp. 237-292

- 83 Mercurial Stomatitis. E. D. Burnett, Anchorage.
- 84 Psychotherapy. A. Sargent, Hopkinsville.
- 85 Heat Prostration. N. C. Magraw, Hopkinsville.
- 86 Heredity and Child Welfare. J. D. Trawick, Louisville.
- 87 Question of Sex Educations. H. J. Farbach, Louisville.
- 88 Scarlet-Fever Treatment. W. L. Mosby, Bardwell.
- 89 Fractures of Long Bones. P. N. Blackerby, Falmouth.
- 90 Ideal and Real in Practice of Medicine. G. G. Thornton, Lebanon.
- 91 Open Treatment of Fractures. G. A. Hendon, Louisville.
- 92 Puerperal Fever. R. T. Hocker, Arlington.
- 93 Use of Roentgen Rays in Treatment of Fractures. B. W. Bayless, Louisville.
- 94 What Shall the Country Doctor Do with His Patients? E. J. Brown, Stanford.
- 95 Hysteria. J. W. Hill, Frankfort.
- 96 Medical Ethics. H. C. Clark, Falmouth.
- 97 Atypical Pneumonia. O. W. Brown, Lenoxburg.
- 98 Epileptic Convulsions. T. J. Townsend, Owensboro.
- 99 Prevention of Tuberculosis. S. M. Hopkins, Demosville.
- 100 Menstruation and Menopause: Their Influence on Vicious Circle. W. J. Thomasson, Newport.
- 101 Examinations for Life Insurance. F. M. Stites, Hopkinsville.

- 102 Treatment of Tuberculosis. L. T. Eckler, Falmouth.
- 103 Preventive Medicine. J. E. Wilson, Butler.
- 104 Obstruction of Bowels, Intussusception. C. K. Kendall, Morgan.
- 105 Symptoms and Treatment of Acute Articular or Inflammatory Rheumatism. F. London, Woodburn.
- 106 Preventive Medicine. O. W. Brown, Lenoxburg.

Lancet-Clinic, Cincinnati

May 9, CXI, No. 19, pp. 543-566

- 107 On Relationship of Ductless Glands to Growth. A. D. Dunn, Omaha.
- 108 Latent Mastoiditis. W. Mithoefer, Cincinnati.
- 109 Maternal Obstetric Records in Cincinnati Hospital for Period of Twenty Years. M. A. Tate, Cincinnati.

Medical Record, New York

May 16, LXXXV, No. 20, pp. 875-920

- 110 *Value of Polycythemia for Diagnosis of Duodenal Ulcer. G. A. Friedman, New York.
- 111 Mechanic Support for Feet in Locomotor Ataxia. W. J. M. A. Maloney and V. E. Sorapure, New York.
- 112 Prophylaxis of Laryngeal Tuberculosis. A. R. Solenberger, Colorado Springs, Colo.
- 113 Chronic Prostatitis. A. Kemble, Washington, D. C.
- 114 Bacteria and Bacterial Proliferations in Dairy Products and Their Solution. J. M. W. Kitchen, East Orange, N. J.
- 115 Roentgen-Ray Treatment of Myoma. E. Birdsall, Glens Falls.
- 116 Voice and Manners in Medical Practice. T. D. Crothers, Hartford, Conn.

110. **Polycythemia for Diagnosis of Duodenal Ulcer.**—While in gastric ulcer and in chronic appendicitis moderate anemia is the rule and polycythemia the exception, Friedman claims that in duodenal ulcer just the reverse occurs; polycythemia is frequent and anemia rare.

Missouri State Medical Association Journal, St. Louis

May, X, No. 11, pp. 439-446

- 117 Some Surgical Complications of Typhoid. M. B. Clopton, St. Louis.
- 118 Operative Treatment of Hemorrhoids and Fistula in Ano. W. H. Stauffer, St. Louis.
- 119 Prevention of Deformities in Schoolchildren. B. Belove, Kansas City.
- 120 Early Recognition of Feeble-Minded in Public School. F. M. Barnes, Jr., St. Louis.
- 121 Study of Five Hundred and Seventy-Five Schoolchildren. C. W. Tooker, St. Louis.
- 122 Luke, Greek Physician. VI. Brain in Relation to Medical Science and Pious Faith. G. Homan, St. Louis.
- 123 Honey-Bee and Its Products. F. C. Ameiss, St. Louis.
- 124 Pyelitis Complicating Pregnancy. R. E. Wobus, St. Louis.
- 125 *Point in Technic of Removal of Goiter. J. H. Outland, Kansas City.
- 126 Ocular Manifestations of Sinus Disease. C. W. Gosney, Kansas City.

125. **Removal of Goiter**—A double four-pronged forceps is used by Outland to make traction on the lobe selected for enucleation. The superior pole is thus brought into easy operative reach often without the division of the sternomastoid muscle. An aneurysm needle is then forced under the superior thyroid vessels through the substance of the gland and ligated. The inferior vessels are treated in the same fashion, after dissecting the gland from above and freeing it from the capsule posteriorly.

New York Medical Journal

May 9, XCIX, No. 19, pp. 909-960

- 127 Relation of Aphasia to Mental Disease from Medicolegal Point of View. C. W. Burr, Philadelphia.
 - 128 Sensorimotor Aphasia. J. H. Lloyd, Philadelphia.
 - 129 Observations on Child of To-Day. T. S. Southworth, New York.
 - 130 Psychonanalysis. M. Solomon, Chicago.
 - 131 Psychologic Effect of Fairy Story. A. L. Benedict, Buffalo.
 - 132 Rectal Cases Under Local Anesthesia. J. F. Saphir, New York.
 - 133 Why Electrotherapy Cures. H. H. Seelye, Daytona, Fla.
 - 134 Brachial Neuritis. J. F. Harris, New York.
 - 135 Acute Dilatation of Stomach Complicating Pregnancy. N. P. Thompson, St. Louis.
 - 136 In Memoriam: Dr. Edward Charles Spitzka. N. E. Brill, New York.
- May 16, No. 20, pp. 961-1012
- 137 *Salvarsan a Valuable Treatment of Brain Tumor Symptoms Dependent on Syphilis. J. Collins, New York.
 - 138 Constitutional Dysmenorrhea. S. W. Bandler, New York.
 - 139 Apraxia in Relation to Aphasia. J. H. W. Rhein, Philadelphia.
 - 140 Anatharia and Its Relation to Aphasia. T. H. Weisenburg, Philadelphia.
 - 141 Need of Hospitals for Whooping-Cough in New York City. G. R. Pisek, New York.

- 142 Kidney Disease, with Special Reference to Test for Functional Capacity. W. E. Robertson, Philadelphia.
 143 *Tropical Malaria and Its Causes. C. S. Braddock, Jr., New York.
 144 Oral Sepsis of Dental Origin. W. H. Haskin, New York.
 145 Shock. E. Boise, Grand Rapids, Mich.
 146 Gastro-Intestinal Stasis. H. S. Graham, New York.
 147 Alcohol Acidemia. S. Stern, Atlantic City, N. J.
 148 Uterus Duplex Cum Vagina Bipartita. G. R. Smith, Mount Vernon, Wash.

137. Salvarsan Treatment of Brain Tumor Symptoms Dependent on Syphilis.—Three cases are cited by Collins to call attention to the importance of making a Wassermann examination in all cases in which there is suspicion of brain tumor. The prompt way they yielded to treatment is emphasized to testify to the value of salvarsan in the treatment of syphilitic nervous disease.

143. Tropical Malaria—To fight malarial fever, Braddock says, sanitation is as necessary as mosquito prevention, and this means good water and protection from the elements. Everywhere in the tropics as far as possible always use mosquito curtains, as they are absolutely necessary for comfort and health. He says that if you obey the laws of the jungle you can travel with comparative security in any jungle in the world. Sleep as high from the ground as possible, drink distilled or boiled water, use mosquito curtains, give prophylactic doses of quinin, and always cut away the jungle as far as possible in the camping place. Braddock lays much stress on cutting the jungle back, because just in proportion as the jungle is cut away and the sun let in around mines, canals and railroads, cities and towns, so will the malarial rate decrease. Then if the mosquitoes are also destroyed and the people sleep as high from the ground as possible and have a good supply of rain or distilled water for drinking purposes, or artesian well water, with good sanitation, wonderful results can be accomplished.

Braddock believes that the mosquito is not the only carrier of malaria, but that, differing from yellow fever, malaria is carried by water and soil, and that the mosquito when not infected by a person suffering from malaria gets it from the water in which it was born. His observations have been made personally in Cuba and Hayti, and in Siam, French Indo-China, Siamese Malaya, Federated Malay States, and along the eastern Burmese frontier, and in Ceylon and Egypt.

Philippine Journal of Science, Manila

December, VIII, No. 6, pp. 409-557

- 149 Bacteriologic Observations Made During Outbreak of Plague in Manila in 1912. O. Schöbl.
 150 *Some Experiments on Inoculation of Monkeys with Small-Pox. P. M. Ashburn, E. B. Vedder and E. R. Gentry.
 151 Bacteriologic Examination of Certain Artesian Wells in Rizal, Cavite and Bulacan Provinces. P. I. M. A. Barber.
 152 Infant Mortality in Philippine Islands. W. E. Musgrave.
 153 Protective Power of Normal Human Milk against Polyneuritis Gallinarum (Beriberi). R. B. Gibson.
 154 Proteoses and Fever. R. B. Gibson.
 155 Albinism in Philippine Islands. V. G. Heiser and R. Villafranca.
 156 Life History of Esophagostomum Apiostomum: 1. Development Outside of Host. E. L. Walker.
 157 Duration of Infectiveness of Virulent Rinderpest Blood in Water Leech, Hirudo Boyn-toni Wharton. W. H. Boynton.
 158 Physical and Chemical Properties of Oleoresin of Aspidium, with Respect to Detection of Adulterations. A. G. DuMez.
 159 *Variability of Certain Strains of Dysentery Bacilli as Studied by Single-Cell Method. M. A. Barber.

150. Inoculation of Monkeys.—Ashburn and his co-workers found that fresh vesicle contents from a case of human variola is capable, when inoculated into abrasions or scarifications on non-vaccinated monkeys, of producing variola inoculata in those monkeys, the disease being marked by fever and by primary and secondary lesions. Such vesicle contents kept at ice-chest temperature for twenty-three days loses most of its virulence, but may still, in a proportion of instances, produce a mild and atypical variola inoculata, which in turn and in further modified form may be passed to other monkeys. Active and fresh vesicle contents inoculated on vaccinated monkeys may produce a fever closely resembling that of variola inoculata in the monkey and a condition permitting of interpretation as variola sine exanthemate in the monkey. Small-pox scabs or disks from man

or monkey possess but a low degree of virulence, or very quickly lose their virulence. When inoculation of such scabs does result in the production of infection this may be manifested only locally at the site of inoculation. The authors restate their hypothesis that small-pox is due to a dual and divisible virus, one part of which is the cause of vaccinia and the pock stage of small-pox, the other part being necessary for the production of the highly contagious febrile, general disease with an initial stage and preliminary rashes.

159. Dysentery Bacilli.—From a culture of bacillus dysentery, Flexner type, derived from a single-cell, 3 series of single-cell isolations were made by Barber at intervals of about five months. The first series gave 5 maltose-fermenting variants out of 21 isolations; the second, 5 out of 60; the third, 1 out of 123. The other single-cell cultures as well as the parent culture render maltose alkaline. The non-fermenting type produces secondary colonies consisting of normal and involution cells, either of which may develop acid or alkaline producing cultures. An ordinary transfer from a secondary colony, including many cells of both sorts, gives an acid-forming culture. Selection from the acid-producing type failed to produce any but similar types, and selection from the alkaline-producing type gave only alkaline, provided secondary colonies were not chosen. Mixed cultures, consisting of an equal number of cells of each type, showed that the two types may exist side by side through from 10 to 15 daily transfers, but with a tendency for the acid to outstrip the alkaline. Transfer to maltose broth gave no increase in the acid-producing power except in old cultures. Growth in various substances other than maltose failed to alter materially the characteristics of the two types. In a specific serum, the two types showed approximately the same agglutination. A permanent new race, characterized by morphologic peculiarities, was obtained by the selection of an aberrant cell from a culture of dysentery of the Shiga Kruse type.

South Carolina Medical Association Journal, Seneca

April, X, No. 4, pp. 478-511

- 160 What We May Do for Infant and Child. W. Weston, Columbia.
 161 What We May Expect from Physical Therapeutics in Medicine. A. R. Taft, Charleston.
 162 High Purpose of Modern Medicine. T. A. Quattlebaum, Columbia.
 163 Surgical Clinics in Europe. H. A. Royster, Raleigh, N. C.

Southern Medical Journal, Nashville

May, VII, No. 5, pp. 349-430

- 164 Investigation of Malaria in United States by Public Health Service. R. H. von Ezdorf, Mobile, Ala.
 165 Malaria as Public Health Problem. H. H. Shoulders, Nashville.
 166 *Treatment and Cure of Malaria. C. C. Bass, New Orleans.
 167 *Malaria During First Three Months of Life. B. H. Booth, Drew Miss.
 168 *Some Factors in Prevention of Malaria. W. H. Deaderick, H. Springs, Ark.
 169 *Quinin Fast Malarial Parasites; Memorandum. H. R. Carter, Baltimore.
 170 Some of Nervous Diseases of Infancy. W. F. Boggess, Louisville, Ky.
 171 Vascula Hypertension and Associated Nervous Symptoms. J. A. Hodges, Richmond, Va.
 172 Roentgenographic Apocalypses in Chronic Constipation. E. S. Sledge, Mobile, Ala.
 173 *Management of Raw Surfaces in Peritoneum. L. E. Burd, Nashville.
 174 Gall-Stones Complicating Pregnancy and Puerperium. Report of Six Cases. J. Graham, Durham, N. C.
 175 Thyroglossal Cyst and Fistula. Report of Four Cases. H. I. Gessner, New Orleans.
 176 Relation of Lateral Sinus to Mastoid Operation. A. O. Pfings, Louisville, Ky.
 177 Rupture of Uterus. W. W. Crawford, Hattiesburg, Miss.
 178 Ethics of Sex, or Plain Talk on Eugenics. L. A. Stone, Memphis.
 179 Anterior Lens Surface. U. S. Bird, Tampa, Fla.
 180 Prevention of Complications of Gonorrhea. C. O. Abernethy, Raleigh, N. C.

166. Abstracted in THE JOURNAL, Dec. 20, 1913, p. 2269.

167. Malaria During First Three Months of Life.—In children during the first three months of life, the first clinical manifestation of malaria, Booth says, is usually the finding of the child asleep with a high temperature. It ma

or may not have been cross or irritable, but usually, if it has been the fact, it has been overlooked by the family. On waking him, he is exceedingly cross and irritable, jumping from the slightest noise; he is usually very much nauseated, the stomach rejects everything as soon as it reaches it. The temperature rises rapidly, the pulse is at first full and strong, but as the temperature rises it becomes weak and thready; the skin is dry and hot, feeling almost parched to the touch; the respiration becomes rapid and shallow; the patient is constantly moving his hands and feet, rolling his head from side to side if old enough, and if the fever exceeds 103 F. there are usually convulsions, followed by coma. Owing to the unstable equilibrium of the nervous system, all of the nervous symptoms of a malarial attack are exaggerated, and when the infant begins having convulsions, or goes into a state of coma, unless the fever is speedily reduced and the nervous system fortified, death results in a short time. When the infant has been tided over the paroxysm and the immediate danger of death is passed, it is usually found very much debilitated. The child's appetite is now variable; sometimes the stomach is still irritable and easily nauseated, the stools become frequent, watery and have an offensive odor; emaciation is rapid, resulting if untreated, in a speedy death. A microscopic examination of the blood will almost always reveal the malarial plasmodium. If not, the apparent leukocytosis in a case of this kind is almost pathognomonic.

Sometimes, instead of the onset occurring while the child is asleep, the first manifestation of the attack is a convulsion, which comes on without any warning, but after its onset the attack presents practically the same clinical symptoms as already described. Booth has seen these attacks occur in children only two weeks old. They occur most frequently in the late summer, being rare after cooler weather sets in. The treatment is outlined as follows: Cold baths to reduce the temperature, if practicable, and if not, then hot ones. Small doses of heroin and atropin, or morphin and atropin to control the convulsions and equalize the circulation. A good mercurial purgative followed by plenty of castor oil as hot as can be given; also plenty of quinin. After the acute symptoms have subsided, iron in such forms as to be easily assimilated, with essence of pepsin in appropriate doses will cause a quick recovery from the emaciated condition.

168. Factors in Prevention of Malaria.—There is one mighty weapon in the campaign against malaria which Deaderick says has been all but neglected in past campaigns, excepting a recent one in California, and that is education. The public should be made familiar with the etiology of the disease, practical preventive measures, and especially with the public health significance of the latent or carrier stage. Many adult inhabitants of malarial sections of this country could not be educated up to practical malaria prophylaxis even with concentrated effort throughout a long life-time, but by devoting careful attention to their children and to their children's children a generation of malaria fighters would be bred.

169. Quinin-Fast Malarial Parasites.—When a man is suffering from a malarial infection which from time to time develops into malarial fever Carter points out that the parasites must exist in him during the interval between the attacks although not in sufficient numbers, or in such form as to produce an attack of fever. When enough asexual forms are produced from them to provoke systemic reaction, the relapse is produced. During the interval there seems no evidence that they, the parasites, exist in any other form than as we usually know them, or in any other tissue except the hematocytes, although of course, both are possibilities. The increase of asexual forms should come, then, from the proliferation of the parasites in the ordinary way, and the daughter-parasites should, more or less, partake of the characteristics, original and acquired, of those from which they spring.

In relapsing malaria quinin may be given during the attack sufficient to cure it and to destroy the greater part of the asexual parasites, so that there are not enough left to keep up the attack; it may be given between the attacks

in the same doses, and continued some time without preventing the relapse—that is, without killing all the parasites, enough escaping to proliferate later and produce the relapse with an abundance of asexual forms in the cutaneous circulation. The great bulk of the parasites in such relapses are destroyed by ordinary full doses of quinin, but a small number (too small to produce malarial fever and generally too small for asexual forms to be found in the blood) are not killed by them. These, Carter says, are the so-called "quinin-fast" parasites. Two hypotheses are advanced by Carter: 1. The parasites that survive are less susceptible than normal to the action of quinin. 2. They are less accessible to it than normal.

173. Raw Surfaces in Peritoneum.—It is essential that all raw surfaces in the peritoneum be covered or protected. The best method is to bring the edges together with a running suture, and if time permits, to use a second suture to reinforce and cover over the first. The use of sutures is not applicable to over 50 per cent. of cases, and in those cases in which sutures cannot be used, Burch says, preference should be given to peritoneal or omental grafts. In cases of general peritonitis, associated with raw surfaces, time is an important element, and a finished technic is unwise. In this class of cases Burch uses warmed camphorated oil, 1 per cent. The method of Richardson should be used in those cases with raw surfaces on the intestine, provided of course, the intestine has a mesentery sufficiently long. Sumners' method of using the sigmoid to cover raw surfaces in the pelvis, Burch says, is indicated in a small proportion of cases. All oozing surfaces should be touched with alcohol or the cautery to prevent infection. Sterile vaseline has an inhibitory influence on adhesions, and if time does not permit of other measures, it should be used.

Texas State Journal of Medicine, Fort Worth

May, X, No. 1, pp. 1-44

- 181 *New Technic for Total Hysterectomy in Difficult Cases. A. C. Scott, Temple.
- 182 Primary and Secondary Blood-Clot in Mastoidectomies. R. W. Moore, Fort Worth.
- 183 Traumatic Injuries of Crystalline Lens. R. H. T. Mann, Texarkana.
- 184 Vernal Conjunctivitis; Its Symptoms and Treatment. L. H. Lanier, Texarkana.
- 185 Case of Melanotic Sarcoma of Chorioid. J. Mullen, Houston.
- 186 Intestinal Toxemia and Senile Cataract. H. L. Hilgartner, Austin.
- 187 Antitoxic Influence of Thyroid. J. W. Rawls, Thornton.
- 188 Epilepsy. W. J. Mathews, Abilene.
- 189 Superficial Urine Examination. W. F. Thomson, Beaumont.
- 190 Plea for More Care in Life-Insurance Examinations. I. McNeil, El Paso.
- 191 Specific Infections of Uterus and Adnexa. A. F. Lumpkin, Amarillo.
- 192 Attitude and Practice of Present-Day Obstetrician. G. H. Lee, Galveston.
- 193 Surgical Treatment of Perforation in Typhoid. R. T. Morris, Houston.
- 194 Problem of Feeble-Mindedness. E. A. Wright, Houston.
- 195 Medical Defense. C. E. Mayes, San Angelo.

181. New Technic for Total Hysterectomy.—In the operation described by Scott, the patient is placed on the edge of the table, as if for lithotomy or vaginal hysterectomy, but instead of the limbs being fastened to the upright leg holders at the corners of the table in a position in which the thighs are flexed on the abdomen, the limbs are held so that the thighs are extended and widely abducted. Two operators are required, and the one who operates through the vagina either sits or stands, according to whether the abdominal operator desires the horizontal or the elevated position. Both operators begin simultaneously. The vaginal operator uses no knife at all, but surrounds the cervix with a cautery incision through the vaginal wall, made not far above the point of the cervix on the anterior side, to loosen the cervix from the bladder attachment. In the meantime, the abdominal operator has incised the abdominal wall, separated any adhesions to the uterus and appendages, packed off the intestines, ligated and severed the ovarian vessels and round ligaments and separated the bladder from the uterus, carefully approaching the cautery of the vaginal operation. By cooperation of the two the operation is carried to its termination in the manner described by Scott in detail.

United States Naval Medical Bulletin, Washington, D. C.*April, VIII, No. 2, pp. 171-355*

- 196 Typhoid Perforation. Five Operations, with Three Recoveries. G. G. Holladay, U. S. Navy.
- 197 Tschernogabow's Method for Obtaining Material from Syphilitic Lesions. E. R. Stitt, U. S. Navy.
- 198 Epidemic of Measles and Mumps in Guam. C. P. Kindleberger, U. S. Navy.
- 199 Feeble-Minded from Military Standpoint. A. R. Schier, U. S. Navy.
- 200 Towne-Lambert Elimination Treatment of Drug Addiction. W. M. Kerr, U. S. Navy.
- 201 Medical Experiences in Amazonian Tropics. C. C. Ammerman, U. S. Navy.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London*May 2, I, No. 2783, pp. 949-1000*

- 1 *Diagnosis and Treatment of Cerebrospinal Syphilis. P. Stewart.
- 2 Clinical Manifestations of Congenital Syphilis. H. Armstrong.
- 3 Clinical Importance of Cerebrospinal Fluid. W. Boyd.
- 4 *Meningitis in Children. W. M. Smith.

1. **Treatment of Cerebrospinal Syphilis.**—Improvement in the condition of the cerebrospinal fluid is a useful index of arrest of the disease, but, Stewart says, it must be remembered that, in general paralysis at least, the cell-count in the fluid may go down without any corresponding improvement in the mental symptoms. This is readily understood when one bears in mind that, even if the disease process be arrested, those nerve-cells and nerve-fibers which have been already destroyed, remain destroyed and cannot be regenerated. It is therefore of importance to select only those cases of general paralysis which are in the early or toxic stage of the disease, before the cortex has become profoundly degenerated. The earlier the disease is recognized, the better are the prospects of improvement. Advanced cases with profound cortical degeneration are totally unsuitable. The most thorough method of attacking general paralysis would be to administer remedies concurrently by all three routes—intravenously, intraspinal and intracranially. It is too early to claim that we yet possess a cure for tabes or general paralysis, but Stewart believes that in suitable cases, much can be done to arrest both diseases. Whether such periods of arrest are permanent, time alone will show.

4. **Meningitis in Children.**—In epidemic meningococcal meningitis the results of the intraspinal injection of a suitable serum, Smith believes, have justified the treatment, and the mortality has been reduced from 70 to about 20 per cent., and, indeed, might be lower were all the cases treated within the first two or three days. A large injection of Flexner's serum—about 20 c.c. even in a child—is given for two or three days, and repeated later if rapid improvement does not take place. In chronic cases with persistent headache and vomiting the injection of the serum is likely to be attended with satisfactory results. In the other forms of meningitis intraspinal injection of a serum is worth trying when the case is seen early, but the results so far are by no means satisfactory. In the chronic forms of meningitis due to syphilis, treatment is now being introduced in which the serum of a patient after treatment with salvarsan is injected into the spinal theca after the withdrawal of an amount of cerebrospinal fluid equal to that which is to be injected. Repeated lumbar puncture, in the hope of minimizing the evil effect of pressure, is indicated, especially in those cases which run a protracted course. In serous meningitis and meningism, lumbar puncture is generally attended with excellent results.

Hexamethylenamin is the drug which is most likely to be useful. It appears in the cerebrospinal fluid, and is said to have an inhibitory effect on the growth of organisms. It may be given in 10 grain doses every four hours, even in young children. Bromid and chloral, trional or morphin may be given as necessary for relieving headache and inducing sleep.

General treatment runs on the ordinary lines—a water bed, the child being moved as little as possible, tepid sponging, and the usual attention to the bowels. Persistent sickness in the chronic cases may be alleviated by washing out the stomach, and, if the vomiting persists, feeding with the nasal tube should be tried. The act of swallowing in some cases seems to cause a tendency to vomit, whereas the nasal tube passed below the pharynx has not this effect. During convalescence, so long as the tongue is clean and the bowels regular, a liberal diet should be given.

Indian Medical Gazette, Calcutta*April, XLIX, No. 4, pp. 129-168*

- 5 Surgery of Tubercular Glands Based on 800 Operations in Kashmir Mission Hospital. A. Neve.
- 6 Insanity from Exhaustion. G. F. W. Ewens.
- 7 Analysis of Eighty-Nine Cases of Epilepsy in Punjab Lunatic Asylum. O. Berkeley-Hill.
- 8 Prophylaxis and Treatment of Pre-Eclamptic Toxemia and Eclampsia. S. Haughton.
- 9 Anoci-Association and Cancer of Cheek. E. W. C. Bradfield.

Journal of Tropical Medicine and Hygiene, London*April 1, XVII, No. 7, pp. 97-112*

- 10 Meteorology of Malaria. M. D. O'Connell.
- 11 Brief Note on Toxoplasma Pyrogenes Castellani, 1913. L. Plate.
- 12 Note on Geographic Locality for Balantidiosis Coli. B. H. Dutcher.

Lancet, London*May 2, I, No. 4731, pp. 1233-1298*

- 13 Modern Theories Concerning Hysteria. J. A. Ormerod.
- 14 Serio-Roentgenographic Diagnosis of Post Pyloric (Duodenal) Ulcer. L. G. Cole.
- 15 *Acute Lobar Collapse of Lung. H. L. Tidy and E. Phillips.
- 16 *Pain after Operation for Internal Hemorrhoids, and Its Prevention. P. L. Mummery.
- 17 *Early Detection of Diabetes by Simple Method of Estimation of Blood-Sugar. O. Kraus.

15. **Acute Lobar Collapse of Lung.**—Inaction of the muscles of respiration according to Tidy and Phillips is a cause of acute lobar collapse. Blockage of the bronchioles from capillary bronchitis may possibly have a similar result. The authors suggest that lobar collapse may explain cases of pleural effusion without corresponding displacement of the mediastinum and heart. In a case described, acute pleurisy occurred without changes in the lung. Inhibition of the muscles of respiration resulted in acute lobar collapse.

16. **Prevention of Pain after Operation for Hemorrhoids.**—Pain following operations for piles, Mummery says, can be prevented by applying the same principles that have enabled surgeons to avoid pain resulting from operation wounds in other parts of the body. If a wound is made with no bruising or tearing of the tissues, under aseptic conditions, through clean tissues, and is kept aseptic and at rest, pain, except of a very slight and transient character, does not result. The anal region is no exception to this rule, and, given the same conditions, after-pain will be equally absent from operations in this region.

Careful attention to the details of aseptic technic must be observed in order to obtain success. The patient must be so prepared for operation that the rectum is quite empty and will remain so for some days. This is essential. The rectum and the whole of the field of operation must be washed out thoroughly with soap and water, and afterward with a suitable antiseptic, until the surgeon is satisfied that the area of operation is surgically clean. The sphincter should not be stretched or damaged in any way, and the patient must therefore be anesthetized thoroughly and deeply or the sphincter will be in a condition of spasm which will render it impossible for the surgeon to reach the piles properly. The operation must be carried out with as little damage to the tissues as possible. Pressure forceps should not be applied to tissues which are not going to be removed; the mucous membrane or skin at the anal margin must not be included in ligatures, and the number of ligatures applied for the control of hemorrhage must be reduced to the smallest possible number. After the completion of the operation the wound must be bathed with some suitable antiseptic, the best, in Mummery's opinion, being 1 in 40 phenol. Lastly, some form of dressing must be applied which will prevent infection of

the wound. For this purpose Mummery has found sterilized vaseline to be the best, and the lower part of the rectum may be filled with this.

For the last ten years, he has been operating for piles on these lines, using the ligature operation in all but a few special cases, and has found that postoperative pain is not more severe or frequent than after operations for hernia or varicose veins.

17. Early Detection of Diabetes.—The analysis of blood-sugar is carried out by Kraus in the following manner: The pulp of the middle finger is thoroughly cleansed with ether and alcohol and a prick made with a Francke's needle, and about fifteen drops of blood are dripped into a special small glass receptacle. Then by means of a capillary pipette 1 c.c. is measured into a small beaker. The liquid in the beaker is cautiously heated, whilst stirring it up, until it begins to turn turbid. Then 4 to 5 drops of 10 per cent. ferrum oxydatum dialysatum duplex are added, and subsequently a few drops of a saturated watery solution of potassium sulphate, with constant soft boiling and stirring. All of a sudden the albumin will accumulate on the surface, while the liquid beneath will become absolutely clear. This liquid will hold all the sugar contained in 1 c.c. of blood. Two gm. of sulphate of copper are exactly weighed and dissolved in about 100 c.c. of water and cooled down. Then 400 gm. of sulphocyanate of potassium, 12 gm. of ignited carbonate of sodium, and 24 gm. of citrate of sodium are dissolved with the aid of heat in about 600 c.c. of distilled water and filtered. It is then cooled down and the copper solution added by slowly pouring it into the other solution with constant stirring. Five c.c. of a solution of 5 per cent. of ferrocyanid of potassium are now added and the whole is diluted with distilled water to exactly 1,000 c.c.; 0.165 gm. of pure glucose is dissolved in a flask that holds 100 c.c. and is provided with a mark. Then a double tube is inserted and the bottle, neck downward, is put into communication with a special buret by means of a rubber tube. This buret holds 1 c.c. divided into 100 subdivisions. Twenty-five c.c. of the cuprous solution, with 25 additional c.c. of distilled water, are measured into a beaker and heated; then the sugar solution, still boiling, is poured into the beaker, at first rapidly, finally drop by drop.

Kraus generally uses 3.35 to 3.36 c.c. to reduce 25 c.c. of the cuprous solution. The reaction is complete when the color changes from light blue to faint canary. The titration of the blood-sugar takes place on the same principle—25 c.c. of the standard solution are added to the blood filtrate and heated, and the end-point will be obtained by addition of the sugar solution. The difference between the result of the test titration and the amount of sugar solution that it was necessary to add to the blood filtrate, when multiplied by 0.165, gives the percentage of sugar in the blood.

Practitioner, London

May, XCII, No. 5, pp. 601-744

- 18 *Syphilis and Insanity. G. H. Savage.
- 19 *Use of Digitalis in Heart Disease. R. D. Powell.
- 20 *Glycosuria and Its Relation to Disease of Pancreas. P. J. Cammidge.
- 21 Some Aspects of Cholelithiasis. A. J. Blaxland.
- 22 Two Cases of Threadworms in Relation to Appendicitis. H. Lett.
- 23 Anemia in Childhood. R. A. Chisolm.
- 24 Random Notes in Children's Casualty Department. S. Smith.
- 25 Choice of Summer Health-Resorts. R. F. Fox.
- 26 Recent Work on Diseases of Heart. C. W. Chapman.
- 27 Treatment of Severe Menstrual Pain and Excessive Bleeding by Roentgen Rays. F. Hernaman-Johnson.
- 28 Toxemia and Autogenous Vaccines. W. B. Thorne.
- 29 Treatment of Neurasthenia. C. F. Fothergill.
- 30 Phylacogen Treatment of Rheumatism. A. B. Flett.
- 31 *Pancreatic Hemorrhage. G. T. D. Elder and D. Daniels.

18. Syphilis and Insanity.—Savage's experience, both in hospital and in private practice, is that syphilis is the dominant, if not the sole, cause of general paralysis of the insane. Syphilis may be a cause of congenital mental defect; it may be a cause of preventing healthy development of the brain; or it may interfere with development by the senses, and may thus lead to defective education. It may give rise to convulsions, which may either become established, as epilepsy,

or may lead to mental weakness. It may also affect the moral development; and patients with a syphilitic inheritance have, in Savage's experience, not infrequently been morally defective in one way or another, and incapable of recognizing their social duties. Syphilis may cause hypochondriacal feelings, and the presence of stigmata may make the patient believe that he is a suspect, and may thus give rise to delusions of suspicion, melancholia and suicide. Congenital syphilis is almost certainly the cause of adolescent general paralysis. Ordinary general paralysis, locomotor ataxy with mental symptoms, are associated, in nearly all cases in Savage's experience, with a history of syphilis. Besides this, there are many forms of dementia depending on arterial degeneration which may produce general brain decay, or local troubles, such as softening or apoplectic seizures.

19. Digitalis in Heart Disease.—That digitalis is not efficient in all disease and disorders of the heart is emphasized by Powell. In acute injuries, such as rupture of the aortic valves, in such acute affections as pericarditis, endocarditis, myocarditis, it is of little or only of quite subordinate value. In chronic disease of the myocardium, of syphilitic, alcoholic or coronary origin, the use of digitalis is of secondary importance, and is often distinctly contra-indicated. It is in chronic valvular disease with failing power of ventricles that digitalis and, in a less degree, the class of drugs which it represents, are especially indicated; in fatigue of heart after acute disease or strain, it is also of great value.

20. Glycosuria and Disease of Pancreas.—The first essential, says Cammidge, in the treatment of all cases of glycosuria, is that the diet should be adjusted as accurately as possible to the metabolic powers of the patient, so that, while sufficient food is taken and absorbed to meet the requirements of the body, all unnecessary strain on the defective functions is avoided. Each patient is a law unto himself, as to the kind and quantity of food that can efficiently be dealt with and is best tolerated. One cannot argue from one case to another, or lay down rules that will be generally applicable. Diabetes is essentially a disturbance of the chemistry of the body, in which metabolism of carbohydrates, fats and proteins may all be involved, and to treat patients satisfactorily, one must ascertain their powers of dealing with each of these substances. The earlier in the course of the disease the treatment can be commenced, the easier will be the task and the more satisfactory the results.

31. Pancreatic Hemorrhage.—The interesting features of this case are cited by Elder and Daniels to be: the sudden onset of the acute symptoms after an interperiod of general malaise in a man previously healthy; the absence of any indication in the urine of pancreatic disease; the peculiar rash which appeared on the abdomen; the comparatively peaceful interval; and the rapid onset again of acute symptoms; there was no indication at the operation of fat necrosis, such as is usually described in such cases.

It seems to the authors that early operation in these pancreatic hemorrhages holds out the prospect of a much smaller mortality in this generally fatal complaint.

Sei-I-Kwai Medical Journal, Tokyo

April, XXXIII, No. 4, pp. 21-26

- 32 Calcium Chlorid for Erysipelas. S. Kawakami.
- 33 Clinical Pathology and Diagnosis of Diseases of the Knee-Joint. D. Matsuoka.
- 34 Surgical Treatment of Acute Diffuse Suppurative Peritonitis. M. Yasuda.
- 35 Injury of Intestine and Irrigation for Acute Suppurative Peritonitis. K. Goto.
- 36 Local Anesthetic for Bubo Operation. S. Honma and M. Kitagawa.
- 37 Simple Operation for Bubo. K. Kuroiwa.
- 38 Roentgen Ray for Chronic Eczema and Acute Inguinal Lymphadenitis. S. Doi.

Archives Internationales de Chirurgie, Ghent

VI, No. 4, pp. 369-452. Last indexed March 28, p. 1053

- 39 *Improved Technic for Correction of Club-Foot. (Tarsectomie pour pied-bot.) C. Willems.
- 40 *Cancer of the Prostate. P. J. Freyer.
- 41 Plexiform Neuroma. D. Taddei.

39. **Tarsectomy for Talipes.**—Willems cuts out the skin over the region as the first step, leaving a pear-shaped gap tapering to a point at the heel. Then he removes the astragalus; this corrects the equinus. Then he resects more or less of the calcaneum as needed, and slides the cuboid bone backward into the place of the astragalus and sutures the skin in a single linear suture. By this means the various factors of the deformity are corrected in turn, and the soft parts develop to form a false joint between the cuboid and the tibia, which restores approximately normal functioning to the foot. Almost all forms and degrees of talipes can be readily corrected by this technic, he says. He gives an illustrated description of it, adding that the linear scar and perfect functioning in the 200 cases in which he has applied the method justify its wide adoption.

40. **Cancer of the Prostate.**—Freyer states that he found malignant disease in 13.4 per cent. of the 1,276 cases of enlargement of the prostate in his private practice in the last eleven years. The symptoms are those of ordinary enlargement only that they have appeared and developed in the course of a few months instead of coming on gradually in a few years. This briefer course is very suspicious for cancer; still more if the patient has felt weak and languid, with little appetite, and if he has pains in the sacrum, loins or one or both thighs, along the urethra or in the perineum, and if he has pains in one or both buttocks when he sits down. The patient usually ascribes these pains to "rheumatism." His tongue may be glazed, red and dry, the urine pale and of low specific gravity. Hematuria is extremely rare with cancer of the prostate, and occurs usually only in the advanced stages. In exceptional cases there may be a few drops of blood passed before micturition or independently of it. Profuse hematuria is more a sign of simple adenomatous enlargement of the prostate. When the cancer develops in a previously enlarged adenomatous prostate, and the malignant growth is still confined within the capsule of the gland, the prospects for a complete cure by prostatectomy are favorable, as he shows by eight typical cases related. The article is in English but is not illustrated.

Journal de Médecine de Bordeaux

April 26, LXXXV, No. 17, pp. 277-290

42 *The Mediastinal Syndrome; Two Cases. Creyx.

42. **The Mediastinal Syndrome.**—Creyx emphasizes the importance of treatment for syphilis when confronted by a chronic mediastinitis in an adult. In children the lower part of the mediastinum or the upper part may be involved when symptoms call attention to this region; the inflammation can generally be traced to lesions in the tracheo-bronchial lymph-nodes. In adults the upper portion alone is more liable to be affected, and the source of the trouble may be discovered in the aorta, esophagus, etc. But it may be the only localization of some infection, usually syphilis, and specific treatment may speedily cure the threatening syndrome. In one of the two cases described the chronic superior mediastinitis in a man of 56 proved to be the work of an aneurysm of the aorta in an old syphilitic. The aneurysm had compressed the superior vena cava and a main bronchus. In a second somewhat similar case the symptoms indicated compression of nerves instead of the vessels. Specific treatment will eliminate the syphilitic factor and may cure even when there are severe disturbances from compression of the recurrent nerve, bronchi or esophagus, with reflex tachycardia and spasmodic cough. The sympathetic nerve is usually spared and hence there are no pupil anomalies or vasomotor phenomena in the face.

Presse Médicale, Paris

April 22, XXII, No. 32, pp. 301-308

43 Indications and Contra-Indications for Digitalis Deduced from Its Action on Blood-Pressure and Diuresis. (Quand et pour-quoi il faut administrer la digitale.) A. Martinet.
April 25, No. 33, pp. 309-320

44 Technic for Exploration of the Right Hypochondrium. (Technique des explorations régionales: l'hypocondre droit.) F. Lejars. Twenty-four illustrations.

Revue de Chirurgie, Paris

April, XXXIV, No. 4, pp. 401-552

- 45 Conditions in which It Is Necessary to Resect the Intestine in Operating for Hernia. E. Quénu and H. Constantini.
46 *Chronic Pancreatitis. (Les pancréatites non biliaires.) J. Walter-Sallis. First part in XXXIII, No. 12.
47 *Clinical and Experimental Study of Traumatic Backward Dislocation of the Knee. P. Hardouin. First part in XXXIII, No. 12.

46. **Chronic Non-Biliary Pancreatitis.**—Sallis states that he found only two cases of diabetes mellitus among 250 cases of chronic pancreatitis which he has compiled. On the other hand, he found glycosuria in 11 of 13 cases of syphilis of the pancreas. He noticed it also in a few cases of tuberculosis of the pancreas. The diagnosis of chronic non-biliary pancreatitis is based on a history of digestive disturbances with pains in the epigastric region and right hypochondrium, less frequently in the left; the rapid and considerable loss of flesh; the anemia which accompanies the emaciation; a slight suggestion of jaundice; fat in the stools; slight bulging above the umbilicus, and rigid rectus muscles. The head of the pancreas can be felt hard and knobby, possibly tender and tumefied. When the stomach is inflated, the tumor vanishes. Complications on the part of the bile ducts, intestines and pylorus are by no means rare, as they suffer from compression by the enlarged head of the pancreas. Sallis relates a number of such case-histories from his own experience and summarizes forty-four from the literature. He says in regard to treatment that a mere exploratory laparotomy may induce the retrogression of pancreatitis in its early stage. This has been done in nineteen cases and with success in all. In a farther advanced stage, thorough retro-pancreatic drainage has proved effectual in some cases, both for biliary and non-biliary pancreatitis. If the common bile duct is entirely occluded, the pancreas will have to be cut to release the duct from the bed of sclerous tissue in which it is being smothered. The chronically inflamed pancreas bleeds easily and profusely so that this pancreatectomy had better be done extremely cautiously with the actual cautery. As a rule the pancreas recuperates after an operation very slowly, two, three or nine months sometimes being required. He reports a case in which the symptoms of pancreatitis returned a month after the operation. The pancreas was drained and the patient had apparently entirely recovered, when the pancreas syndrome flared up anew for a few days but then subsided completely.

47. **Backward Dislocation of the Knee.**—Hardouin concludes his long study of this subject by giving full summaries of the seventy-eight cases he has found on record and one from his own experience. In ten cases it proved impossible to reduce the dislocation immediately after the accident. The reason for this was generally that the internal condyle of the femur had been forced through the muscle and fascia and was held firmly in the button-hole thus made. Factors preventing reduction can be suspected when the patella is held immovable against the external condyle, when considerable abduction of the leg on the thigh is possible, and when there is a round hollow in the skin at the inter-line of the joint. Expectant treatment when reduction at once was impossible gave but mediocre results in the one case in which it was applied. The leg was amputated in one case; resection in another gave good functional results. In seven cases the joint was opened to correct conditions with fine results in three and fair in two cases. Infectious complications followed in two. When the dislocation is of long standing and the patients have learned to get along with it, there is not much use in interfering. The longest interval after which reduction was possible by the ordinary technic was two weeks; Küster found it impossible in one case at the ninth and Reisinger at the seventh week. Hardouin discusses the treatment applicable to the various complications that may arise at the time or later, especially from functional insufficiency of the ligaments. In seven of the cases the dislocation had occurred years before; one man of 70 referred it to a fall at 9 months. In four in this group the deformity was pronounced but did not interfere with

the earning capacity. Another gradually regained the use of his leg after having been bed-ridden from it for two years. Another had to have the limb amputated. Another could use her leg without trouble by wearing a bandage to keep the bone from slipping sideways. The dislocation should be reduced as promptly as possible on account of the danger from compression of nerves and vessels. An almost certain sign of this type of luxation is the horizontal position of the patella with complete dislocation, and nearly horizontal in the incomplete form. This sign is most instructive when the leg is stretched or bent upward.

Revue de Gynécologie, Paris

March, XXII, No. 3, pp. 161-272

48 *Ovarian Treatment. (Lipoides homo-stimulants de l'ovaire et du corps jaune.) H. Iscovesco.

49 Technic for Suture of Severed Ureter. (Urétérorraphie dans les sections totales de l'urètre.) P. Sejournet.

48. **Ovarian Treatment.**—Iscovesco called attention in 1910 to the specific physiologic properties of lipoids which can be extracted from some of the organs with an internal secretion. These lipoids seem to act as chemical messengers inducing a kind of autoregulation of the functioning of certain organs. Some seem to stimulate the organ from which they are derived; others act on other organs. Repeated injection of the lipoid extracted from the organ of another individual of the same or another species induces hyperfunctioning and in time hypertrophy of the organ in question. He here reports experiments with the lipoid extracted from the ovary and corpus luteum. It is a homostimulator; that is, it acts mainly, if not exclusively, on the female internal genital organs. He gives some illustrations showing the way in which the ovaries and uterus of rabbits developed under its influence to twice or thrice the size of those in the controls. In 48 cases of painful dysmenorrhea he injected the extract on alternate days for two weeks before the menses, and all but 8 of the patients had no further pain thereafter; in 6 of the refractory cases the course was not complete. The organ therapy proved constantly effectual in 6 cases of amenorrhea and in a much larger number of cases of various disturbances from insufficient functioning of the ovaries. His extensive experience has demonstrated, he says, that injected lipoids do not induce phenomena of anaphylaxis. The aim being to exaggerate the normal functioning, treatment should be mild and gradual and long kept up. The lipoid used in his work was taken from sows, a kilogram of sow ovaries yielding after desiccation 17.3 per cent. of lipoids; among them he used only the alcohol-soluble group.

Revue de Médecine, Paris

April, XXXIV, No. 4, pp. 241-320

50 *Gerlier's Disease. (Kubisagari.) P. L. Couchoud.

51 Gallop Rhythm during and after Typhoid Fever. J. Mollard and A. Dumas. Commenced in No. 3.

50. **Gerlier's Disease.**—This is a peculiar nervous affection characterized by paresis, vertigo and ptosis. It attacks farm laborers and is known only in two localities, where it is endemic—on the Franco-Swiss frontier and in a district in the northern part of Japan. It was first discovered by Gerlier in 1884 and in recent years has been studied in Japan. The inhabitants of both regions are mostly hard-working peasants and the attacks come on only in the summer and when the patients are fatigued. Couchoud states that they last from one to ten minutes and the paresis involves the muscles of the limbs, back, neck, tongue, lips, jaw and eyelids. The head falls forward and there is such marked ptosis that the patient cannot see. The feet or hands cannot be lifted. There is no contracture. When cold weather comes on the attacks stop. The disease is found also in cats and cattle, and in both regions where it is known, the peasants live in close contact with their domestic animals. A small coccus, irregularly grouped and Gram-negative, has been isolated from the cerebrospinal fluid of patients, and when inoculated into cats has produced the disease. Thirty-two case-histories are given.

Revue Médicale de la Suisse Romande, Geneva

April 20, XXXIV, No. 4, pp. 233-300

52 Postappendicitic Cicatricial Pericolitis Cured by Early Operation. (Péicolite membraneuse.) P. Wanner.

53 *Surgical Experiences at the Balkan Wars. N. Guerdjikoff.

54 Enlargement of the Prostate Treated by Bottini's Method. C. Perrier.

53. **Experiences in the Balkan Wars.**—Guerdjikoff had charge of a hospital that cared for 2,289 wounded and 654 sick soldiers during the two campaigns, and here presents some of his impressions of modern warfare. Gunshot and shrapnel wounds are never aseptic, he remarks, but if the first aid measures are properly applied and the wounds treated humanely by surgeons and nurses, if the wounds are not infected by officious meddling, very few infections result. Some of the wounded were brought across the mountains in ox-carts, and many of the injuries, furrows burrowed by bullets or seton wounds, the bullet boring straight through limb, chest or lung, had healed spontaneously on the way. He found that several small incisions through the skin materially hastened the healing of gaseous phlegmons. They were common, and developed rapidly, the second or third day after the injury, and gangrene developed in the cellular tissue and especially around the vessels. By releasing the gas through multiple small incisions, there was no further pressure on the cellular tissue and vessels, and as the blood-supply of the region returned to normal the tendency to gangrene was averted.

He frequently found that the bullet had turned completely around in its passage through the tissues, the point turned backward. The most remarkable course was that of a Mannlicher bullet which hit the skull in the left temple, ran around the skull, passed through the muscles at the back of the neck, then through the lung and back muscles, stopping finally under the skin near the second sacral vertebra.

The guiding principles in military surgery, he reiterates, are to refrain from doing harm, and to release pus. Soldiers under 25 are not fully developed, and after 35 they cannot stand what they could before, but between these age limits the recuperating power is almost incredible, and mutilating operations are rarely needed. He operated only in 194 cases, including all in which he removed the bullet or sequesters under a local anesthetic or made large incisions to release pus. The mortality was scarcely 1 per cent. including all who died from a superposed infectious disease, cholera, small-pox or tetanus. He adds that 3 per cent. of the Bulgarian surgeons at the seat of war succumbed to disease; two were shot and about 1.5 per cent. were wounded. He estimates that about 110,000 of the fighting force were wounded and 60,000 of them died of their wounds or disease while 10,000 were left more or less incapacitated. Boiled water to which 3 or 5 per cent. of tincture of iodine had been added was used freely to flush wounds and pus pockets, and proved a blessed reliance. A salve of 20 parts of balsam of Peru in 80 parts petrolatum was also much depended on. The total absence of all septic complications he ascribes to these and to the systematic use of moist dressings, gauze dipped in a weak disinfectant solution.

Berliner klinische Wochenschrift

April 27, LI, No. 17, pp. 773-820

55 Experimental Rachitis. J. Koch. To be continued.

56 *Tuberculosis of the Liver in Two Children. A. Tietze.

57 Germ of Landry's Paralysis. E. Leschke.

58 Protective Ferments and Serodiagnosis. (Abderhalden'sche Dialysierverfahren.) C. Lange.

59 Theoretical Basis for Serodiagnosis. (Wirkt arteigenes Eiweiss in gleichem Sinne blutfremd wie artfremdes?) E. Friedberger and G. Goretti.

60 Toxicity of Prepared Rabbit-Serum. (Giftigkeit isogenetischer und heterogenetischer Antihammelblut-Kaninchensera.) E. Friedberger and G. Goretti.

61 *Cancers Adapted for Radiotherapy. (Welche Carcinome eignen sich zur Behandlung mit radioaktiven Stoffen?) A. Koblanck.

62 Diathermia. L. Mann.

63 Technic for Preparing Albumin Milk. (Einfache Methode zur Bereitung eiweissreicher Milch.) M. Soldin.

64 Improved Technic for Determination of Occult Blood. (Die Blutprobe nach Boas.) L. de Jager.

56. **Liver Tuberculosis.**—Tietze remarks that tuberculous lesions are found in the liver in nearly every case of miliary tuberculosis, but primary tuberculosis of the liver is so rare that the very possibility is denied by some. In the two cases of liver tuberculosis described the patients were boys of about 5 with pulmonary lesions and one had a tuberculous affection in the heel and lymph-nodes in the neck. The liver became very much enlarged and also the spleen, but there was no fever and no tenderness. Ascites required tapping occasionally and the pulse was much accelerated. Omentopexy was done in each case and an excised scrap of the liver showed tubercle growth. There were no signs of tuberculous peritonitis in either. The operation did not seem to benefit but the liver affection is evidently of a torpid nature and the boys have kept in fairly good condition. A course of roentgenotherapy was also given and the children were kept systematically lying down out of doors, even in winter.

61. **Indications for Radiotherapy of Cancer.**—Koblanck discusses which cancers are amenable to radiotherapy and which offer no chance for success with it. In order for it to be promising it must be possible to apply the radio-active substances close to the cancer and so that the rays can act chiefly on the young cancer cells on the periphery of the growth. The production of soft rays must be prevented. There must be around the cancer, and especially beneath the ulceration, tissue that is capable of regeneration. The cancer must not be too extensive, and there must not be any metastasis in other organs nor any cachexia. Only when all these six requirements are complied with is there any prospect of successful treatment by radiotherapy of internal or superficial cancer. Under favorable conditions, he remarks in conclusion, he would give radiotherapy the preference over operative measures, especially for a cancer of the lip. He has applied radiotherapy in 77 cancer cases to date and has studied the effect in numbers of other cases in the hands of confrères. Of his total cases only 13 were in an operable condition and in 8 of these constitutional disease forbade surgical intervention. The best results were obtained with cancrroids of the face, cancers of uterus, vagina and vulva, and cancers of the tonsil and parotid gland. The action of radio-active substances is far from being always brilliant, but under careful selection of cases the proportion of successes will materially increase.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 11, XLIV, No. 15, pp. 449-480

65 *Multiplicity of Tumors. (Ueber Multiplizität von Geschwülsten.) F. Egli.

66 *Cancer of the Bile Passages and Liver. (Krebs der grossen Gallengänge und die primären bösartigen Geschwülste der Leber.) S. Saltykow.

April 18, No. 16, pp. 481-512

67 Traumatic Ear Disease and Workmen's Compensation. (Begutachtung traumatischer Ohraffektionen.) W. Lindt and R. Nager.

65. **Multiple Tumors.**—Egli states that one or more tumors were found in 966 of 4,765 cadavers at the Basel institute of pathologic anatomy in the last seven years. There were primary multiple tumors in 263; that is, in 27.2 per cent. The tumors were malignant and single in 534; benign and single in 169; one of each in 77; in all the others there were various combinations of multiple malignant plus benign growths or growths in various different organs. In Egli's material of those with four or more tumors 2 were men and 10 women; with two tumors, 31 men and 98 women.

66. **Cancer of the Bile Apparatus Outside of the Gall-Bladder.**—Saltykow quotes the records from some other clinics to show the comparative rarity of this form of malignant disease, and then gives the necropsy details of a number of cases from his own experience in Switzerland. His list includes 9 primary carcinomas of the bile ducts; 8 of the liver; one case of both carcinoma and sarcoma in the liver, and 2 of sarcoma in the liver. In the bile-duct cancer cases, 2 of the patients were 34 and 35 and 2 over 75. Death occurs early, as the ducts soon become obstructed. All but one of the 19 cadavers were males.

Medizinische Klinik, Berlin

April 26, X, No. 17, pp. 711-752 and Supplement

68 *The Continuous Bath in Mental and Nervous Disease. (Anwendung des Dauerbades für Psychosen und Neurosen.) W. Weygandt.

69 *Operative Treatment of Stomach Disease. (Magenchirurgie.) J. Schnitzler. Commenced in No. 16.

70 Complications of Nasal Disease. (Die okulo-orbitalen, intrakraniellen und cerebralen Komplikationen nasalen Ursprungs.) A. Onodi.

71 *Poisoning from Nitrous Gases. R. Tetzner.

72 *Effect of Shrapnel Explosions. (Zur Wirkung der Granatexplosion.) E. Miloslavich.

73 Technic for Serodiagnosis. (Zur Organfrage bei der Anstellung der Abderhaldenschen Reaktion.) E. Lampé and M. Paregger.

74 *Experiences with Friedmann's Treatment for Tuberculosis. (Beitrag zu dem Friedmannschen Tuberkulose-Heilmittel.) W. Treupel.

75 Reactivation and Transmission of Protective Ferments. (Versuche über Inaktivierung und Reaktivierung von plasmafremden Fermenten und ihr physikalisches Verhalten gegenüber dem Substrat.—Versuche über die Uebertragung der Abwehrfermente von Tier zu Tier und die Einwirkung von normalem Serum auf solches, das Abwehrfermente enthält.) E. Abderhalden and L. Grigorescu.

76 Surgical Work by the General Practitioner. O. Nordmann. Commenced in No. 15.

77 Sparing and Training the Digestive Apparatus. (Schonung und Uebung als Grundlinien der Ernährungstherapie.) F. Heinshaimer.

68. **The Continuous Bath in Mental and Nervous Disease.**—Weygandt traces the history of hydrotherapy in mental disease from the early days when Boerhave in the seventeenth century advocated as a therapeutic measure in mental disease the fright from being suddenly thrown into cold water. The continuous tepid bath has not only a welcome tranquilizing action but it prevents or aids in the healing of skin affections. In the thousands of cases in which he has applied it he has never noted any by-effects, except extremely rarely a slight tendency to syncope. Of course patients with weak hearts may require heart tonics and special care. Any special liability to eczema from the long immersion is easily counteracted by greasing the hands and feet or the whole body. The continuous bath is particularly useful in warding off decubitus in elderly paretics which so often hastens the fatal outcome in progressive paralysis. He asserts that even in his own experience alone, the effect of the continuous bath has been so beneficial on the metabolism and agitation that several patients improved to such an extent that they could return to business, and in numerous other cases it has prolonged life for years. He has an arrangement in the tub that rings an alarm when the water in the tub reaches 38 C.; if the water reaches 40 C. (104 F.) the alarm rings simultaneously in the superintendent's office. One attendant cannot attend to more than four tubs if the patients require much care. He adds that the continuous bath is an important aid also for neurasthenics; the effect is more dependable than mere bed rest as he found by personal experience during a nervous breakdown from over-work. It is also an important aid in healing up decubitus with spinal cord disease, mal perforans in tabes and in spastic paralysis.

69. **Operations on the Stomach.**—Schnitzler denounces gastro-enterostomy as a routine measure in operative treatment of gastric ulcer, saying that it is neither logical nor dependable. In one year recently he encountered five cases of recurrence of a gastric ulcer sooner or later after gastro-enterostomy had been done. More than a hundred cases of peptic ulcer after a gastro-enterostomy have been published, and this is probably far below the actual number. He has had to operate in ten such cases himself. The rule should be, he insists, that if any operation is to be done on the stomach, it should be ample resection. He has found a connection between the ulcer and the pyloric vein in such a number of cases that he is convinced that duodenal ulcer occurs more frequently than is generally recognized. They form fully one-fifth of all ulcers in this region.

71. **Poisoning from Nitrous Gases.**—Tetzner says that thirteen of the thirty-two fatal poisonings from this cause occurred from sawdust being strewn on spilt nitric acid. Nitrous gases are generated when this is done. The main

symptoms are on the part of the throat and lungs at first, but as these subside in the course of a few weeks, extreme debility, emaciation and nervous symptoms follow and are liable to be permanent. Out of twenty firemen who were seriously poisoned by the fumes during the burning of a chemical works, eleven were permanently incapacitated and one died. After the first disturbances there seems to be little wrong, but by the next day serious symptoms on the part of the air passages develop. A case is reported in detail: A pipe conveying the acid burst as a workman was employed nearby. He fell unconscious but recovered after a time and went downstairs and reported the break in the tube in the distilling room of the trinitrotoluol works where he was employed. A month later he complained still of pain in the chest, cough, subjective sounds, and he was pale, cyanotic, and unable to sleep much. There was a marked constant fine tremor of the entire body, including the head, which has persisted to date. No means of effectual treatment are known; heart tonics may be needed, and diluted lime water or other alkaline waters have been recommended, as also inhalation of oxygen, ammonia, sodium bicarbonate spray, or venesection plus saline infusion. Some recommend further to have from three to five drops of chloroform in a glass of water taken every ten minutes, until the maximal dose of 1.5 gm. has been taken in the course of one or two hours.

72. Indirect Injury from Concussion with Shrapnel Explosions.—Miloslavich describes seventeen cases of injury from shrapnel explosions without direct contact, no signs of burns or external injury. Unconsciousness for a time, intense headache, tinnitus, vertigo, disturbance in maintaining the balance, nystagmus and deafness point to special injury of the internal ear. In many cases the symptoms continued to grow more severe as time passed, indicating organic lesions. The injury of the internal ear in such cases is liable to escape discovery on a cursory examination.

74. Friedmann's Treatment in Lupus.—Treupel states that Friedmann's treatment was given to five lupus patients at Jena and in three no change in the lupus foci has been detected during the seven or eight weeks to date. In another case a transient bleaching of the lupus foci was noticed about two weeks after the first injection, but this was fleeting and no other change has been detected in the lupus regions during the two months to date. A small infiltration, followed by an abscess from which staphylococci were cultivated, developed at the site of the second intramuscular injection. The fifth patient was a robust young man with several lupus foci. At first one of the multiple lupus patches seemed to be a little flatter around the edges and there seemed to be less scaling. This apparently favorable effect from the treatment was but transient, no further improvement becoming manifest although this patient has been under observation for several months to date. There was a pronounced temperature reaction to the *Simultaninjektion* and severe jaundice which much debilitated the patient so he has lost over 19 pounds in weight and the jaundice has not subsided entirely although nine weeks have elapsed. Treupel remarks in conclusion that as others have reported isolated cases of jaundice after Friedmann treatment, and even fatalities have been published, and also instances of contamination of the remedy with staphylococci and other bacteria, and as no improvement of any practical significance was observed in his experience, he has no intention of using the remedy further in its present form.

Monatsschrift für Geburtshilfe und Gynäkologie, Berlin

April, XXXIX, No. 4, pp. 459-596

- 78 *Effect of Medicated Douches on the Bacterial Content of the Vagina. E. Zweifel.
79 Cesarean Section for Complete Ankylosis of Both Hip-Joints. H. Fuchs.
80 *Results of Treatment of Uterine Cancer with Mesothorium as Shown by Operations after Irradiation. C. Weinbrenner.
81 Case of Carcinomatous Cholesteatoma of the Breast. W. Lahm.
82 Etiology of Myoma of the Uterus. W. Benthin.
83 Danger of Small Doses in the Roentgen Treatment of Inoperable Carcinoma. E. Sachs.

78. Effect of Medicated Douches on the Bacterial Content of the Vagina.—Zweifel tried douches of various salts of mercury, potassium permanganate, etc., and found that the number of bacteria were reduced temporarily but that they returned after a short time. He also tried Schweitzer's method of irrigating the vagina in cases with a pathologic secretion with a 0.5 per cent. solution of lactic acid, with a view to preventing puerperal fever. His conclusion is that douches of this kind kept up for a period of ten days or longer really have a beneficial effect.

80. Treatment of Uterine Cancer with Mesothorium.—Weinbrenner describes three cases operated on after mesothorium treatment for carcinoma of the uterus. The operation wounds healed very slowly, and this he attributes to the effect of the mesothorium. Moreover, there seemed to be a tendency to the formation of fistulas long afterward from necrosis of the degenerated connective tissue.

Münchener medizinische Wochenschrift, Berlin

April 21, LXI, No. 16, pp. 857-912

- 84 *Creatinin Test of Functional Capacity of the Kidneys. (Verwendung von Kreatinin zur Prüfung der Nierenfunktion.) O. Neubauer.
85 *Resection of Ribs or Filling as Means to Immobilize Tuberculous Lung. (Pfeilerresektion oder Plombierung bei Lungentuberkulose.) M. Wilms.
86 The Protective Ferments. (Nachweis der blutfremden Fermente mittels gefärbter Substrate.—Verwendung der Vordialyse bei der Fähdung auf Abwehrfermente unter Anwendung des Dialysierverfahrens.) E. Abderhalden and F. Wildermuth. (Experimentelle Untersuchungen über die Spezifität der proteolytischen Serumfermente.) F. Rosenthal and H. Biberstein.
87 The Volatile Elements in Coffee. (Flüchtige Bestandteile des Kaffees.) J. Abelin and M. Perelstein.
88 Action of Air on Albumin and Carbohydrate Metabolism. (Einwirkungen der Atemluft auf den Eiweiss- und Kohlehydratstoffwechsel.) M. Bache, W. Auel and O. David.
89 Protein Requirement and High Cost of Living. (Eiweissbedarf und Fleishteuerung.) J. Decker.
90 Mineral Waters in Treatment of Blood-Disease. (Zur Behandlung von Blutanomalien mit Dürkheimer Arsensolbädern.) Lehnert.
91 *Symptom of Cerebellar Abscess. (Neues Symptom bei Kleinhirnsabszess.) M. Mann.
92 Nutmeg Poisoning; Two Cases. (Muskatnussvergiftung.) R. Beck.
93 Industrial Poisoning from Methyl Chlorid. (Eigenartige Narkosezustände nach gewerblicher Arbeit mit Chlormethyl.) H. Gerbis.
94 Diagnosis of Salivary Concrements. (Speichelsteine.) O. Heinemann.

84. Creatinin Test for Examination of Kidney Functioning.—Neubauer calls attention to the instructive difference in the elimination of creatinin by sound and diseased kidneys after ingestion of 1.5 gm. dissolved in 100 or 150 c.c. of sweetened water. He has thus tested the functional capacity of the kidneys in ten healthy persons and seventy patients. The healthy eliminate in the urine in the next six hours from 60 to 90 per cent. of the creatinin thus ingested and all or nearly all of the rest in the following six hours. With diseased kidneys less than 20 per cent. is eliminated in the first six hours and the elimination drags over days. This functional weakness in regard to creatinin is apparent in every case in which any of the other functions of the kidneys are impaired and hence this test is particularly sensitive for any form of derangement. The findings were most pronounced when there were signs of uremia, regardless of whether there was hydrops or not. The creatinin test is of little diagnostic import when only one kidney is diseased. With known disease of one kidney, defective elimination of the creatinin is a sign that the supposed sound mate is impaired also. Instructive findings can be obtained by catheterization of the ureters and comparison of the natural creatinin content. The natural creatinin content of the blood is also augmented in case of impaired permeability of the kidneys. The proportion of creatinin in the body fluids is best determined with a color scale.

85. Resection of Ribs or a Filling in Treatment of Pulmonary Tuberculosis.—Wilms' latest communication on his method of immobilizing the lung was mentioned in these columns May 9, p. 1513. He here extols the superior advantages of a filling for the purpose, plugging the space with

adipose tissue or paraffin if the same results can be realized with it. Whether this can be done depends, he says, on the size of the space to be filled. For various reasons the lower lobe cannot be immobilized so well by a filling, but it answers finely for the upper lobe, and by combining a filling to compress the upper lobe with resection of ribs, close to spine and sternum, to immobilize the lower lobe, the entire lung on one side can thus be shut off from functioning. This combination makes less demands on the patient, and the effect in his cases to date has been extremely good. He used a paraffin filling in two cases and found it satisfactory to date. In others he implanted adipose tissue to plug the space; it was taken from the patient himself in two cases, in three from other patients. Everything seems to indicate that the fat heals smoothly in place and maintains a durable compression. With this filling technic he insists that we are justified in applying immobilization treatment to recently developed and comparatively small cavities.

91. Symptom of Cerebellar Abscess.—Mann noticed that a child with cerebellar abscess causing deep somnolency, warded off persons attempting to rouse him by making defensive movements with the arm of the sound side alone. He did not use at all the arm on the side of the abscess, although it was not paralyzed or injured. The same tendency to refrain from using the arm on the diseased side was evident also in another patient convalescing from an operation for a cerebellar abscess. Mann found that a similar experimental experience was published by Luciani twenty years ago; he related that after removal of part of the cerebellum of a dog, if one ear was pinched with forceps the dog soon scraped off the forceps if it was the ear on the sound side, but he made no attempt to scrape it off if it was on the ear on the same side as the cerebellar lesion. Mann found that the patient used both hands to defend himself in a recent case of abscess in a frontal lobe. The means he took to elicit the defensive movements in these cases was holding the patient's nose.

Wiener klinische Wochenschrift, Vienna

April 23, XXVII, No. 17, pp. 497-544

- 95 *Chronic Tobacco Poisoning. (Chronische Tabakvergiftung.) H. Favarger.
- 96 *Differential Diagnosis of Substernal Goiter. K. Engel and R. Holitsch.
- 97 Disease of Aorta from Inherited Syphilis. H. Neugebauer.
- 98 Subclotoid Hygroma. (Zwerchsackhygrom an der Schulter.) H. Lorenz.
- 99 Varices in Thoracic Duct. A. Priesel.
- 100 Psychology of Children. (Zur Kinderpsychologie und Neurosenforschung.) A. Adler.

95. Experimental and Clinical Study of Chronic Tobacco Poisoning.—Favarger has for years made a study of this subject and here gives the details of twenty-one cases of disturbances on the part of the heart from abuse of tobacco. Experiments on animals seemed to indicate that the nicotin element alone is responsible for them. The first sign of trouble is palpitations, and if the abuse of tobacco is not excessive this may be the only symptom. With continued abuse, arrhythmia and intermittent or abnormally slow or fast pulse may follow with sensations of oppression, precordial distress, weakness and insufficiency of the myocardium, dyspnea, cardiac asthma, Cheyne-Stokes, cyanosis and finally fatal paralysis of the heart. Types of all these are included in the cases he reports, six with fatal paralysis of the heart. It is his impression that abuse of cigar smoking has a more deadening influence, the senses and memory becoming less acute and the heart suffering more than from excessive cigarette smoking. With the latter the symptoms of abnormal excitability of the nervous system predominate. The dependence of certain gastro-intestinal disturbances on nicotin poisoning has been confirmed innumerable times, he says, by their coming and going parallel to abuse and abstention from smoking. They range from the common lack of appetite, diarrhea or constipation to extreme emaciation and gastric ulcer; the latter may be the direct result of defective blood-supply from vascular spasm or weak heart action, these factors possibly supplemented by swallowing the smoke and

particles of tobacco. He knows of many cases of myocardium trouble from tobacco poisoning in which there are no signs of arteriosclerosis. The latter is common in nicotin poisoning but not so universal as some assume. The myocardium symptoms are those that correspond to fatty degeneration, but post-mortem examination is rarely permitted in cases of nicotin poisoning as they are generally encountered in private practice.

96. Differential Diagnosis of Intrathoracic Goiter.—Engel and Holitsch call attention to the abnormal width of the shadow cast by the organs above the heart and apparently below the thyroid when the enlarged thyroid extends downward behind the sternum. This abnormally wide middle shadow may extend beyond the inner third of the clavicle possibly to its middle. The trachea may also deviate from the middle line even in the neck, while the arch of the aorta is pushed also to one side or downward. As the patient swallows, the entire shadow of the middle portion rises from 0.5 to 1 cm. and then falls again; with an aneurysm there is not this displacement during swallowing. The edges of an aneurysm shadow show pulsation toward every direction but there is no pulsation evident in the shadow of a substernal goiter, or it is only propagated in one direction. The shadow of the goiter is always sharply defined from the lung while the shadow of a tumor generally extends more or less into the lung. The most instructive sign, however, is the rising up of the shadow or the area of dulness over the manubrium as the patient swallows. If the substernal goiter is fastened down by adhesions, even this sign may fail.

Zeitschrift für Kinderheilkunde, Berlin

XI, No. 1, pp. 1-80. Last indexed May 2, p. 1444

- 101 Radiographic Diagnosis of Different Forms of Stridor in Children. E. Rach.
- 102 Tests for Presence of Formaldehyd in the Urine after Administration of Hexamethylenamin. W. v. Breunig.
- 103 Spontaneous Gangrene of the Extremities in Two Children. A. v. Khautz.
- 104 *Exfoliating Dermatitis. B. Sperk.
- 105 Early Editions of Glisson's "De Rachitide." E. Ebstein.

104. Exfoliative Dermatitis.—Sperk describes fifteen cases of exfoliative dermatitis. It is a disease of the first few weeks of life. In several cases he examined the bladder contents bacteriologically, and in all these cases he demonstrated staphylococci both microscopically and by culture. In one case he found *Staphylococcus pyogenes albus* in the blood. The affection seems to belong, therefore, in the group of staphylococcic pyodermias and this explains why it is so easily transmitted and why isolation is so necessary in children's hospitals.

Grèce Médicale, Athens

XVI, Nos. 5-6, pp. 9-12

- 106 Functional Paraplegia of Traumatic Origin in Young Soldier. C. T. Manthos.

Gazzetta degli Ospedali e delle Cliniche, Milan

XXXV, Nos. 45-49, pp. 473-520

- 107 Operative Treatment of Abscess in Infant's Lung. (Intervento chirurgico per un ascesso polmonare in bambino lattante.) P. Pozzato.
- 108 The Insensitive Skin of the Arab. (La iposensibilita cutanea degli arabi.) M. Tortora.
- 109 Retrograde Incarceration of Hernia. L. Bozzotti.
- 110 Preventive Diphtheria Antitoxin Treatment. (Difterite e sieroprofilassi.) N. Bassi.
- 111 Spastic Paraplegia of Syphilitic Origin. A. de Blasi.
- 112 *Treatment of Pruritus. G. Thibierge.

112. Pruritus.—Thibierge remarks that with generalized pruritus internal measures to combat the intestinal fermentations, liver, uterus or kidney derangement or other trouble causing the diffuse toxic pruritus may be aided with pastes containing menthol or phenol. With localized pruritus, especially at the anus or vulva, more energetic local measures are needed, and he commends silver nitrate in particular, in quite concentrated solutions for anal pruritus, or even applying the nitrate pencil. This hurts for a few hours, but gives the greatest relief. He has found lumbar puncture, repeated two or three times, successful in general or local pruritus in

some cases absolutely rebellious to all other measures. It is not necessary to withdraw more than 3 or 4, or at most 6 c.c. of the cerebrospinal fluid.

Policlinico, Rome

April 19, XXI, No. 16, pp. 557-592

- 113 *Recovery from Osteomalacia under Epinephrin. (3 casi di osteomalacia curati col metodo Bossi.) T. Cavazzani.
114 Rapid Determination of Blood in the Stools. (Pronto metodo di ricerca quantitativa del sangue nelle feci.) D. Assenelli.

April 26, No. 17, pp. 593-628

- 115 Recent Progress in Therapeutics Is Based Mainly on Animal Experimentation. L. Verney.

113. **Epinephrin in Treatment of Osteomalacia.**—Cavazzani's three patients were women who had borne one or more children. The epinephrin treatment was commenced in the first case a week or so after the first symptoms which had come on with an acute onset a few days after delivery; the treatment was promptly effectual. The osteomalacia had developed not long after delivery in the second case, but two months elapsed before treatment was begun and it was not kept up regularly and the results were less striking than in the first case. The third was an old chronic case and irreparable lesions were already installed but marked improvement was realized.

Riforma Medica, Naples

April 11, XXX, No. 15, pp. 393-420

- 116 Intravenous Injections of Salvarsan and Neosalvarsan. L. Martinotti.
117 Primary Tuberculosis of the Tongue. (Caso di ascesso tubercolare della lingua.) G. B. C. Fulle.

Rivista Ospedaliera, Rome

March 30, IV, No. 6, pp. 269-316

- 118 *Magnesium Sulphate in Treatment of Chorea. (La corea di Sydenham trattata col metodo Marinesco.) A. Natali.
119 *Treatment of Traumatic Extravasation of Blood in the Knee. (Il metodo cinetico del de Theoris nelle emartrosi traumatiche del ginocchio.) U. Pasini.

118. **Magnesium Sulphate in Chorea.**—Natali has applied intraspinal injections of magnesium sulphate in seven cases of chorea minor and one of chronic chorea. The affection was of fourteen, twenty-five or sixty days' duration or from one to seven years. With the exception of one case in which the attacks were almost continuous, there were periods of remission. He injected from 1.5 to 3 c.c. of a 7 to 25 per cent. solution. Three of the patients were entirely and four nearly cured, but the chronic chorea did not seem to be modified. The improvement was gradual and progressive. A course of arsenic seemed to hasten the cure. This treatment naturally should be reserved for the more serious and rebellious cases.

119. **Treatment of Traumatic Hemarthrosis in the Knee.**—Pasini extols de Theoris' method of treatment which requires no operation, no appliances and no drugs, nothing but the skillful application of movements. The patient is kept on his back in bed, not allowing him to get up on any pretext or flex his knee, and the bed-clothes should leave the leg free. He should then raise his leg without bending it at the knee. This extension of the leg on the thigh has a direct curative action on traumatic extravasations in the knee. The leg should be lifted up until it is at a right angle to the horizontal body. At first the movement has to be done passively, and then be aided for a time until he can do it alone. The limb should be raised slowly and regularly and lowered in the same way, repeating the movement often but not to the point of fatigue, and distributing the movements at regular intervals over the day. During the intervals a wet pack is applied but without the least compression. It is useful also to contract the extensor muscles from time to time, even in repose. The sign that conditions have improved so that the patient can get up is when the patella slides out from the grasp of the finger and thumb holding it lengthwise, the leg hanging loose, when the patient contracts suddenly his extensor muscles. This occurs in normal conditions but the patella does not slide out from the grasp in this way when there

has been extravasation of blood in the joint for some months. When first allowed to get up, the patient should complete the treatment by holding the joint stiff.

Tumori, Rome

III, No. 5, pp. 569-696. Last indexed April 11, p. 1209

- 120 Retroperitoneal Neuroma. (Neuroma gangliocellulare mielinico retroperitoneale.) G. Fichera.
121 Antigens for the Meistagmin Reaction with Cancer. III and IV. G. Izar and P. Ferro.
122 Hypernephroma of Lower Pole of Kidney Causing Intestinal Symptoms and Cachexia. (Ipernefromi.) V. Saviozzi.
123 Chronic Mastitis and Benign Tumors. (Flogosi croniche e tumori benigni della mammella.) A. Cimatori. To be continued.

Mitteilungen a. d. med. Fakultät d. k. Univ. Tokyo

XI, No. 1, pp. 1-196. German Edition

- 124 Ventrolateral Pyramidal Tract. (Zur Kenntnis der ventrolat. Pyramidenbahn Barnes und der Dreikantenbahn Helwegs. Zur Frage der Leitungsbahn im lateralen Markfeld der Olive und in der anterolat. Rückenmarkspäripherie.) S. Yamakawa.
125 Diaphragmatic Hernia. R. Watanabe.
126 Anatomy of the Ear in the Japanese. (Aeusserer Gehörgang und Trommelfell der Japaner.) H. Iwata.
127 Bacillus in Acute Knee Process. (Zur Salmonellagruppe gehörigen Bacillus als Erreger einer akuten Kniegelenkentzündung. II.) S. Yamakawa.
128 Acute Lymphatic Leukemia. S. Yamakawa.
129 Mercurial Inunctions in Prophylaxis of Japanese Mycosis. (Tsutsugamushikrankheit. VI.) M. Ogata.
130 *Rat-Bite Disease an Aspergillus Infection. Mercurial Inunctions in Prophylaxis and Treatment. (Aetiologie und Therapie der Rattenbisskrankheit. III.) M. Ogata.

No. 2, pp. 197-308

- 131 Orthodiagraphy of the Heart in Healthy Japanese. A. Imamura and S. Nukada.
132 Tetragenus Sepsis; Recovery. I. Yamakawa.
133 The Occipital Region of the Brain in the Japanese. (Ueber den Hinterhauptlappen des Japanergehirnes.) M. Hayashi and R. Nakamura.
134 *Function of the Thymus. I. S. Shimizu.
135 The Pepsin in the Urine. (Harnpepsin.) S. Okada.

130. **Rat-Bite Disease.**—Ogata's clinical and experimental research has confirmed the fact, he says, that a fungus with which the individual is inoculated when bitten by the rat is the cause of the clinical picture known as rat-bite disease. The fungus seems to be of the aspergillus family and to be readily destroyed by mercurial inunctions, improvement and complete cure following on a course of mercurial inunctions. The three cases here reported bring to eleven the cases he has encountered.

134. **Thymus Functioning.**—Shimizu found that the serum from rabbits treated beforehand with dog thymus caused marked destruction of thymus tissue when injected into young dogs, in addition to phenomena of anaphylaxis. There seems to be no doubt that the prepared serum contains an actual thymolysin. It acts on the dogs in a way similar to the disturbances in development which follow removal of the thymus in young dogs. The medullary portion of the thymus seems to have a different function from the cortex, and it is probably the medullary portion, he says, which secretes the internal secretion.

Brazil-Medico, Rio de Janeiro

April 8, XXVIII, No. 14, pp. 133-142

- 136 *An Endemic Adenomycosis in Brazil. (Nova molestia humana.) E. Dias.
137 *Morbidity of Rio. (Nosologia e mortalidade da cidade do Rio de Janeiro.) P. Barbosa and S. Vianna. Commenced in No. 11.

136. **Endemic Adenomycosis.**—Dias describes an affection of the lymph-nodes in the neck which is endemic in his district, Minas, and which can be reproduced in animals. Separate lymph-nodes swell enormously but never suppurate; the symptoms suggest leukemia or tuberculosis at first. The course is always fatal; sometimes in six or eight months, or not for two or three years. Potassium iodid seems to have benefited in one case at least. He has four under observation at present. A mycelium can be cultivated from fluid aspirated from one of the lymph-nodes affected, and inoculation of white rats kills them in a few days.

137. **Morbidity of Rio.**—In this review of sanitary conditions in Rio we note that the mortality from plague has

dropped gradually since 1903 from 48 per hundred thousand inhabitants to 0.81; leprosy keeps about the same, 2.09 in 1890 and 3.33 in 1912; beriberi has dropped from 16 in 1903 to 1.43 in 1912; diphtheria has ranged from 9.1 in 1868 to 43.4 in 1883. Then came a sudden drop to 6.5 in 1890; since then it has ranged from 1.3 to 6.4—the latter figure in 1912. There have been only 24 deaths in all from scarlet fever since 1903. The deaths from dysentery are what swell the mortality at Rio, the figures in 1869 being 41.68 and in 1912, 18.81. The general mortality has been 20.5 per thousand, surpassed by cities in Egypt, India and Russia, Naples and Trieste.

Semana Medica, Buenos Aires

March 26, XXI, No. 13, pp. 689-736

- 138 The Prognosis in Heart Disease. (Elementos de pronóstico en los cardiacos.) J. Destefano.
- 139 Peculiar Reaction of Phosphorus with Silver Nitrate. (Nueva reaccion microquímica del fosforo.) Maestre and A. Lecha-Marzo.
- 140 Interstitial Keratitis. (387 casos de queratitis intersticial.) J. Santos Fernandez.
April 2, No. 14, pp. 741-788
- 141 Amino-Acid in the Urine in Diabetes. (Las amino-acidurias de los diabeticos.) C. B. Udaondo and M. Casteigts.
- 142 Painful Epigastric Hernia with Gastric Ulcer and Cancer. A. G. Gallo.
- 143 Hypophysis Extract in Hemoptysis. B. A. Houssay.
- 144 Exostosis with Bursa. (Exostosis bursata.) J. F. Relcalde.
- 145 Operations on Stomach and Duodenum. (Comentarios sobre cirugía gastro-duodenal.) L. Mondino and D. Prat.
- 146 Mycelium in Biochemistry. (La micela en bioquímica.) J. R. Carracido.
- 147 Examination of Seminal Stains. (Todavía nuevos metodos para la demonstracion de los zoospermos en las manchas.) Maestre and A. Lecho-Marzo.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

LVIII, No. 1, pp. 1-77

- 148 Importance of Streptococci and Their Products in Various Infectious Diseases in Man and Animals. E. Bemelmans.
- 149 Fluorescent Reaction in Certain Urines. (Een nieuwe reactie in urine.) F. A. Steensma.
No. 2, pp. 78-149
- 150 Sterilization of Hands and Field of Operation. (Heelkundige aseptiek.) I. H. Kuijjer.
- 151 Brain Tumor or Hysteria? (Hersengezwel of hysteric?) G. C. Bolten.
No. 3, pp. 150-236
- 152 *Catarrh Pyelitis. (Nierbekkencatarrh.) A. Bijnen.
- 153 Duodenal Ulcer; Two Cases. (Zweer in den twaalfvingerigen darm.) J. de Groot.

152. **Catarrh of Kidney Pelvis.**—Bijnen is an advocate of direct medication of the kidney pelvis with a silver salt and states that twenty-two of the twenty-four patients he has treated in this way seem to be clinically cured. In the other cases there was a tendency to stone formation which kept up the irritation.

St. Petersburger medizinische Zeitschrift

April 14, XXXIX, No. 7, pp. 85-96

- 154 *Artificial Respiration in Case of Central Paralysis of the Respiration. (Künstliche Atmung bei zentraler Atemlähmung.) P. Bode.
- 155 *Application of Large Magnet in Gastro-Intestinal Derangement. G. Plotkin.
- 156 Concentrated Solutions of Salvarsan and Neosalvarsan. J. Grunberg.

154. **Artificial Respiration for Central Respiratory Paralysis.**—Bode's first patient was a man of 38 with a focus of softening in the third and fourth ventricles with resulting compression of the respiration center. The skull had been trephined on the assumption of an abscess in the brain, but the focus was not reached. An hour later respiration stopped completely but the heart was kept beating by artificial respiration for fifteen hours, when death finally ensued. The second patient was a woman of 29 with some organic brain process which caused sudden arrest of the respiration; she too was kept alive for fifteen hours by artificial respiration. There was no necropsy. The original Silvester method proved the simplest and most effectual in these cases, but when the artificial respiration has to be applied in the course of an operation, Bode prefers the Schuller technic on account of asepsis.

155. **The Magnet in Gastro-Intestinal Diseases, Etc.**—THE JOURNAL mentioned recently Payr's work with a large magnet applied to the abdomen after the patient has taken a suspension of fine iron particles. The magnet acting on the iron draws the loops of intestines around and lifts them up, and it is possible in this way to exercise them at will. Plotkin here extols the capabilities of the method, saying that it can be applied to dilate a stricture or diverticulum, to aid in correcting displacement of the uterus and in prophylaxis and cure of adhesions. He sees such a wide range of usefulness for the measure that he says he thinks that digestive diseases, at least, are entering on an era of "ferromagnetism." (See abstract 134, p. 171).

Hospitalstidende, Copenhagen

April 22, LVII, No. 16, pp. 481-512

- 157 Precipitation with Sodium Glycocholate in the Cerebrospinal Fluid Not a Reliable Test for Syphilis. (Om Fældningsreaktionere med glykocholsurt Natron ved Cerebrospinalvæske.) C. With.
- 158 The Filament Galvanometer and Electrocardiography. (Phonokardiogrammet.) O. V. C. E. Petersen.

Hygiea, Stockholm

April 1, LXXVI, No. 7, pp. 385-448

- 159 *Hemolytic Jaundice. (Hämolytisk ikterus.) O. Lindbom.

159. **Hemolytic Jaundice.**—After a comprehensive review of what has been published on this subject to date, Lindbom reports a case from his own practice. His patient was a young woman and the attacks of pain and intense jaundice were long attributed to gall-stones. Investigation revealed five other cases in the same family; three of the woman's sisters, her mother and her grandmother all had more or less jaundice and it dated from early childhood. There was also more or less anemia, with characteristic blood-findings; discovery of these other cases in the family threw discredit on the diagnosis of gall-stones, especially as the spasmodic pain was referred to the left side and no point of special tenderness could be found in the gall-bladder region. Even if an operation had revealed gall-stones, their removal would not have affected the main element in the syndrome, the excessive destruction of red corpuscles. A course of cholesterin treatment was instituted, a daily dose of 1.5 gm. cholesterin dissolved in oil. If this fails the spleen will be exposed to the Roentgen rays and, as a last resort, splenectomy will be proposed. Hemolytic jaundice may prove more common than now supposed. It is highly probable that many cases of it have been mistaken for gall-stone trouble; the decisive symptom is the reduced resisting power of the red corpuscles to hypotonic salt solution.

Ugeskrift for Læger, Copenhagen

April 23, LXXVI, No. 17, pp. 727-778

- 160 *Treatment of Puerperal Mastitis. (Om behandling af galactoforitis.) E. Hauch.

160. **Treatment of Puerperal Mastitis.**—Hauch describes the methods of treating inflammation of the milk ducts at the Copenhagen maternity. The child is allowed to nurse as long as it will, and then afterward the breast is massaged and milked entirely dry and heat is applied, or with a powerful breast-pump it is emptied dry and then an ice-bag is applied. None of the fifty-five cases treated with massage and heat came to an abscess; as a rule the temperature speedily dropped, although in ten cases there was a relapse later. There was a relapse in only eight of the seventy cases treated with vacuum suction and ice, so that the latter technic is now regarded as the best, especially as recovery proceeds more rapidly. An abscess developed in one of the ice-treated cases. None of the children seemed to suffer from the effects of the galactophoritis; in about a third of the first group of cases supplementary artificial feeding became necessary, and in about a fifth of the ice-treated cases (16 to 55 and 15 to 70). Massage is liable to do harm; it may rupture a distended milk duct in unskillful hands, while the vacuum-suction treatment can scarcely do harm under any circumstances, and it does not cause pain like the massage.

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HAS THE AMERICAN GYNECOLOGICAL SOCIETY DONE ITS PART IN THE ADVANCEMENT OF OBSTET- RICAL KNOWLEDGE? *

J. WHITRIDGE WILLIAMS

BALTIMORE

When casting about for a suitable subject on which to address you, it occurred to me to read all of the obstetric articles which have been contributed to the society since its inception, in the hope that their analysis might prove interesting to our older members and stimulating to the younger ones.

During the thirty-eight years of its existence, 1,010 papers have been contributed, 664 on gynecologic and 346 on obstetric topics, including extra-uterine pregnancy. Consequently, a little more than one-third (34.2 per cent.) fall in the latter category and were contributed by 128 persons. Of these, 53 made only a single contribution, 50 read from two to four papers each, 22 from five to nine, and 3 ten or more papers, so that somewhat less than one-fifth of the entire number were frequent contributors.

I found the task of reading the articles very interesting and fairly profitable, as they set forth in a more or less consecutive manner the history of obstetrics for the past forty years, and served to impress me anew with the great progress which had been made in the technical side of our art.

During this period we have witnessed many changes, the most far-reaching being the development of aseptic technic and the establishment of the bacterial origin of puerperal infection, as the result of which the lying-in hospital has been converted from the most dangerous to the safest place for the delivery of women. Every stage in the development of this doctrine can be traced in our *Transactions*. In the early volumes one finds articles showing that vaginal and intra-uterine douches could be administered with safety, along with other articles giving directions for the most rudimentary antiseptic technic.

It may surprise some of our younger members to learn that, so late as 1884, Albert H. Smith, in his presidential address, vigorously combated the bacterial origin of infection; and, on the other hand, that some members of the society took an active part in the transformation of the lying-in hospitals. For example, we read with pride of Garrigues' achievements in 1883 at the New York Maternity Hospital. In the first nine months of that year, thirty deaths from

infection had occurred in 345 deliveries, but the changes which he so intelligently introduced effected such a revolution that during the last three months of the year not a single patient died, and only three of the ninety-five presented a rise in temperature. Furthermore, Polk told us that when he graduated in medicine, delivery in a lying-in hospital was far more dangerous than an engagement in the bloodiest battle, for during his internship at Bellevue he saw forty-five women die out of the sixty who had been delivered during a single month.

In the papers of Garrigues and Jewett we can also trace the history and development of laparo-elytrotomy, the latter informing us that six women and seven children had been saved in eleven operations up to 1885. This operation is of great interest to students of medical history, as its invention by Thomas represents one of the very few American contributions to obstetrics; and its recent resuscitation under the guise of extraperitoneal cesarean section shows that his conceptions were well founded.

The conversion of cesarean section from "the most dangerous operation in surgery," to one in which the results are so good that it is in imminent danger of being abused by "knife-loving" obstetricians and by surgeons who know nothing of the resources of obstetrics, can be graphically followed. The early accounts of tardy operations for the removal of a dead child from an exhausted and infected woman stand in marked contrast to the first elective operation performed by Lusk in 1887, and particularly to the long series of successful operations which were afterwards reported by many of our fellows.

Following Harris' paper in 1892, entitled "The Remarkable Results of Antiseptic Symphyseotomy," we can trace the development and fall from favor of that operation, as well as the scant recognition accorded the usefulness of its sister operation, pubiotomy.

One of the most interesting phases of obstetric history is afforded by the fifty-one papers on extra-uterine pregnancy. In these we can trace the evolution of a pathologic curiosity into a condition of every-day occurrence. Furthermore, we can follow the education of the profession in its diagnosis, as well as the gradual development of means for its cure, first by electricity or by the injection of morphin into the sac, and later by surgical methods. We can likewise trace the development of the *furor operativus* to the point at which the diagnosis of the condition came to mean immediate operation without regard to the condition of the patient, until Robb's experimental work demonstrated the fact that interference might frequently be deferred with benefit to the patient.

* Presidential address, delivered before the American Gynecological Society, 1914.

Many other changes can be followed with interest and profit; for example, the slow recognition of the fact that occiput-posterior presentations should not be regarded as abnormal, but that, if left alone, they will usually terminate spontaneously with but little greater difficulty than when the occiput is directed anteriorly.

We can also follow the evolution of more correct views concerning the employment of forceps and the recognition of the fact that its improper use is a potent factor in the death of the child and in the production of serious lesions on the part of the mother. Likewise, we can read the discussions concerning the value of axis-traction; but, just as its merits were beginning to be recognized, its field of usefulness became markedly restricted by the knowledge that it is not the ideal means of overcoming mechanical obstruction.

It is interesting to recall the fact that, in the early days of the society, not even trained obstetricians were agreed as to the necessity for the immediate repair of birth injuries; for, at the first meeting in 1876, Goodell contributed an important communication setting forth the innocuousness and desirability of routine perineal repair.

I might continue to recount many other advances in the practical treatment of childbirth and its complications, but time will not permit. Consequently, I shall refer only to the abuse of ergot. Its employment was considered on several occasions in the early days of the society, when the consensus of opinion developed that it was indicated only after the extrusion of the placenta. It may also interest you to be reminded that it was frequently administered so freely in the treatment of abortion as to give rise to chronic ergot poisoning, and that John Goodman reported an instance in which it had led to gangrene of the extremities. I lay stress on this almost forgotten fragment of medical history, for I believe that unless correct teachings concerning the action of and the indications for the use of the various preparations of pituitary gland substance soon become current, a similar crusade will be necessary to check the abuse of this powerful therapeutic agent.

After listening to this imperfect enumeration of the advances of obstetrics as portrayed in our *Transactions*, one's first impulse is a feeling of pride in the achievements of his colleagues and a sense of satisfaction with the part we have played in developing this branch of medicine. Closer and candid consideration, however, compels the depressing confession that such feelings are not justified, but that, on the contrary, we have done virtually nothing in developing even the practical side of our art. We have been content merely to follow in the footsteps of others, occasionally quite sluggishly, and to reap what we have not sown.

Careful analysis of our *Transactions* has failed to convince me that scarcely a single, fundamental contribution to practical obstetrics has been made to this society, and I feel that you will agree with me when you hear the facts.

We did nothing fundamental in connection with the question of puerperal infection; Holmes, Semmelweis, Pasteur and Tarnier laid its theoretic foundations, while the practical utility of antiseptic precautions had been demonstrated in Germany and France before we seriously faced the matter.

The modern cesarean section originated in Germany, and five years elapsed after the publication of

Sänger's monograph before we were able to report a single, successful operation.

The same may be said of symphyseotomy and pubiotomy; and it was not until after Harris had called attention to the results obtained in Italy and France that we showed signs of being aware that the operation had been successfully resuscitated. Even in connection with extra-uterine gestation we have little reason to be proud, as the operation after rupture came to us from Tait, and Veit had given directions for diagnosing unruptured tubal pregnancy four years before the subject was mentioned before this society.

Likewise, our views concerning the mechanism of labor in occiput-posterior presentations were woefully behind the times; and it required years for us to reach the position which Naegele had attained in 1838. Naturally, it might have been supposed that the mechanical ingenuity of this nation would have led to improvements in the forceps; but not so. While we were inventing narrow-bladed instruments which might be applied through a cervix the size of a five-cent piece, Tarnier had worked out the principle of axis-traction, which we accepted only after considerable hesitation.

I shall not continue this doleful list, as it seems sufficient to prove that we have added practically nothing to the technical side of obstetrics, while the analysis which I am about to present will show that we have done even less on the scientific side.

For purposes of analysis, I have classified the 346 obstetric papers into thirty-two groups, as shown by the accompanying table.

ANALYSIS OF THE OBSTETRIC PAPERS, 1876-1913

| Subject | No. Papers* | | |
|---|-------------|-------|------|
| | Total | Cred. | Exc. |
| A. Pregnancy— | | | |
| 1. Abnormalities of | 20 | 3 | 2 |
| 2. Complicated by tumors..... | 13 | 1 | 0 |
| 3. Operations during | 2 | 0 | 0 |
| 4. Physiology of | 11 | 2 | 3 |
| B. Labor— | | | |
| 5. Abnormalities of | 8 | 0 | 2 |
| 6. Conduct of, including anesthesia and oxytocics | 29 | 5 | 1 |
| 7. Mechanism of | 2 | 0 | 1 |
| 8. Physiology of | 1 | 0 | 1 |
| C. Puerperium— | | | |
| 9. Abnormalities of | 5 | 0 | 0 |
| 10. Normal | 6 | 0 | 1 |
| 11. Infection during | 25 | 3 | 1 |
| D. Lacerations, etc.— | | | |
| 12. Lacerations of cervix | 5 | 1 | 0 |
| 13. Lacerations of perineum | 9 | 2 | 0 |
| 14. Rupture of uterus | 8 | 0 | 0 |
| 15. Vesicovaginal fistula | 1 | 1 | 0 |
| E. Instrumental Delivery— | | | |
| 16. Operative technic | 1 | 0 | 0 |
| 17. Accouchement forcé and the induction of labor | 12 | 1 | 0 |
| 18. Cesarean section | 25 | 2 | 1 |
| 19. Forceps | 6 | 0 | 0 |
| 20. Gastro-elytotomy | 2 | 1 | 0 |
| 21. Pubiotomy and symphyseotomy | 7 | 3 | 1 |
| 22. Version | 2 | 0 | 0 |
| F. Abortion— | | | |
| 23. | 2 | 0 | 0 |
| G. Extra-uterine pregnancy— | | | |
| 24. | 51 | 7 | 5 |
| H. Eclampsia, toxemia and vomiting— | | | |
| 25. | 28 | 3 | 2 |
| I. Contracted pelvis— | | | |
| 26. | 7 | 2 | 3 |
| J. Hemorrhage— | | | |
| 27. Accidental | 1 | 0 | 0 |
| 28. Post-partum | 3 | 0 | 0 |
| 29. Placenta praevia | 17 | 1 | 1 |
| K. Displacements of uterus— | | | |
| 30. | 7 | 0 | 1 |
| L. General Topics— | | | |
| 31. Child | 10 | 2 | 0 |
| 32. General | 20 | 2 | 1 |
| | 346 | 42 | 27 |

* The first of these columns indicates total number; the second, the number of creditable papers, and the third, the number of excellent papers.

With as little bias as possible, I have attempted to form a judgment as to the value of the papers, and have designated as good or creditable those in which the subject under consideration was presented in a useful and attractive manner, but without adding anything new, and as excellent such papers as have contributed, even to a slight extent, to the sum total of obstetric knowledge. Judged by these criteria, I have placed forty-two papers in the former and twenty-seven in the latter category—12 and 8 per cent., respectively. Consequently, it would appear that on the average less than two creditable papers have been contributed each year and that only two contributions could be expected in three years. Surely this is not a showing of which our society can be proud.

On the other hand, I would call attention to the fact that seventy papers, or somewhat less than one-fifth of the entire number, were purely casuistic in character, and were based on the history of one or at most two cases. Though often interesting, papers of this character are usually of little value and are better suited for presentation before a local medical society than before a national association supposedly composed of scientific men.

Most of the remaining 207 papers were unobjectionable, yet, while sometimes provocative of interesting discussion, they served merely as vehicles for the expression of the personal experiences of their writers. A small number, including an occasional thesis for admission, were valueless and sometimes puerile. In general, these papers were practical in character and dwelt but little on the scientific or theoretic aspects of the subject. Many of them were based on an experience too small to justify authoritative conclusions and were such as might be expected from young assistants after a few years' service in a well-conducted clinic. It would appear that their chief function was to afford the authors an opportunity to air their views at the expense of the society on topics of more or less general interest and to educate the general practitioner, rather than to stimulate the free exchange of thought between competent experts with a view to broadening their field of vision and increasing the general store of knowledge.

Reverting to the analysis of the papers, I found six creditable and four excellent communications among the forty-six included in the four groups devoted to pregnancy (*A*). I was greatly surprised, however, at the dearth of papers on many important subjects. For example, there was an entire absence of reference to the biologic and biochemical aspects of pregnancy, and, with the exception of a demonstration by Minot, no mention was made of the fundamental problems connected with placentation. Nothing was said of normal metabolism during pregnancy, and, had we been dependent on the society for information, we should have been unaware of the significance of Abderhalden's pregnancy reaction.

Furthermore, only once during the life of the society has reference been made to the importance of syphilis in connection with the child-bearing process, and that only in an incidental manner. As my own experience leads me to believe that this is the most important single factor concerned in the death of the fetus during the last three months of pregnancy, I feel that, had we been alive to our responsibilities, we should have had numerous communications concerning the bearing of the discovery of the spirochete and the

Wassermann reaction on the validity of the laws of Colles and Profeta, as well as on the practical aspects of prophylaxis and treatment.

In the four groups, including the various phases of labor there were forty articles (*B*), of which five were good and the same number excellent. Most of these dealt with the purely practical aspects of mechanical delivery. On the other hand, no mention was made of our ignorance concerning the causation of labor or of the physiology of uterine contractions, and, although a number of writers dealt with the management of abnormal presentations, only one made a contribution to the mechanism of labor, and another to the anatomy of the parturient soft parts. Did time permit, many other important problems might be mentioned which have been left entirely untouched.

Of the thirty-six articles included in the three groups dealing with the puerperium (*C*), four were creditable and two excellent. Their analysis shows that practically none of the many problems connected with the normal aspects of this period had been considered, and that only two authors had dealt with the fascinating process of involution and then only from a clinical point of view. Furthermore, no one suggested that investigations during this period would probably eventually solve the riddle of the mode of production of retrodisplacements of the uterus and thus do away with one of the opprobria of gynecology.

Careful perusal of the twenty-five papers on puerperal infection indicates very accurately the general point of view of the society. With one exception, no serious contribution to the bacteriology of the affection has been made. The members have been more interested in discussing such questions as whether hysterectomy is the ideal treatment for desperate cases than in studying the mode of origin and the clinical course of the disease in the hope of preventing its outbreak and eventually securing its elimination.

In the four groups dealing with injuries to the birth-canal (*D*), there were three creditable but no excellent papers; little need be said concerning them.

In the seven groups dealing with the various obstetric operations (*E*) there were fifty-five papers, seven of which were good and two excellent. This is a startling disappointment, as it is in just this field that one would expect to find important contributions resulting from American mechanical ingenuity. On the contrary, the papers in this group were unusually poor; most of them consisted of reports of series of cases or of discussions concerning the indications for operation which were devoid of valuable suggestions. That this is not an exaggeration is shown by the fact that only a single paper among the twenty-five on cesarean section presented an idea which was not already well known; while in the articles concerning several other operations suggestions were occasionally made which were at variance with sound practice.

Passing over the two papers on abortion (*F*) we come to the largest group in our analysis, namely, fifty-one papers on extra-uterine pregnancy (*G*), in which there were seven good and five excellent communications. This represents a larger proportion of creditable papers than usual, but I do not think that we obstetricians can take much comfort from the fact, for on looking over the list of authors it is found that the great majority were pure gynecologists, who would feel aggrieved were they accused of having any particular knowledge of obstetrics. Here again most of

the papers consisted of casuistic reports, or of discussions concerning the necessity for operation or of details of technic. Several articles were based on experimental work; but, with the exception of the reports on several specimens of ovarian pregnancy, no mention was made of histologic findings, of the interesting variations in placentation, or of many of the important problems connected with the etiology of the condition.

In the group dealing with the toxemias of pregnancy, eclampsia and vomiting (*H*), there were twenty-eight papers, of which three were creditable and two excellent. The same criticism holds good here as elsewhere, for with a few notable exceptions most of the writers were more concerned with the consideration of methods for evacuating the uterus than with the study of the factors responsible for the production of such a condition.

Passing on to the next group (*I*), one is surprised to find that during the course of thirty-eight years a body of obstetricians should have contributed only seven papers dealing specifically with contracted pelvis. On the other hand, this group of papers is unusually meritorious, as two were good and three were excellent. Of course, the subject was also considered incidentally in connection with the various operative procedures; but it seems strange, in view of its great practical importance and of our unsatisfactory methods of diagnosis and classification, that it has not evoked greater interest.

Considering together the three groups dealing with the various types of hemorrhage (*J*), there were twenty-three papers, of which one was creditable and one excellent. The great majority of these communications dealt with placenta praevia and more particularly with the determination of the most conservative method of effecting delivery in the presence of this complication. With but few exceptions, however, I was surprised to find that the experience of the writers on the subject was too limited to permit authoritative conclusions, and that many of the articles consisted in great part of literary references and didactic utterances. As usual, there was but scanty consideration of the mode of causation of the abnormality or of the anatomic peculiarities associated with it. Indeed, the only contribution to the subject was made in the early days of the society.

There were seven papers in the group treating of displacements of the uterus (*K*), the most important of which had to deal with dystocia following operations performed for the relief of retrodisplacements; one of them constituted a real contribution to the subject. In view of the fact that at least one quarter of all women develop retrodisplacements following the first confinement, it appears strange that more attention has not been paid to the etiologic significance of its appearance in the late puerperal period.

In the last two groups, covering the child and the communications on general obstetric topics (*L*), there were thirty papers, which I shall dismiss with the statement that four were creditable, while one constituted a distinct contribution.

Doubtless many of you may consider this analysis a harsh arraignment of the obstetric members of the society, but I feel sure that had it been seemly to mention names and to specify titles many would agree to it, though it is possible that a more lenient critic might have made the list of creditable and excellent

papers longer. It is unnecessary for me to state that the analysis was not undertaken in a captious spirit, but was dictated by my interest in obstetrics and by my affection for this society, and in the hope that by laying bare our weak points I may possibly stimulate some of our members to better work.

If my estimate is correct that only twenty-seven of the 346 papers were excellent, the conclusion is inevitable that the American Gynecological Society has not done its part in the advancement of obstetric knowledge. If this is admitted — and I fail to see how any other conclusion can be reached — the query naturally arises whether the failure is to be attributed to the character of our membership or to some more deeplying factor.

When we canvass the list of members, both past and present, and the important teaching and hospital posts held by them, and also recall the careful scrutiny to which they were subjected before being elected, it must be admitted that with few exceptions the society includes the foremost representatives of American obstetrics. This being the case, it follows that the lack of productiveness cannot be due to failings of the individual members, but should be attributed to some nation-wide cause the explanation of which must be sought in factors peculiar to American conditions.

As far as I have been able to ascertain, only three fundamental contributions to obstetrics have been made by American writers, namely, the introduction of the medicinal use of ergot, by John Stearns; the recognition of the infectious nature of puerperal fever, by Oliver Wendell Homes, and the development of laparo-elytrotomy, by T. Gaillard Thomas — the first a country practitioner, the second an anatomist and litterateur and the third a professor of obstetrics. On the other hand, with few exceptions American obstetricians have been content to appropriate and adopt the results of European investigators and to limit their writings practically to casuistic contributions and to the discussion of details of operative technic.

Opinions may differ as to the national peculiarities which are responsible for this relative sterility, but I feel very strongly that three main factors are involved, namely, (1) the tendency to regard the practice of medicine as an engrossing financial pursuit, (2) defective ideals and tendencies in medical education and (3) the divorce in this country of gynecology from obstetrics.

With few exceptions, all of us undertake the study of medicine as a means of making a livelihood, and consequently, our first aim is to obtain sufficient practical facility in our art to enable us to attain that end, and no one knows better than I what it means to do so and how insistent are the demands of practice. Of those who are exclusively engaged in private practice and who have not formed important hospital or teaching connections, little more can be expected than that they render their patients efficient service by keeping reasonably well abreast with the advance of knowledge and extend a sympathetic hearing to such of their colleagues as may try to add to it.

More, however, should be expected from those who have important hospital connections or who hold teaching posts. The former fail to do their duty to the hospital and its patients if they and their assistants do not attempt to extend the limits of knowledge; while the latter cannot expect to stimulate their students or to train their assistants properly unless

they teach them how little is really known and can open vistas of what may be accomplished by patient scientific work. The standing of such men should be judged, not by the size of their income or by the local consideration in which they are held, but by whether they make an occasional contribution to the science which they profess to love, and, if they are content to publish mere casuistic reports or series of operations, they must be prepared to have others consider that they have wrapped their talent in a napkin and buried it.

To my mind, however, one of the most important factors in our lack of productivity is to be found in our system of medical education. Until very recently university ideals were entirely lacking in our medical schools, and even now, in many institutions affiliated with universities, the connection is purely nominal. How many of us who hold professorships can truthfully say that we are held to the same accountability as the heads of the "true" university departments, or are expected to justify our existence by an occasional contribution to science? Do not we, and the authorities as well, consider that our obligations have been satisfactorily fulfilled if we teach a few hours each week, give decent care to the patients under our charge and once or twice a year write a practical paper so that our professional friends may know that we are still alive? We must admit the indictment, but the fault is not entirely ours; for I think that not much more can be expected of us until the universities awake to the fact that medical education is a serious undertaking and is the most costly of all forms of instruction.

How many obstetric departments are provided with proper accommodations for a sufficient number of patients for the instruction of students, with adequately paid and enthusiastic assistants, or with suitably equipped laboratories for research work, not to mention a salary for the director in any way commensurate with the ability and effort necessary to supervise the work in anything like an ideal manner? Real university departments are just beginning to be organized in some other branches of medicine, but I know of none in gynecology or obstetrics.

From extensive investigation I know that, in most of our schools, obstetrics is the department most poorly equipped and must ordinarily be content with what is not wanted by others; often the professor is regarded by his colleagues as being engaged in an almost unworthy pursuit. No doubt some professors are poorly trained and fulfil their obligations lightly, but I know many who take them seriously and feel depressed whenever they consider the status of their department and their inability to do better work. So long as such conditions exist, it is scarcely conceivable that many professors will be scientifically productive or will often be able to induce promising young men to devote themselves seriously to this branch of medicine, for the few men in this country who are really performing their duty are doing so at a great personal sacrifice and against odds with which they should not have to contend.

The third reason for the low state of American obstetrics is that this is the only country in which obstetrics and gynecology are sharply divided, and I may add that this is the only important gynecologic society in which the majority of the members take no interest in obstetric problems, or in which a member

discussing a paper would preface his remarks by stating that he knew nothing of obstetrics and then go on to make banal remarks.

Time will not permit me to discuss this phase of the subject at length, but I know that in this country neither gynecology nor obstetrics will take its proper place until a body of men has been developed who will be interested in and devote themselves to the study of the problems connected with the entire sexual life of women. I hope I may live to see the day when the term "obstetrician" will have disappeared and when all teachers, at least, will unite in fostering a broader gynecology, instead of being divided, as at present, into knife-loving gynecologists and equally narrow-minded obstetricians, who are frequently little more than trained man-midwives.

While it is debatable whether a union of gynecology and obstetrics is feasible for those engaged exclusively in private practice or would materially improve matters in most medical schools as at present organized, there is no doubt in my mind that the professorial chairs in the university medical schools need to be filled by broadly trained scientific men, who are prepared to give their time to their duties. Such a development, however, is scarcely to be expected until the universities are prepared to equip and maintain women's clinics, somewhat similar to the Frauenkliniken of Germany, but more liberally provided with laboratories for the anatomic, chemical, pathologic and physiologic investigation of gynecologic and obstetric problems. In this event the director must be an accomplished scientific man as well as a competent clinician, who will devote the major portion of his time to the management of his department. If he is of the proper type, this will involve no sacrifice; but if he is not, he will be unhappy, no matter how great the emoluments may be. Institutions of this character will also require the services of a large staff of well-trained and enthusiastic assistants, but will be able to make little use of the short-term intern, who desires only a smattering of learning. Large endowment or state aid will be necessary for the support of such institutions, but I can conceive of no better expenditure of funds if it leads to fuller knowledge of the many unsolved problems connected with women and to the development of a body of men competent to undertake their investigation.

I hope to see a number of such institutions scattered over the land and then no future president of this or any other society will be able to say that its members have not done their part in the advancement of obstetric or gynecologic knowledge. We have heard of "the passing of a specialty," but I feel that there is a glorious future for the broader gynecology, which is as yet scarcely in its infancy. Let us do what we can to advance it.

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Hygiene and School Instruction.—The text-books offer a splendid field for instruction, and the time is not far distant when those classics in school literature, "Ned, can you hop?" and "What is in the nest?" will give way to epigrammatic statements concerning the value of fresh air, the danger of the common drinking-cup and the roller towel, the importance of a pure water-supply, the relation between sewage and disease, the contributing influence of alcoholic indulgence in the development of tuberculosis, etc.—J. H. Landis, in *Am. Jour. Pub. Health*.

TYPHOID FEVER.*

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Typhoid fever does not originate by itself, out of a clear sky. Everybody knows that it is possible to connect many typhoid cases with a previous case of the same disease. This would be true of every case if we could discover all the circumstances of infection.

Like all other infectious and contagious diseases, typhoid fever is a germ disease, that is, it is due to a small living organism. The typhoid germ does not develop by "spontaneous generation" out of lifeless matter, nor does it come into existence suddenly as the wayward offspring of an innocent microbe, but only as the descendant of another germ of the same kind. It is therefore true that if all typhoid germs now living could be destroyed, the disease itself would cease to plague us. Although immediate and complete extermination of all typhoid bacilli is an impossible task, it is evident that if we can in any way materially lessen their number, we shall also diminish the frequency with which infection occurs. One rattlesnake in a town is less dangerous than ten thousand rattlesnakes. In this sense typhoid fever is a preventable disease. If we can keep away from the typhoid bacillus or can keep it away from us, we shall not have typhoid fever. We cannot see the bacillus without a microscope, but fortunately we know where it lives and how we are likely to come into contact with it, so that we are able to do much to protect ourselves.

First of all we must remember that typhoid fever is a disease restricted to man. None of the domestic animals suffer from it. In consequence, methods of prevention are in some respects simpler than in the case of a disease which, like tuberculosis, afflicts animals associated with man as well as man himself.

EARLY RECOGNITION OF TYPHOID FEVER IMPORTANT

For purposes of prevention as well as cure it is important to recognize the existence of typhoid fever in an individual or in a community as early as possible. The symptoms of typhoid fever, like those of other infectious diseases, are not the same in all persons. Atypical cases are often encountered in epidemics. There are all grades of severity, from the extremely toxic and fatal cases to those in which the patient thinks he is suffering merely from a slight "indisposition" or "bilious attack," is able to keep about his work and perhaps never calls in a physician. Even in severe cases some one or more of the usual symptoms of typhoid fever, such as initial headache, rose-spots over the body, characteristic fever curve, or enlarged spleen may be lacking, or the disease may present an unusual and confusing symptomatology so that early diagnosis is uncertain or impossible. It is less than a hundred years since typhoid fever began to be distinguished by physicians from other "slow" or "continued" fevers, and there is still a measure of uncertainty in some cases in which physicians have to base their diagnosis on "symptoms" alone, and

have not the aid which comes from the laboratory tests. Infection with the typhoid bacillus may be mistaken for malaria or for infections with other bacteria, such as the tubercle bacillus. From the point of view of prevention it is highly important that diagnosis of typhoid fever be made as early and as accurately as possible in order that suitable means shall be taken to prevent further dissemination of the typhoid bacilli from the sick person.

At present the physician can avail himself of two valuable diagnostic procedures in addition to a study of the symptoms. One of these is examination of the blood by means of cultures. The typhoid bacillus is present in the circulating blood early in the course of the disease, so that from 20 to 40 drops of blood, drawn from the ear or finger or, better, from a vein in the arm by means of a sterile syringe and subjected to expert bacterial cultivation and examination, will reveal the presence of the typhoid bacillus usually in the first week of the disease. If the blood is examined later than the first week or ten days, even in pronounced cases the bacilli may not be found. When the typhoid bacillus is actually obtained from the blood in this way there can be no further doubt as to the presence of typhoid fever. A certain degree of technical experience and suitable laboratory facilities are necessary for the proper application of this method.

The other method of bacterial diagnosis is the agglutination or Gruber-Widal test. This is based on the discovery that the blood of persons who are infected with the typhoid bacillus possesses the power of clumping or agglutinating the bacilli. For this test there is needed only a small amount of blood, which may be collected in small tubes, or allowed to dry on mica slips. When the serum from a drop of coagulated blood is mixed in dilution of 1:50 or, better, 1:100, with a culture of typhoid bacilli suspended in salt solution, the bacilli will gather in clumps if the blood is taken from a typhoid fever patient, but will remain separate if the blood comes from a normal person or from one affected with a disease which is not typhoid fever. This clumping property in the blood does not develop as a rule until the second week of the disease, and may not appear until later, or may be absent altogether in exceptional cases. It is so often positive, however, even in cases in which other symptoms are obscure, that it has proved a very valuable aid in typhoid diagnosis. The presence or absence of agglutinative power cannot be regarded as final, but taken along with the clinical symptoms and other circumstances it makes it possible for physicians to recognize the existence of typhoid infection in practically all cases. If the first agglutination test is negative, and the symptoms of typhoid persist, a second and even a third test should be made. In the interpretation of positive agglutination tests, careful inquiry should be made as to previous typhoid infection or previous typhoid vaccination, since in either of these instances a positive agglutination may be obtained although the disease from which the patient is suffering may be due to other infection. Moreover, either typhoid vaccination or a previous attack makes the subsequent occurrence of typhoid extremely unlikely.

The importance of recognizing as many cases of typhoid fever as possible and recognizing them early is very great. The typhoid germ multiplies almost exclusively in the living human body and cannot as

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a rule retain its vitality very long apart from its human host. The disease is kept alive, therefore, mainly by the transfer of the living germ from the person in whom it has grown, usually a typhoid patient, convalescent, or carrier, to a healthy person who gives it shelter, becomes a breeding-ground for it, and in his turn passes it on to one or to hundreds of others. It is one of the urgent tasks of public hygiene to break this chain of typhoid germs at as many points as possible.

REPORT TYPHOID CASES

To this end it is necessary to establish in each community or group of communities some central health office to which the physicians shall report every case or suspected case of typhoid fever coming under their observation. Only in this way can the beginnings of an epidemic be detected and measures taken to prevent further spread. One or two typhoid cases in the practice of a busy physician naturally do not appear to him especially significant, but if several physicians report cases occurring about the same time so that the total number in the town is suddenly increased to an unusual degree, the health authorities are at once made acquainted with the situation and can try to discover the source of the outbreak. Only in this way, too, is it possible to place each case of typhoid fever under the centralized supervision that it must have in order to lessen the chance of further scattering of disease germs throughout the town. Family and friends must be warned of the danger of close association with the patient. In some instances in which expert nursing cannot be provided, special precautions must be taken to insure the disinfection of the excreta. For all these reasons it is easy to see why prompt notification of every suspected case of typhoid fever is the first important step in preventing spread of the infection.

WHERE THE TYPHOID BACILLUS IS FOUND

While the typhoid bacillus makes its true home in the human body and does not thrive in water, soil or the bodies of the lower animals, it is nevertheless able to survive for a few hours or days after it leaves the body of its host. This fact explains why typhoid fever is sometimes caused by germs that have traveled many miles away from the person in whose body they originally grew. Typhoid bacilli are discharged from the body in (1) the feces, (2) the urine and rarely (3) the sputum. They may be present in these excretions in enormous numbers. A single drop of urine may contain as many as one million living typhoid germs. Clothing, bedding, table utensils, in fact any object used by, or coming into contact with, a typhoid patient may easily become contaminated with typhoid bacilli even when ordinary care is used. It has long been known that members of the family and especially those nursing typhoid patients are very liable to contract the disease. Any one can see why this is so. Merely swallowing the typhoid germ is sufficient to produce typhoid fever. The facts just stated show how difficult it is to avoid swallowing typhoid bacilli whenever persons must live for days or weeks in close association with a patient who may be discharging daily hundreds of millions of germs. Ordinary washing or rinsing of the hands does not render them bacteriologically sterile. The attendant of a typhoid patient, after going to the sick-room or handling anything from it, should

wash the hands thoroughly with soap and water and, if possible, use also a disinfectant solution such as 1:2,000 mercuric chlorid, compound solution of cresol, or 70 per cent. alcohol. Towels, door-knobs, articles of furniture or clothing may be the means of conveying typhoid bacilli to the hands. The hands may in turn be used for breaking or handling bread, cake or other articles of food and so introduce typhoid bacilli into the mouth. Contact infection, or more appropriately hand infection, is one of the most common causes of typhoid fever, and close association with typhoid patients must always be looked on as dangerous. The danger can be reduced by removal of typhoid patients to the hospital. Unskilled home nursing, however painstaking and affectionate, will always imperil the household. This is particularly the case if the person caring for the patient also has to do with the preparation of food for other members of the family. Even in hospitals, experienced nurses and attendants are likely to contract the disease unless great care is taken. All nurses of typhoid patients and all persons living in houses in which typhoid patients are being cared for should be protected by the method of typhoid vaccination which will be described presently.

WATER-BORNE INFECTION

The direct handing over of typhoid germs from one person to another which has just been described is only one way in which the disease is transmitted. The mode of infection may be much more indirect and roundabout. Typhoid bacilli sometimes find their way into food or drink used by large numbers of persons and give rise to explosive and very extensive outbreaks. Public water-supplies and milk-supplies are two of the most common sources of typhoid infection. In many localities the connection between water-supply and sewerage systems is far too close. The enormous amount of water required for large cities in this country can seldom be obtained absolutely free from sewage contamination. When typhoid germs leave the body in the excreta they are likely to pass into the sewerage system.¹ It does not take a large quantity of sewage to produce infection. The discharges of a single patient, even when diluted with several million gallons of water, have been known to give rise to over one thousand cases of typhoid fever. This is not so remarkable as it seems if we remember that the number of typhoid bacilli discharged in one day may easily reach 5,000,000,000, or more than ten germs in every gallon of water in a large supply like that of Chicago.

Surface water-supplies such as rivers and lakes are especially liable to sewage contamination, and with the growth in density of population in this country such pollution seems likely to increase rather than diminish. Under present conditions all sewage must be regarded

1. It might be supposed that if all the excretions from typhoid patients were sterilized the disease would cease to exist, and it is undoubtedly true that the prevalence of the disease would be greatly diminished if thorough disinfection of typhoid excreta were more generally practiced. Unfortunately, the matter is not quite so simple. Besides the mild cases of the disease already mentioned which never come under the care of a physician, and the irregular cases which are not definitely recognized as typhoid, there are some convalescents who continue to discharge living and virulent typhoid bacilli from their intestines long after complete recovery has taken place. In addition there are certain patients, probably rather numerous, who have begun to discharge typhoid bacilli in the feces before typical symptoms have appeared and before they have submitted themselves to the care of a physician. Even with the great improvement that would come if the disinfection of the excreta of all known typhoid patients were strictly carried out, those persons in the groups just described would be sufficiently numerous to propagate the disease. All sewage must be regarded as infectious.

as possibly containing typhoid germs. In many localities it is not considered practicable to render sewage entirely free from intestinal bacteria before its discharge into large lakes or water-courses. Water-supply officials are hence right in advocating purification of all water-supplies not obtained from perfectly pure sources. Purification and consequent freedom from disease germs may be secured either by filtration on a large scale or on emergency by treatment with calcium hypochlorite (bleaching-powder). Even carefully protected water-supplies from thinly set-



Fig. 1.—This reproduction of a photograph shows a privy overhanging a small brook, one of the feeders of the Merrimac River, Massachusetts, only $2\frac{1}{2}$ miles above the intake of the Lowell water-works. The privy was used in October, 1890, by a patient in the beginning stages of typhoid fever. The use of this outhouse by the patient was followed by an outbreak of typhoid fever in Lowell, numbering several hundred cases. (From Sedgwick's *Investigations of Recent Epidemics of Typhoid Fever in Massachusetts*, 1892.)

tled districts are liable to accidents. In Germany this is recognized to the extent of requiring the purification of all surface waters used for city supplies.

In country districts, also, water may be a vehicle of typhoid infection. Wells so placed as to receive drainage from privies are a source of danger. In limestone regions the beautiful but treacherous "springs" need to be examined with special care, since the so-called springs are often only small surface streams and brooks which emerge at the surface after a longer or shorter flow through underground channels. If seen in the beginning as a brook the water would be recognized by every one as coming from dangerous localities, while as a "spring" it might be drunk without suspicion of its filthy origin.

Deliberate water-drinking is not the only way in which typhoid fever may be contracted from polluted water. It must be remembered that while bathing in polluted water, either salt or fresh, one may accidentally swallow small quantities of water, and this has been known in a number of instances to give rise to typhoid fever.

Measures to prevent the spread of typhoid fever by means of water-supply may be summed up as follows: Our first endeavor should be directed to preventing in every way possible the entrance of typhoid germs into sewers or into privy vaults. To this end, thorough disinfection of all discharges from the body of a recognized typhoid patient must be carried out.² In spite of all precautions some typhoid bacilli will get into the sewage,¹ and hence such sewage must

be always regarded as probably infective. Sewage should be kept out of all water sources used as drinking water-supplies. All of the usual methods of treating sewage such as sedimentation, precipitation, filtration, and the like diminish the danger of water-borne typhoid fever even if they do not altogether remove it. A more effective barrier against typhoid bacilli in water is the purification of the water-supply itself by storage, filtration or treatment with bleaching powder. Finally, if municipal methods are inadequate and there is reason to fear that typhoid bacilli sometimes get into the water-mains, security against water-borne infection may be obtained in the household by boiling the water for five minutes.

In the country the purity of the drinking-water rests largely in the control of each family. Shallow wells should be protected against surface wash and should be so located that the contents of privy vaults and outhouses can by no possibility leak through the soil into the well-water. Deep driven wells protected from surface contamination constitute a particularly safe source of supply.

MILK-BORNE INFECTION

Milk, like water, can be the means of introducing typhoid bacilli into the body. Several hundred well-marked epidemics of typhoid fever are on record which have been traced to milk containing typhoid germs. The bacilli may get into the milk in various ways. When a person suffering from a mild or unrecognized case of the disease is engaged in the collection or distribution of milk, or when flies have access to the contents of a privy vault in which typhoid bacilli happen to be present and at the same time have access to the milk-house, or when milk-cans or bottles are rinsed in impure water just before filling, or are not sterilized after removal from a house in which typhoid fever prevails, the possibilities of infection are clear enough. Unlike water, milk

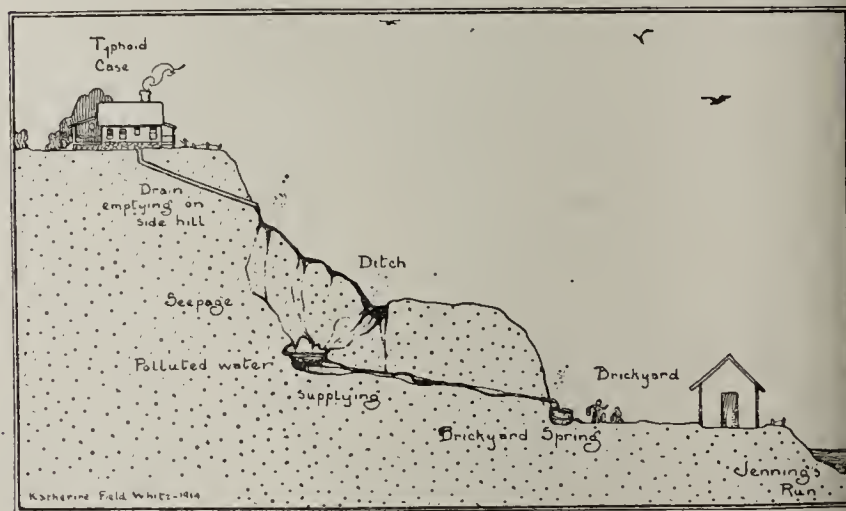


Fig. 2.—The spring at the brickyard furnished an abundant supply of clear water "of pleasant taste and appearance and agreeable coolness." Following the development of a typhoid case in the cottage on the hill, 108 of the 200 workmen in the brickyard became ill with typhoid fever. (Adapted from a study of an epidemic in 1906 at Mount Savage, Md., by Stokes and Price, *Maryland Med. Jour.*, December, 1906.)

may serve as a medium for the multiplication of typhoid bacilli so that a small amount of infected milk mixed with other milk at a creamery may lead to the distribution of many more bacilli than were originally present. Such multiplication probably goes on for only a limited period while the milk is still quite fresh. The danger of infection from buttermilk or from butter made from sour cream is much less than

2. Typhoid stools may be disinfected by adding enough hot water to cover the stools in the receptacle together with about a cupful of commercial unslaked lime (quicklime). The lime should be in lumps, broken up in small pieces and distributed over the stool. The mixture should stand for two hours. Chlorinated lime ($\frac{1}{4}$ pound in 1 gallon of water) solution can also be used.

from fresh milk. Protection against milk-borne typhoid may be easily secured by boiling or pasteurizing all milk not known to be safe. Typhoid bacilli are killed by exposure for ten minutes to a temperature of 60 C. (140 F.), so that efficient pasteurization constitutes an excellent safeguard. It is plain also

danger from the use of raw oysters. Certain vegetables or berries commonly eaten uncooked may become contaminated with typhoid bacilli if night-soil is used as a fertilizer on truck gardens, or if raw sewage is used for irrigation. The use of human excreta as fertilizer for certain crops, such as celery, lettuce, or strawberries, is most undesirable. In a few instances definite outbreaks of typhoid fever have been shown to be due to the use of raw vegetables or fruits. The difficulties in the way of tracing infection to the use of such articles are plainly very great, and many investigators are of the opinion that a larger amount of typhoid fever is due to the use of contaminated raw foods than can at present be actually proved.

FLY-BORNE INFECTION

Under conditions in which human excreta are exposed to the visits of house-flies, the possibility of spreading infection through the agency of these insects is well recognized. Back and forth from privy vault to eating-table wander these bearers of infection. At the time of the Spanish-American War when lime was used in the camp latrines, flies with their legs whitened with lime were afterward seen walking over the food on the mess-tables. Conditions favoring fly-borne typhoid fever are especially favorable on the farm as well as in military encampments, lumber or construction camps, and the like. Reduction in the number of the flies, which can be effected especially by elimination of their breeding-places, of which horse-manure is one of the most common, together with proper disposal of excretal refuse, will greatly diminish if not altogether remove danger from this source. A room or hospital ward containing typhoid patients should be carefully screened in fly-time. It must be remembered that the fly can act

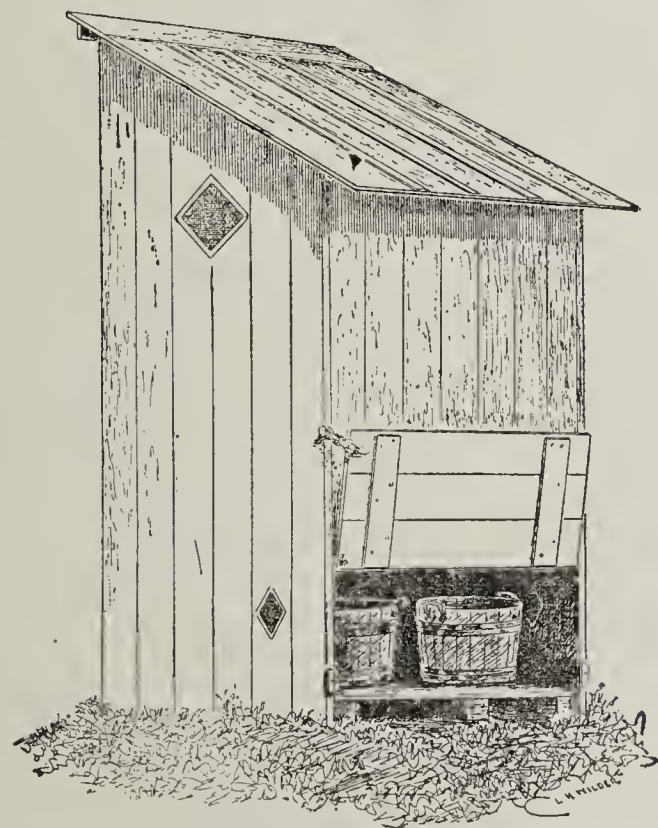


Fig. 4.—This sanitary privy with raised back is fly-tight and is so arranged that the buckets or tubs within do not touch the ground. (From the Virginia Health Bulletin, June, 1911.)

only as the mechanical carrier of typhoid bacilli. However disgusting and annoying the fly's habits may be, if it does not have access to material in which typhoid bacilli are present, it cannot convey typhoid fever.

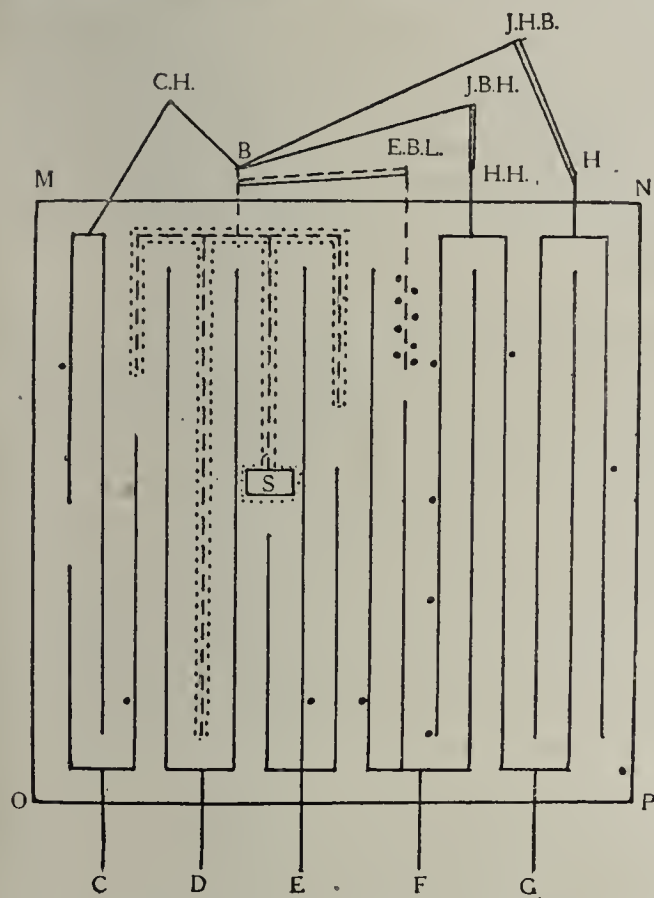


Fig. 3.—Stamford typhoid fever epidemic, April 15 to May 28, 1895 (Herbert Smith: Connecticut State Board of Health Report, 1895, p. 161). Stamford had a population of 15,000. The large square M N O P represents the town of Stamford. B is the dairy distributing the implicated milk, and the dash-lines running from B into the city represent the milk-route of the dairy. Each of the dots represents one case of typhoid fever, and is placed on the route of the dairy from which it was supplied with milk. There are 368 such cases on B's route, including the 12 around the S, which is meant to represent the café supplied by B. B supplied about one-eleventh of the milk used in the town. HH and H are distributing dairies similar to B. CH and EBL are producing farms selling milk to B and also peddling some themselves. The dash-line extending from EBL represents his personal route of 5 houses in which 8 cases of typhoid occurred. JHB and JBH are producing farms selling milk to B and also to distributing dairies H and HH. The double lines show the dairy to which the producer sold most of his milk. Dash lines show the apparent course of the infective agent. C, D, E, F, and G are other dairies having routes in Stamford.

that milk should not be distributed from farms on which typhoid fever exists, and that on all dairy farms human excreta should be regarded as highly dangerous and should be disposed of with particular care.³

TYPHOID FROM OTHER RAW FOODS

Besides milk some other articles of food seem particularly exposed to possibilities of typhoid contamination. Oysters and other shell-fish that have grown in sewage-contaminated waters or that have been placed to "fatten" by "floating" or "drinking" near the mouths of sewage-polluted creeks have been shown to harbor the typhoid bacillus, and when eaten raw to produce more or less extensive typhoid outbreaks. Thorough cooking of shell-fish does away altogether with the possibility of infection through this source. In the United States, inspection and control of oyster beds by state and national health authorities have greatly reduced the possibilities of

3. A simple and inexpensive sanitary privy adapted for use on the American farm is described in a bulletin of the United States Department of Agriculture. This bulletin (Farmers' Bulletin 463), may be obtained free of cost from the State Board of Health or from the Department of Agriculture, Washington, D. C. It gives full working directions for the construction of the sanitary privy.

There is no evidence that typhoid fever is ordinarily air-borne. Under unusual conditions it is possible that dried excreta might be blown about as "dust" and that typhoid bacilli might then come to settle on food or possibly even be inhaled and swallowed, but this mode of infection is probably very rare. The immediate neighborhood of a typhoid patient is dangerous not because there are any typhoid bacilli floating in the air, but because of the likelihood that objects in the room—pillows, arms of chairs, door-knobs—have been accidentally contaminated in the care of the patient.

TYPHOID CARRIERS

The fact has already been mentioned that well-defined and active cases of typhoid fever are not the only ones that may be discharging typhoid bacilli. The importance of healthy typhoid carriers needs to be still further emphasized here. Recent investigations have shown that from 4 to 6 per cent. of all persons recovering from typhoid fever continue to discharge typhoid bacilli in the feces or urine or both for months and even years after complete recovery. Occasionally, also, a person who has never had a recognized case of typhoid is found to be a carrier. Plainly, such persons are likely to be starting-points of fresh infections, especially if, as in the famous

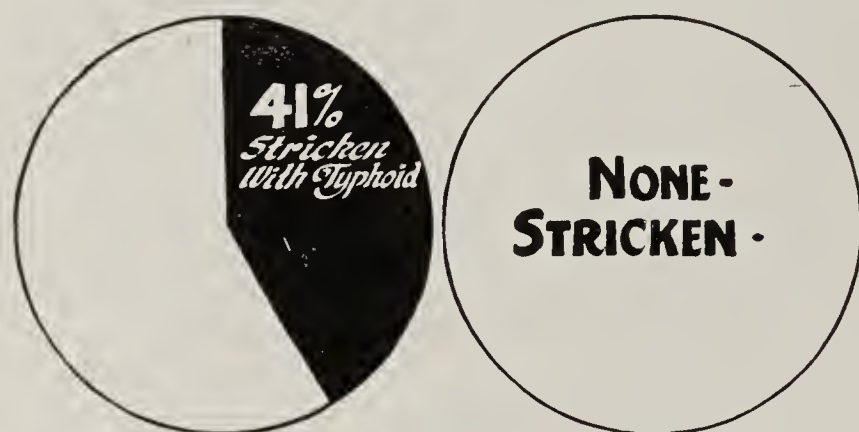


Fig. 5.—Results of typhoid inoculation. (From Washington State Board of Health Bulletin, May, 1912.)

case of the New York cook, "Typhoid Mary," their occupation is concerned with the handling or preparation of food. "Typhoid Mary" was the cause of twenty-six cases of typhoid among the members of seven different families for whom she worked.

An undetected carrier on a dairy farm may be the cause of an explosive outbreak, or of scattered cases along the milk-route during a considerable period. No satisfactory means have yet been found for permanently ridding these typhoid carriers of the germs that they harbor. Carriers, when found, must be warned of the possible havoc they may scatter among relatives and friends, and so far as possible should be prevented from engaging in occupations which involve a maximum hazard to the community. Since the number and identity of such carriers in a community are at present not readily ascertainable, all sewage and the contents of all privy vaults must be looked on as possibly infectious. The chance use by a visiting typhoid carrier of an improperly constructed outhouse in a small country town or on a dairy farm may be the starting-point of a serious outbreak whose origin will always be "mysterious." While the problem of dealing with typhoid carriers is very difficult, it can-

not be forgotten that the outlook in general is a very hopeful one. Any diminution in the number of water-borne or milk-borne epidemics will avoid the production of new carriers. The improvement is bound to be progressive. Every reduction in the amount of typhoid fever automatically lessens the number of carriers.

It can be seen from the foregoing that improper disposal of excretal refuse is at the bottom of most typhoid fever infection. Particularly is this so in country districts, where fly-borne infection is most likely to take place, and where the bulk of milk infection, from which city dwellers later have to suffer, also occurs.

TYPHOID VACCINATION

It has been found that injection of killed and harmless typhoid bacilli will protect against typhoid infection even in persons particularly exposed by their occupation or other social conditions. In the United States Army, in which typhoid vaccination has been compulsory since September, 1911, the disease has practically disappeared. In 1909 there were 173 cases and 16 deaths in a force of about 69,000 men; in 1912, only 27 cases and 4 deaths in about 83,000. From August, 1912, to August, 1913, there were only 2 cases. Many of these troops were engaged in maneuvers in Texas (1911-1912) and were associated more or less intimately with the civil population, among whom typhoid cases were occurring in considerable numbers. Owing to the conditions under which soldiers must live in the field or on the march, the likelihood of typhoid fever is great. In 1898 at the time of the Spanish-American War, 4,422 cases of typhoid and 248 deaths occurred in a division of 10,759 men; among 12,801 vaccinated men under very similar conditions at San Antonio, Tex., in 1911, only one case developed.

Similar results have been obtained in hospitals in which typhoid patients are cared for and in which in the past many cases have developed among the nurses. In one large hospital inoculation of the nurses was followed by a year of entire freedom from the disease among nurses and attendants for the first time in the history of the institution. The lesson is plain. All persons whose occupation tends to expose them to typhoid infection should be vaccinated. Nurses, physicians, soldiers and all those whose manner of life leads to frequent travel and to eating in a variety of restaurants, hotels, or to drinking of water of unknown source come under this head.

What is commonly known as "vacation typhoid" is chiefly the typhoid picked up by contact with infection during travel. In a word, the larger the number of places to which one resorts for food and drink the greater is the chance of crossing the trail of a typhoid carrier. Vaccination gives a high degree of protection for three years, perhaps for a longer period. For those who are not directly exposed to known typhoid infection, but who realize the possibilities of infection through intercourse of urban life, typhoid vaccination, which has been clearly shown to be both safe and efficient, offers an attractive and cheap form of insurance against typhoid fever.

RULES FOR PREVENTING TYPHOID FEVER

For the Individual:

1. Keep away from all known or suspected cases of typhoid.

2. Wash hands thoroughly before meals. Do not use "roller towels."
3. Use drinking-water only from sources known to be pure, or if this is not possible, use water that has been purified by municipal filtration or by hypochlorite treatment or by boiling in the household.
4. Avoid bathing in polluted water.
5. Use pasteurized or boiled, instead of raw, milk.
6. Select and clean vegetables and berries, that are to be eaten raw, with the greatest care.
7. Avoid eating "fat" raw oysters and, in general, oysters and other shell-fish whose origin is not known.
8. Be vaccinated against typhoid in all cases in which any special exposure is known or feared.

For the Community:

1. Insist on the hearty cooperation of all persons with an efficient health officer.
2. Require notification and a reasonable degree of isolation of every known or suspected typhoid case.
3. Exercise strict control over the disinfection of known typhoid excreta.
4. Insist on pure or purified water-supplies.
5. Require pasteurization of milk-supplies.
6. Regard all human excreta as possibly dangerous, and control their disposition in such a way as to prevent contamination of food or drink.

THE PREVENTION OF SURGICAL SHOCK AND POSTOPERATIVE PAIN *

A. B. COOKE, M.D.

LOS ANGELES

Differ as we may as to the real nature of surgical shock, the exact factors concerned in its production and the various intricate physiologic and biologic problems involved, no one will deny that it constitutes the greatest danger of modern surgery. Certainly no more important subject can engage our thought and effort than to prevent it, or at least to minimize it, as far as possible, in every case. It is equally true that the prevention and minimizing of postoperative pain are questions which command the unfailing interest of every physician who is imbued with the true spirit of his calling. Various theories have from time to time been advanced as to the cause of shock, each one containing an element of truth, but no one of them containing the whole truth. Generally operators of large experience tend to regard surgery as merely routine daily work and to give their attention rather to the pathology involved and the mechanical execution of a predetermined procedure, than to the philosophic and the humanitarian considerations relating to the subjects on whom their skill is expended. When one stops to consider the disproportionate importance which comes to be attached to the operation itself, there is little wonder that such divergent theories are held. True, surgical shock is frequently encountered, but only an occasional patient succumbs to it. True, postoperative pain is a distressing sequel in practically every case, but pain does not kill and the patient ultimately forgets. In the satisfaction of having performed a brilliant and mechanically perfect operation, the busy surgeon is apt to regard shock and pain as minor considerations and complacently to felicitate

himself and his patient on the final happy outcome. They are *not* minor considerations. To the patient at least, a surgical operation is always a formidable ordeal and he has the right to demand that he shall be safeguarded in every way possible from both danger and pain. Surgery does not fulfil its highest mission unless the welfare of the patient is at all times recognized as paramount to operative technic, though to keep it so requires a little extra time and a little additional trouble on the part of the surgeon, as well as some increase in the incidental expense.

It is the consensus of opinion to-day among both clinicians and laboratory workers that the loss of vasomotor control resulting in the reduction of the blood-pressure below safe limits is the chief factor in the production of shock. The question before us, then, is: How may a surgical operation be conducted so as to cause the least possible disturbance of the vasomotor function? I am convinced that the method of anoci-association, as worked out by Crile, offers the best means yet devised to accomplish this end. At the same time it possesses the distinct additional advantage of protecting the patient against postoperative pain.

It seems almost superfluous to say that Dr. Crile fully recognizes the importance of complete hemostasis and of expedition in operating. Being a most painstaking and notably dextrous operator himself, he regards these as elementary surgical principles. He does not hold, however, that five or ten minutes' additional time properly utilized in the average operation is criminal practice. Haste means roughness of manipulation and he emphasizes gentleness as a primary requisite to the successful employment of the method which he advocates.

THE PRINCIPLES OF ANOCI-ASSOCIATION

The four cardinal principles of anoci-association are:

1. The preliminary administration of a hypodermic of morphin and scopolamin.
2. The use of nitrous oxid and oxygen for general anesthesia.
3. The complete blocking off of the operative area by the infiltration of a solution of novocain.
4. The infiltration of all tissues traumatized which are supplied with sensory end-organs (except the skin) with a solution of quinin and urea hydrochlorid.

To these I would add a fifth, referring especially to the prevention of gas pains following abdominal operations, namely, early opening of the bowels.

1. The preliminary hypodermic of morphin and scopolamin is designed to allay apprehension and tranquillize the patient. In certain cases the psychic factor is quite as important as the physical. In all cases the preoperative management calls for far more care and attention than it usually receives. An attitude of calm decision and confidence on the part of the surgeon and of cheerful sympathy and encouragement on the part of the nurse do much to rob the coming ordeal of its terrors. The hypodermic consisting of morphin sulphate 1/6 grain and scopolamin 1/150 grain should be administered an hour and a half in advance of the operation and repeated an hour later in half the dosage, if the desired effects, that is, sleepiness and relaxation, are not obtained. Complete quiet in and about the operating-room should always be insisted on, at least until the patient is anesthetized.

* Read before the Los Angeles County Medical Society, April 2, 1914.

2. It is universally conceded that, in competent hands, nitrous oxid is preferable to ether for general anesthesia, even in face of the fact that it possesses certain inherent disadvantages. Ether is irritating and malodorous, and by the resistance it arouses in the primary stage (so-called stage of excitement) favors the development of shock. It immediately and definitely impairs the defensive powers of the patient. It lowers the blood-pressure much (two and a half times) more quickly and decidedly than nitrous oxid. The changes in the brain-cells are three times more marked under ether than under nitrous oxid, because oxidation is retarded by the latter anesthetic. Ether increases the coagulation time of the blood. It is a powerful solvent of the body lipoids, kidney, liver and other viscera, as well as the brain, and in consequence there is always a large increase in the amount of waste products to be eliminated thereby favoring the development of nephritis, pneumonia and other postoperative complications. The nausea and vomiting incident to ether anesthesia are both distressing and dangerous.

Nitrous oxid is not unpleasant to take; it induces anesthesia almost at once, and the effect passes off as quickly as it is produced. Properly combined with oxygen and administered by a skilled anesthetist, it is now regarded as safe as ether, even for prolonged operations—far safer when the possible and not uncommon sequelae of ether anesthesia are taken into account. The anesthesia produced by nitrous oxid is not so deep and death-like as that produced by ether; but this is rather an advantage, since it necessitates thoroughness in the technic of the accompanying local anesthesia and demands gentleness of manipulation at every step of the operation.

The disadvantages of nitrous oxid are physical and financial rather than clinical. The apparatus required is cumbersome and costly and the gas itself is expensive. But these are negligible items when compared with the positive benefits it offers; and neither the surgeon nor the hospital is justified in declining to provide anything and everything which will make for the safety and comfort of the patient.

3. The combination of local with general anesthesia may be termed the crucial feature of anoci-association. It is based on the hypothesis that, however profoundly the patient may be under the influence of an inhalation anesthetic, the brain-centers are still capable of receiving impressions from peripheral stimuli and the brain-cells still capable of liberating impulses in response, otherwise the patient would be dead instead of merely unconscious. The only way by which this connection may be broken is by blocking off the area to be traumatized with a quickly acting, non-toxic local anesthetic. Novocain in 0.25 per cent. solution is the agent employed. First the skin in the line of the proposed incision is carefully infiltrated and then the subjacent tissues step by step as they are encountered. The application of pressure renders the anesthetic effect practically instantaneous. When the abdominal cavity is to be opened the peritoneum should first be thoroughly infiltrated in the line of the incision and the edges everted and blocked off for an inch on either side to protect it in the further manipulations. Complete relaxation is the gauge of thoroughness. If the technic is properly carried out, an incision in the upper abdomen may be approximated and closed with as great facility as one in the lower abdomen.

The benefits of the local anesthesia may and should be extended to the internal organs whenever indicated. Many viscera are unprovided with sensory nerve terminals and, if handled gently, may be operated on with impunity without the use of the local anesthetic. For instance, it is entirely possible in the absence of undue traction to perform the visceral suturing in a gastro-enterostomy without the least disturbance, even when the general anesthetic is suspended. On the other hand, certain of the internal organs, notably those of the pelvic cavity, have an abundant sensory nerve-supply and should be as carefully blocked off before proceeding with the operation as was the region of the initial incision. In a hysterectomy, for example, infiltration of the round ligaments and of the tubes and broad ligaments at the points to be sectioned should first be carefully made and then extended to the peritoneal folds in front of and behind the uterus as these structures become accessible. The appendix may be blocked off by infiltrating the meso-appendix and likewise the base of the gall-bladder and other areas as indicated.

4. The anesthetic effect of quinin and urea hydrochlorid is maintained for from forty-eight to seventy-two hours; that of novocain is quite transient. This in brief is the explanation of the fourth principle of anoci-association. Before closing the wound all stumps containing sensory nerves are infiltrated with a 0.25 to 0.5 per cent. solution of the quinin salt and the several tissues of the wound itself similarly treated as was the case with the novocain solution in making the incision. By this means the parts are held anesthetic until the process of repair is established and the patient escapes much of the customary postoperative discomfort.

Objection to the use of this agent is sometimes made, doubtless will be on this occasion, on the ground that it is dangerous, that it often causes necrosis, etc. In the light of my personal experience I can only say that such dangers are purely imaginary. If the solution is used in proper strength and the technic of its employment is correct in every detail, there is no ground for apprehension. Of course it must be recognized that the salt is a chemical irritant, and the man who injects a 4 per cent. solution into the skin and subcutaneous tissues is likely to meet with disaster. The slight edema sometimes noticed in the wound area after the use of the weaker solution is of no consequence and in no case coming under my observation has it seemed in any way to interfere with the healing.

It will be recognized at once that the successful employment of the novocain and quinin and urea hydrochlorid solutions requires a dexterity and a familiarity with the technic of local anesthesia which is not acquired without considerable experience. The degree of local anesthesia demanded in this technic is as complete and perfect as though no other means were used. No man not accustomed to operating under local anesthesia can expect to make a brilliant success of his first case, nor indeed of his first half dozen cases. On this point Bloodgood¹ remarks:

It is important, in the first place, to emphasize here that success depends most perhaps on the technic of local infiltration. No surgeon who has not performed many operations under local anesthesia only, will be able to get the same results from the combined method. When the patient is awake and you attempt an operation under local anesthesia, you will always be informed when a painful act takes place and you

1. Studies in Blood-Pressure, Ann. Surg., December, 1913.

will be surprised at the difficulty of making such an operation perfectly painless. Very few surgeons in this country have educated themselves in the difficult technic of local infiltration. They are not familiar with the sensitiveness of the different tissues and the varying degrees of discomfort following different manipulations. It is my opinion that the first step in the development of this new technic is to perform as many operations as possible under local anesthesia.

With reference to the securing of early bowel-movements as a means of preventing gas-pains in abdominal surgery, which I have presumed to suggest as a fifth important step in the technic of anoci-association, let me say that my own experience has borne out the wisdom and beneficence of this plan in a long series of cases. Before adopting Crile's technic it had been my custom for a number of years to start the process of alimentary elimination on the second day following all abdominal operations unless some positive contra-indication existed. And I have never had cause to regret such a course. If one has confidence in the thoroughness of his work, including the security of his wound closure, I cannot understand what he expects to gain by confining the bowels for four, five or six days while the nausea and auto-intoxication continue and the suffering from gas-pains becomes constantly more severe.

It has been my regular plan to begin the administration of calomel in powder form, usually combined with cerium oxalate, twenty-four to thirty-six hours following the operation, giving a half grain of the former and one grain of the latter at a dose every hour until six doses are taken. Four to six hours after the last dose, or sooner if indicated, a purgative enema is given which generally inaugurates active peristalsis; if not, this is repeated at intervals until the desired effect is produced. It is seldom necessary to administer salts or castor oil when this plan is followed, and the combination of calomel and cerium oxalate, as a rule, acts most happily in allaying postoperative nausea. The few days or even hours of discomfort saved the patient without the addition of any appreciable element of risk seem to me not only fully to justify this routine, but also to render it highly desirable from every point of view.

VALUE OF THE METHOD

After stating that for more than three years he had employed the anoci-association technic in every operation, Bloodgood announces his deliberate conclusion as to the value of the method in these convincing words:

From my observation I am convinced that any operation performed under this method of anesthesia, properly carried out, will result in less shock; the mortality will be lower; the postoperative discomforts and complications will be greatly reduced; the period of disability very much shortened. All this has certainly been accomplished in my own experience, and I think I have convinced my associates, both surgeons and nurses, that the method has great advantages over ether. I am also confident that no operating surgeon will come to the same conclusions until he has faithfully given this method a fair trial over a considerable period of time.

My own convictions on the subject could not have been better expressed. I am sure that the use which I have made of the method has rendered possible the best and most satisfactory work of my surgical experience. In the five months immediately preceding my removal to California, Dr. J. A. Gaines of Nashville, and myself, working together, employed it in about

one hundred and twenty-five major operations covering virtually the whole field of surgery. Since coming to Los Angeles last fall I have had the opportunity, for quite obvious reasons, of applying the method in only about thirty cases including cholecystostomy, appendectomy, herniotomy (five), gastro-enterostomy (two), hysterectomy and various operations on the adnexa. In this series, the nitrous oxid has not been uniformly available; but even with ether as the inhalation anesthetic the advantages of this technic have been evident to both the physicians and the nurses who have seen and followed the work. To mention a single example: A gastro-enterostomy for duodenal ulcer was performed on a frail woman of 52. She had no shock, received no opiate or sedative at any time, suffered absolutely no pain and did not even know where the incision had been made until it was shown her on the ninth day. She was sitting up in bed on the fourth day, sitting in a chair on the seventh day and left the hospital on the twelfth day.

Contrasting the mortality rates at Lakeside Hospital before and after the introduction of the anoci technic, Crile shows that for the year 1908, the year preceding its introduction, it was 4.2 per cent.; for the year 1912 operations were performed on 2,672 patients, including all kinds of acute emergency cases, with a mortality rate of 1.9 per cent. In the last thousand operations previous to the time of the preceding report the mortality rate was 0.8 per cent.

Here I submit the question: whatever views one may hold as to the theories on which anoci-association is based, there would seem to be no just ground for doubting or discrediting the practical benefits its application yields. The ethical questions involved I shall not discuss. They are sufficiently apparent and each individual must face and solve them for himself.

In conclusion, I trust I may not appear dogmatic when I say that what a man's judgment approves and his experience confirms, that he knows. If there were no other data than those which my own personal work affords, I should still feel warranted in saying that, in my opinion, anoci-association constitutes the most important contribution to the progress of surgery in the past quarter of a century.

1020 Story Building.

RESULTS FROM THE USE OF LIVING LACTIC ACID BACILLI ON DIPHTHERITIC THROATS IN TWO GROUPS OF CASES

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AND

W. D. BRODIE, M.D.

ST. PAUL

The apparent lack of clinical benefit and subsequent failure to lessen the time of housing in the contagious ward of the City and County Hospital, with the use of living cultures of lactic acid bacilli, led us to abandon further tests in November and December, 1913.

In the fifteen or eighteen cases taken at random in which the lactic acid bacilli were used, there was no appreciable difference in the average time of quarantine from the throats treated in the ordinary manner with mild antiseptic gargles and various local applications.

The recent reports of favorable results have stimulated us to make another and a more detailed attempt, using both the living cultures of lactic acid bacilli and naturally soured milk, in each instance obtaining a control case so far as possible alike.

Mulford's (Bulgarian Type) cultures of living bacilli were used, after testing their activity by obtaining growths on agar-slants. Nose and throat were sprayed two, three and four times daily. No antiseptics were employed and individual atomizers were maintained. The patients receiving the naturally soured milk used this as a gargle and as a nasal douche four and five times daily.

The following six cases with their controls were taken at random from a group of twelve:

CASE 1.—*Patient* (No. 66924).—Man, aged 27, admitted March 7, 1914, after being sick two days. On admission, temperature 102.6, pulse 112. Distinct membrane over both tonsils and posterior pharynx, with marked edema of uvula. Antitoxin, total, 20,000 units: 5,000 units before admission, 5,000, 5,000, 5,000 after. Lactic acid suspension spray every day at 10 a. m. and 2, 6 and 10 p. m. Cultures: March 9, 10, 12, 14 and 16, positive; 17, negative; 18, throat positive, nose negative; 20, throat negative; 21, throat and nose negative. Total days in hospital, 14.

Control (Patient 66892).—Boy, aged 11, admitted March 5, 1914, after being sick three days. On admission, temperature 100, pulse 130. Distinct membrane over greatly hypertrophied tonsils and pharynx, and marked edema throughout this membrane, being more extensive than in the foregoing case. Antitoxin, total 25,000 units: 10,000, 10,000, 5,000 all after admission. Locally, Seiler's solution as a gargle four times a day. Cultures: March 10 and 13, positive; 14, throat negative; 15, throat and nose negative. Total days in hospital, 11.

CASE 2.—*Patient* (No. 67013).—Nurse, aged 26, admitted March 11, 1914, after being sick two days. On admission, temperature 103, pulse 115. Distinct membrane on right tonsil and pharynx. Antitoxin, total, 13,000 units: 5,000 units before admission, 5,000, 3,000 after. Lactic acid spray, nose and throat, 10 a. m. and 2 and 6 p. m. Cultures: March 14, 16, 21 and 26, positive; 29, negative; 30, throat and nose negative. Total days in hospital, 20.

Control (Patient 66952).—Nurse, aged 23, admitted March 8, 1914, after being sick two days. On admission, temperature 100, pulse 100. Membrane as above. Antitoxin, total, 30,000 units. No sprays. Cultures: March 10, 13 and 15, positive; 16, negative; 17, throat and nose negative. Total days in hospital, 11.

CASE 3.—*Patient* (No. 66587).—Nurse, aged 27, admitted Feb. 18, 1914, after being sick two days. On admission, temperature 100, pulse 92. Distinct membrane over entire right hypertrophied tonsil and posterior pharynx. Antitoxin, total, 25,000 units: 8,000, 5,000, 8,000, 4,000. Lactic-acid spray, 10 a. m. and 2 and 6 p. m. Cultures: February 18, 20, 22, 25 and 27, and March 3, 5, 6, 8 and 10, positive; 11, negative; 12, throat and nose negative. Total days at hospital, 23.

Control (Patient 66699).—Nurse, aged 23, admitted Feb. 23, 1914, after being sick two days. On admission, temperature 100, pulse 120. Distinct membrane over both tonsils, most extensive over right, dirty gray in appearance. Antitoxin, total, 10,000 units. Locally, Seiler's solution as a gargle four times a day. Cultures positive up to March 9, except one negative, March 5; following this, March 12, 15, 18, 21, 24, 27 and 30, and April 2, positive; 4, negative; 5, throat and nose negative. Total days at hospital, 42.

CASE 4.—*Patient* (No. 66830).—Boy, aged 16, admitted March 1, 1914, after being sick three days. On admission, temperature 98.6, pulse 120. Distinct membrane over both tonsils. Antitoxin, total, 9,000 units: 3,000 before, 3,000, 3,000 after. Lactic-acid spray, nose and throat, three times a day. Spray discontinued March 19. Cultures: March 1, 10, 11, 12, 13, 15, 16 and 18, positive; 20, negative; 21, throat and nose

positive; 22, negative; 23, throat negative, nose positive; 24, positive; 27, negative; 28, throat negative, nose positive; 30, negative; 31, throat and nose negative. Total days in hospital, 31.

Control (Patient 66824).—Nurse, aged 24, admitted Feb. 28, 1914, after being sick two days. On admission, temperature 101, pulse 115. Distinct membrane over both tonsils, extensive with more edema. Antitoxin, total, 11,000 units: 3,000, 2,000, 3,000, 3,000. Locally, Seiler's solution as a gargle four times a day. Cultures: February 28 and March 8, positive; 10, negative; 11, throat and nose negative. Total days at hospital, 12.

CASE 5.—*Patient* (No. 66497).—Nurse, aged 25, admitted Feb. 13, 1914, after being sick two days. On admission, temperature 102, pulse 110. Dense membrane over both tonsils and pharynx. Antitoxin, total, 5,000 units, single injection. Sour-milk gargle and nasal douche four times a day. Cultures: February 13, 22, 24, 25, 26 and 27, positive; 28, negative; March 29, throat and nose negative. Total days at hospital, 17.

Control (Patient 66553).—Boy, aged 7, admitted Feb. 16, 1914, after being sick two days. On admission, temperature 100, pulse 102. Distinct membrane over both tonsils and pharynx. Antitoxin, total, 5,000 units, single injection. Locally, Seiler's solution as a gargle four times a day. Cultures: February 16, 19 and 22, positive; 24, negative; 25, throat and nose negative. Total days at hospital, 10.

CASE 6.—*Patient* (No. 66776).—Nurse, adult woman, admitted Feb. 24, 1914, after being sick one day. On admission, temperature 101, rising to 102.8 at 8 p. m.; 99.8 February 26, and normal, February 28. Distinct membrane over both tonsils. Antitoxin, total, 5,000 units, single injection. Sour-milk gargle and nasal douche four times a day, continued until March 12. Cultures: February 25 and March 1, positive; 6, negative; 8, throat and nose positive; 10, positive; 11, negative; 12, throat and nose negative. Total days at hospital, 15.

Control (Patient 66770).—Man, aged 20, admitted Feb. 2, 1914, after being sick one day. On admission, temperature 101, pulse 96. Distinct membrane over both tonsils. Antitoxin, total, 3,000 units, single injection. Locally, Seiler's solution as a gargle four times a day. Cultures: February 25, positive; March 4, negative; 5, throat and nose negative. Total days at hospital, 9.

CONCLUSIONS

The average quarantine period of the six cases reported in which the lactic acid bacillus was used twenty days.

The average quarantine period of the six controlled cases treated locally only with Seiler's solution as gargle is sixteen days.

The average quarantine period of fifty-seven cases admitted to the hospital during January, February and March, 1914, comprising all cases discharged with the required cultures, is twenty-one days.

Lactic acid bacilli in our experience hasten the disappearance of diphtheritic membrane, but will not produce cultures negative to the bacillus.

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Longevity in Indiana.—In the *Indianapolis Star*, May 1 Dr. William B. Clarke gives a long list of names of men and women who surpassed the age of 90, of whom forty-nine reached 100 or more. Of these, one lived to be 120, one was 119, another 115 and still another 114. Six died within a few weeks or months of the century mark. Eight centenarians died in 1912. Fifteen physicians reached ages between 90 and 100, five of whom are still living. One physician, Dr. Pierre Beaugrande, of Mishawaka, reached the century mark dying April 10, 1914. The next oldest was Dr. W. J. Wishard of Indianapolis, who died Dec. 9, 1913, at the age of 97 and some months.

THE USE OF HERUDIN IN THE TRANSFUSION OF BLOOD*

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AND

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The present communication is the last of three reports on experimental work undertaken to develop a more widely useful method of blood transfusion than those already existent. This work was inspired by the recent advances in the study of blood coagulation by W. H. Howell and other investigators of the Baltimore school, which suggested that the practical difficulties of developing a safe and easy transfusion method might be met on a more rational basis in the light of better knowledge; and that the newer laboratory methods of estimating the various factors of coagulation would be a help in forming a more precise judgment as to the efficacy or non-efficacy of measures calculated to prevent harmful changes in transfused blood.

The first part of our experimental work was concerned with influencing the initiative changes of coagulation through preventing or hindering thromboplastin formation by the use of paraffin and a suitable instrumental technic.¹

The second part of this work resulted in the further development of a practical form of apparatus adapted to paraffin and herudin methods, and especially designed to enable a single operator to perform a transfusion, if necessary, without trained assistance.²

The third part of our investigations, concerning herudin, has been in progress along with the work already reported, but we have thought best to reserve the publication of this work until satisfied that the results warranted practical application.

Oxalated, citrated and fluorided plasmas are well known in the physiologic laboratories, and sodium citrate is reported to have been used as an anticoagulant for small quantities of transfused blood. Oxalate and citrate solutions act by fixing the calcium of the blood, which is a necessary factor in spontaneous coagulation. This decalcification is, of course, a change produced by a chemical reaction in the blood, and is theoretically, at least, undesirable. The use of herudin as an anticoagulant is not open to this objection.

Herudin is the active principle of a secretion derived from the buccal glands of the pond-leech, *Sanguisuga medicinalis*, and has been classed by Franz as a secondary albumose. Its physiologic properties are variously regarded by different investigators. Morawitz believes that it acts by neutralizing thrombin and prothrombin (thrombogen). Shittenhelm and Bodong believe that it neutralizes neither of these factors but reacts with some, as yet unknown

substance, which is derived from the plasma. Melanby concludes, from what appears to be substantial experimental evidence, that herudin contains an antibody for prothrombin and also a very energetic antibody for thromboplastin (kinase).

It may be concluded fairly from the available evidence that herudin has a decided effect on the prothrombin-antithrombin balance and that it has a neutralizing action on thromboplastin. This action is best illustrated diagrammatically.

The scheme of representation is based on Howell's theory of the mechanism of coagulation, and provides, we believe, an adequate explanation of the phenomena which have been observed. According to this theory the potential factors of coagulation may be expressed as shown in the diagram of the circulating blood (Fig. 1 A). The fibrinogen and calcium occupy a neutral position but have a potential affinity for prothrombin. The antithrombin and prothrombin have an affinity for each other and are loosely combined. This combination constitutes a balance, the so-called antithrombin-prothrombin balance, which, in normal circulating blood, is not quite equal, because there is a slight

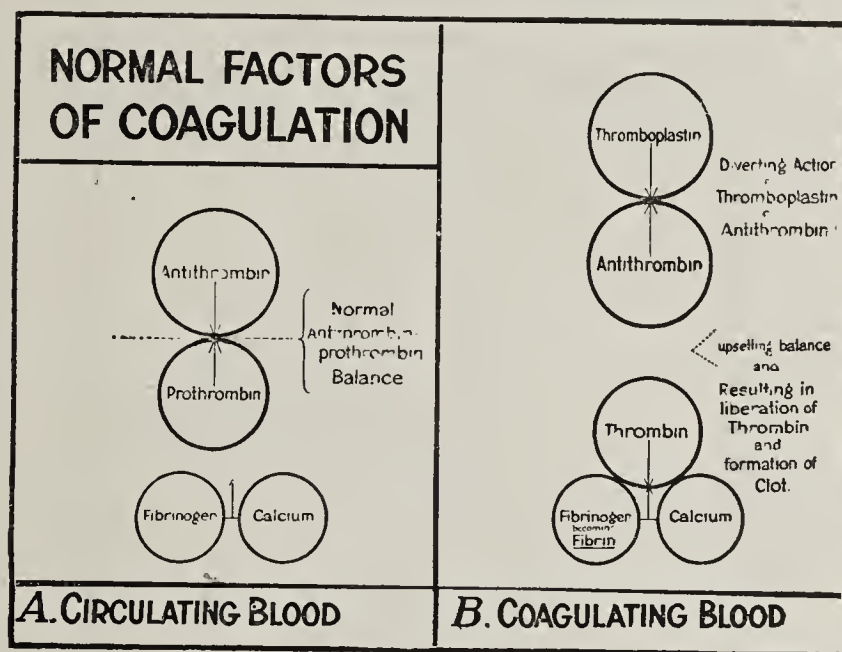


Figure 1.

preponderance of the antithrombin. If anything happens to upset this balance, so that the antithrombin side is weakened, then some of the prothrombin is released, and, in the presence of free calcium, becomes thrombin; and this thrombin reacts with fibrinogen to form a clot.

This action is seen in Figure 1 B. Here the coagulative process is initiated by the advent of another element, thromboplastin, which, having a very marked affinity for antithrombin, diverts it from its prothrombin attachment, and clotting ensues in the manner indicated.

In Figure 2 it will be seen that the action of herudin is to intervene and bind the thromboplastin, thus preventing the deviation of antithrombin from its prothrombin attachment.

There is considerable literature on the experimental use of herudin and there are some reports on its therapeutic use by intravenous injection for eclampsia, but no mention of its use as an anticoagulant for transfusing human blood.

From our experimental work it has become evident that herudin affords a convenient alternative for the paraffin method of transfusion under most circum-

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* The spelling used in this article for the name of the active principle of the secretion derived from the buccal glands of the pond-leech is that given to it by the discoverer, Friedrich Franz.—ED.

* Because of lack of space, this article is here abbreviated by omission of the bibliography. This, however, will appear in the author's reprints, a copy of which will be sent by the authors on receipt of a stamped, addressed envelope.

1. Satterlee, H. S., and Hooker, R. S.: Experiments to Develop a More Widely Useful Method of Blood-Transfusion, Arch. Int. Med., January, 1914, p. 51.

2. Satterlee and Hooker: The Further Development of an Apparatus for the Transfusion of Blood, Surg., Gynec. and Obst., 1914 [not yet published].

stances. The amount of herudin necessary, with our apparatus, is so small that its use may not be contraindicated even in those pathologic conditions in which there is already an excess of antithrombin or a deficiency of prothrombin in the circulating blood of the recipient.

Sievert has published a series of experiments which indicate that intravenous injections of herudin in rabbits are toxic in very large doses, that is from 25 to 50 mg. per kilogram of body-weight, the toxicity showing itself by changes in respiration and temperature, apathy, somnolence and albuminuria. Sievert states that the higher dosage, if quickly repeated, may result fatally, and that necropsy reveals hyperemia and petechial hemorrhages of the kidney and spleen but no other lesions. Other observers have found comparatively little or no ill effect from the intravenous use of large doses of herudin. Kaposi has given 40 mg. of herudin in normal salt solution by intravenous injection to a 2-kg. rabbit without harming the animal, and designates this proportion, 20 mg. per kilogram of body-weight, as the normal dose for

intravenous injection to a patient with very severe eclampsia, with most excellent results; and Engelmann has reported fourteen cases of eclampsia treated in this way with doses of from 200 to 300 mg.

Rimann and Wolf, in a series of eight experiments on the circulating blood of rabbits, have found that 20 mg. of herudin per hundred gm. of blood (normal dose of Kaposi) renders the blood uncoagulable for four and a half hours, and that 10 mg. per hundred gm. of blood results in a shortening of the period of incoagulability to from one and a half to one and three-fourths hours. In these experiments the herudin was injected intravenously and the amount of circulating blood was calculated as one-tenth of the body-weight. The evidence of a coagulative tendency in the circulating blood following the injection was obtained by introducing a thread of catgut within the blood-current, according to the method of Trendelenburg. This catgut was withdrawn at varying intervals and the earliest appearance of fibrin formation was noted.

EXPERIMENTAL BASIS OF THE METHOD

Our first aim in experimenting with herudin was to determine the minimal amount of this substance which, when used in conjunction with the best available technic, would serve to prevent coagulative changes for a sufficient length of time to insure a safe transfer of blood from donor to recipient. The first experiment of this series was designed to show the amount of herudin necessary to defer coagulation from one-half to three-quarters of an hour when mixed with blood which was withdrawn directly from the vein so that there was the least possible chance of contamination with traumatized tissue. In this experiment no paraffin was employed, the blood being taken from a vein in 1-c.c. glass pipets and transferred immediately to six glass tubes containing varying amounts of herudin in 0.9 per cent. sodium chloride solution.

From this experiment it was estimated that about 3.5 mg. of herudin to 100 c.c. of blood would be requisite for purposes of transfusion without the aid of paraffin, provided good technic was employed in obtaining the blood free from admixture of tissue juices.

This, in actual trial with our regular apparatus, was found to be the case; but the time of onset of coagulation varied within fairly wide limits—from seven to fifteen minutes.

When a paraffin coating was applied to the tip and the neck of our transfusion pipet it was found that the amount of herudin could be reduced by half, or to 1.5 to 1.8 mg. per hundred c.c. of blood, and that under these conditions there was also a twofold lengthening of the time of onset of coagulation. This meant a fourfold increase of efficiency of the herudin in the presence of a paraffin lining of the tip of the transfusion pipet.

As compared with a 30-c.c. piston-syringe with cannula 1 mm. in diameter and 30 mm. in length, 4.0 mg. per hundred c.c. of blood gave a clotting-time of ten minutes and thirty seconds for the syringe method, whereas 1.5 mg. per hundred c.c. of blood gave a clotting-time of thirty minutes for the paraffin-sealed pipet; and this, by a simple computation, shows a relative efficiency of approximately 1:8 in favor of the pipet.

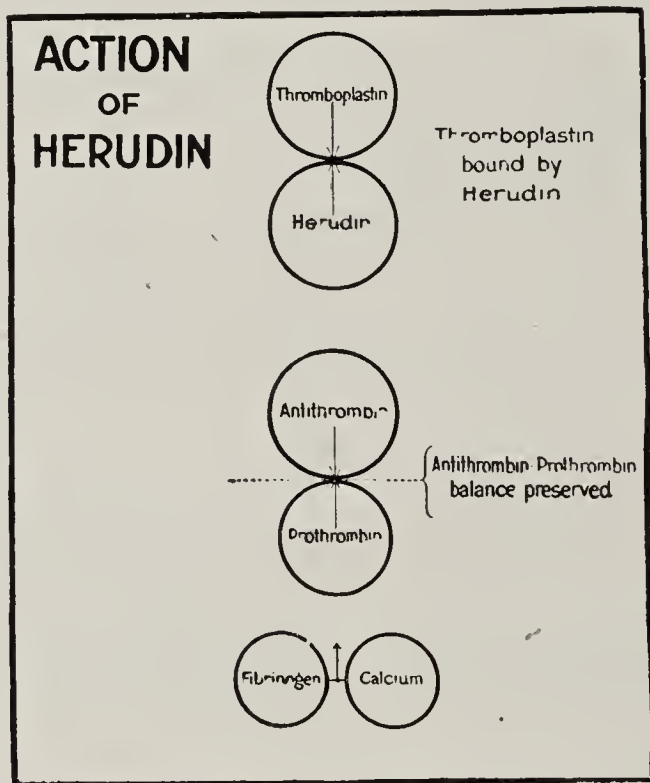


Figure 2.

experimental work. Rimann and Wolf, using this dosage, particularly state that no disturbance of health was noted as a result. Cowie has given thirty-five intravenous injections of herudin to a rabbit in doses increasing from 10 mg. to 22 mg. in twenty-six days, and maintained the last-mentioned dosage until the final injection, the total period of treatment covering fifty-four days. At the end of this time the animal had gained in weight and was in every respect perfectly well. Bodong has given from 23 to 73.25 mg. per kilogram of body-weight to rabbits, and states that it has no influence on the circulation or the respiration and is in no other way harmful to the animal. Von Herten and Ohman have confirmed Bodong's observation in a series of twelve experiments and concluded that herudin has no disturbing effect on the heart and blood-vessels. Abel, Rowntree and Turner have used very large quantities of herudin in "vividiffusion" experiments on dogs without apparently impairing the normal physiologic condition of the surviving animals. Dienst reports that he has given 200 mg. in 50 c.c. of salt solution by

To demonstrate the effect of herudin as applied to our method of transfusion, we have appended a table including all of our experimental and clinical transfusions with herudin in which no special factors were introduced (as varying pressures in delivery of blood, etc.), which would influence the onset of coagulation in the blood which was reserved in the pipet for observation. Experimental Transfusions 5 and 6, in which no paraffin was used as a lining for the tip of the pipet, are included in this table for the special purpose of comparison with our preferred method, in which the tip of the pipet is paraffin-sealed and lined.

EXPERIMENTAL AND CLINICAL TRANSFUSION WITH HERUDIN

| Case and Experiment No. | Amt. of Blood Transfused c.c. | Amount of Herudin Used mg. | Dilution of Herudin with NaCl Sol. | Time of Onset of Coagulation, Minutes | Time of Complete Coagulation, Minutes |
|---------------------------|----------------------------------|-------------------------------|------------------------------------|--|--|
| *Exp. Transfusion 5..... | 160 | 3 | 1/1,000 | † | 12 |
| *Exp. Transfusion 6..... | 150 | 3 | 1/1,000 | † | 13 |
| Exp. Transfusion 2..... | 100 | 5 | 1/1,000 | 40 | † |
| Exp. Transfusion 7..... | 150 | 3 | 1/1,000 | 22 | † |
| Exp. Transfusion 11..... | 200 | 3 | 1/500 | 29½ | 33 |
| Clin. Case 1: | | | | | |
| Cylinder A | 200 | 3 | 1/500 | 20 | † |
| Cylinder B | 200 | 3 | 1/500 | 16 | † |
| Clin. Case 2: | | | | | |
| Cylinder A | 220 | 3.4 | 1/450 | 35 | † |
| Cylinder B | 220 | 3.4 | 1/450 | 30 | † |
| Exp. Transfusion 15 | 160 | 3 | 1/500 | 21½ | † |
| Exp. Transfusion 17 | 150 | 3 | 1/500 | 28½ | 35 |
| Exp. Transfusion 18..... | 220 | 3 | 1/500 | 35 | 38‡ |
| Exp. Transfusion 19 | 220 | 3 | 1/500 | 30 | 38 |

* In these experiments the tip of the pipet was not lined with paraffin.
† Not observed.
‡ No clot at 38.

PRACTICAL APPLICATION OF THE METHOD

In making use of herudin for transfusion we have employed our regular pipets and cannulas, but we have dispensed with the paraffin coating of the cylinders. We have prepared the pipets by introducing from 3 to 5 c.c. of a 1:500 solution of herudin in salt solution, flowing this liquid very thoroughly over the interior of the cylinder and draining away the excess through the tip of the pipet just previous to use. From 1.5 to 2 c.c. of this solution, or approximately 3 mg. of herudin, are retained by adherence to the walls of the pipet, and for more than twenty minutes this is sufficient to prevent 220 c.c. of blood, drawn into the pipet, from clotting.

With the exceptions already noted, the operation with herudin is conducted in precisely the same way as with the paraffin-coated apparatus. The preparation of the pipets is the same, except that the first coating of the cylinders with paraffin is omitted. A partial coating with paraffin, however, is advisable. This coating should be done by aspirating the sterile, melted paraffin mixture just within the neck of the cylinder and expelling it again. This use of paraffin, from the tip to the neck, is primarily to insure an airtight junction of the pipet tip with the metal bushing, and of the latter with the neck of the cylinder, but it also has a demonstrable effect in lessening thromboplastin formation during the aspiration of blood, and permits the employment of a minimal quantity of herudin. The herudin method may be employed without any paraffin whatever by using a 1:300 solution of herudin for coating and with care that the interior of the pipet tip is perfectly smooth and brightly pol-

ished, and that all connections are tight against air-leakage; but these contingencies are so surely and easily provided for by aspirating a little sterile paraffin just above the neck of the pipet, that the latter method is to be preferred. Any small receptacle with a cover and alcohol heating device will answer the purpose for sterilizing and holding the paraffin. The hardened paraffin may thus be carried with the apparatus, and the sealing process may be done at the time of operation, allowing ten or fifteen minutes for the pipet to cool, before coating with herudin solution.

It would, no doubt, be possible to obtain a more accurate estimate of the coagulation factors in transfused blood, and also of the inhibiting effect of herudin, by quantitative determinations of thrombin and of thromboplastin in specimens of such blood under varying conditions. We believe, however, that the simple observation of onset of coagulation together with the amounts of blood and of herudin, as recorded in the table, justify our conclusions. We hope at some future time to follow our present work with a more complete investigation of the subject with the aid of more precise laboratory methods.

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ARTHROPLASTY FOR INTRA-ARTICULAR BONY AND FIBROUS ANKYLOSIS OF TEMPOROMANDIBULAR ARTICULATION

REPORT OF NINE CASES *

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Arthroplasty, or the technic for the formation of new joints, may be divided into seven different stages in its evolution, and each stage has been initiated or created by the work of a single individual and then his succeeding school. These stages are:

1. The formation of fibrous or flail joints, as of the shoulder and elbow (Langenbeck, Ollier, Julius Wolff and others). These were desired sequences following resections for diseased joints, as tuberculosis, syphilis, pus infections, etc.
2. The restoration of mobility in a bony ankylosed joint by the interposition of muscle and fibrous tissue between the separated ends at the ankylosed joint, as in the mandible (Helferich, 1893, who was the father of this method).
3. Pseudo-arthritis developing after osteotomies in the neighborhood of joints (Lorenz), as in hip ankylosis.
4. The transplantation of pedicled flaps of fascia and fat and capsule, with the production of a movable, sliding joint and a hygroma (Murphy, 1902), in the mandible, hip, knee, elbow, shoulder and wrist.
5. The homotransplantation of the articular ends and surfaces of bone (Lexer, 1906), particularly in the knee.
6. The transplantation of free fat and fascia (Lexer).
7. The interposition of foreign material to make the joint, from Péan's metallic joint down to Kraske, Baumgarten, Roser and Baer's heterovisceral implantations.

* Read before the meeting of the American Surgical Association, New York, April 9-11, 1914.

The fourth stage, or the transplantation of pedicled flaps of fascia with fat and capsule, is the one now in vogue. It is to be hoped that the free fascia and fat transplantation of Lexer will with future experience sustain the good results which its originator predicts for it, as there are many cases in which a pedicled fat and fascia flap is not available, on account of the anatomic conditions and particularly the pathologic sequences preceding or associated with the development of the ankylosis.

Heteroplasties and the insertion of foreign material are doomed to disappear from this field of work, as foreign absorbable material, if aseptic, must eventually be supplanted by connective tissue; and while a flexible joint may be present, a movable sliding joint cannot result from such interposition. Non-absorbable metal materials can be serviceable only under a few very favorable conditions.

So much for the general subject of new joint formation or arthroplasty. Concerning arthroplasty of the jaw, I would say that ankyloses of the jaw may be

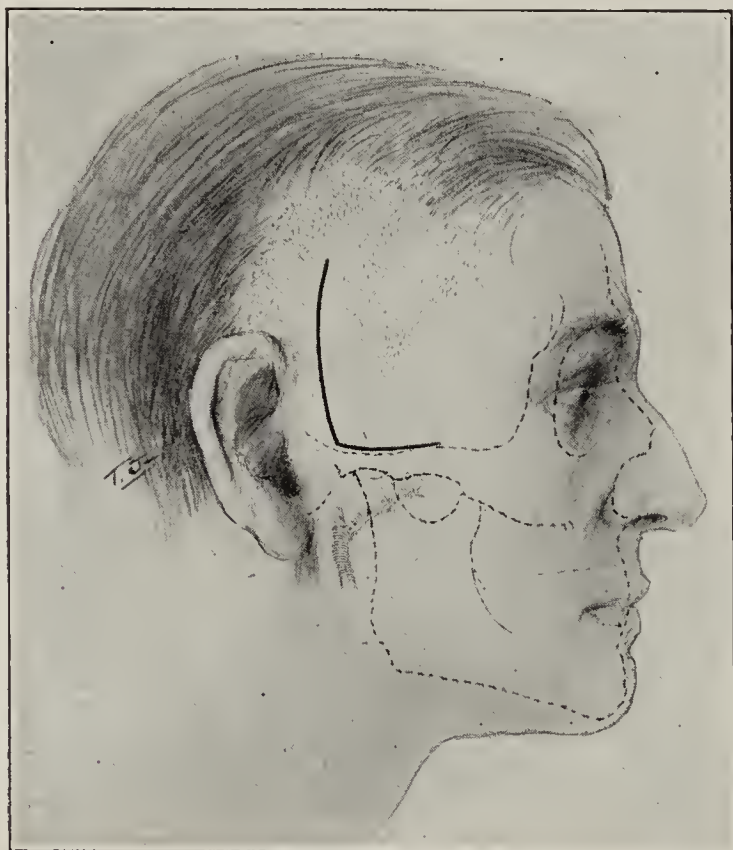


Fig. 1.—The line of incision and the bony outlines at the point of ankylosis.

divided into (1) the intra-articular fibrous and osseous and (2) the extra-articular cicatricial varieties. The latter may also be termed the interalveolar or cheek cicatricial fixation, the result of sloughing in the mouth and infections of the subzygomatic zone.

ROUTES OF INVASION OF THE JOINT

The most common type of ankylosis is the bony. It may be due to:

1. An extension of a suppuration from the middle ear (Case 1).
2. A mandibular osteitis extending to the glenoid cavity.
3. A metastasis from foci of infection elsewhere in the body (Case 9), or it may be part of a general metastatic arthritis (Case 7).
4. It may be the result of a transmitted trauma from the chin (Case 4).

The ankylosis may involve the head of the mandible only, or it may extend across to the coronoid process,

so that the lower maxilla is firmly welded to the temporal bone and the base of the zygoma by the new bone formation. It is common to have it include the anterior root of the zygoma.

In most cases the cause of the ankylosis is a middle-ear suppuration. If one follows the anatomic course of these suppurations, it is obvious how the mandibular articulation becomes involved. Infections of the middle ear penetrate in five different directions:

1. The infection may pass backward into the mastoid.
2. It may pass through the posterior wall of the petrous bone into the posterior cerebral fossa.
3. It may penetrate the attic of the ear, form an abscess within the middle cerebral fossa and rupture externally just above the tip of the ear.
4. The abscess may burrow forward and rupture into the glenoid cavity or pass over the base of the zygomatic process into the mandibular articulation.
5. The abscess may burrow forward into the subzygomatic temporal muscle zone and produce a great phlegmonous myositis with subsequent cicatricial contraction.

In the case of para-articular fixation, due to the formation of cicatrices, the condition is usually caused by a sloughing of the mucous lining of the cheek, such as follows typhoid fever, scarlet fever or measles (noma), infections of the alveolar processes, subzygomatic infection from penetrations through the mouth or cheek, from infections of the scalp or cranium by producing destruction of the fascia and temporal muscle which may contract in the process of repair and so cicatrize as to fix the jaw absolutely on that side.¹

DIFFERENTIAL DIAGNOSIS

The differential diagnosis as to which side is involved is often extremely difficult. When the ankylosis is bony, there is complete fixation of the jaw. When the ankylosis is fibrous, there is some motion in the jaw, depending on the degree of joint involvement (Case 3). In the para-articular ankyloses, there is always some motion in the jaw. In the intra-articular ankyloses, there is sometimes a little lateral motion on the unaffected side, from 1/60 to 1/100 inch on forced effort at opening the mouth, a point in diagnosis which is well worth remembering.

I have learned by clinical observation and experience that a diagnosis of the side involved can be made accurately (when only one side is affected and if the condition occurred early in life) by noting the deviation and contrast formation of the two sides of the face. The face on the side of the ankylosis is full and round and apparently normal in appearance. On the opposite or unaffected side it is flattened and deformed. The chin is always more or less retracted and deviates toward the ankylosed side. If the ankylosis occurs after the patient has attained full growth, this deviation is only slight in degree; but if it occurs in infants or children, the deviation and retraction are marked, increasing in degree as the patient grows older. The earlier the ankylosis has occurred in life, the greater the deformity of the face (Case 1). The fixation of the joint interferes with the proper development of the jaw. The epiphysis of the condyle is the means through which the ramus grows in length.

1. Murphy, John B.: Use of Palate Mucous Membrane Flaps in Ankylosis of the Jaw Due to Cicatricial Formations in the Cheek, *THE JOURNAL A. M. A.*, July 26, 1913, p. 245.

This growth is arrested by the ossification across the epiphyseal line before the normal time for ossification, which is the fifteenth year. All of the other five centers of ossification are united by bony formation before birth. The absence of use of the jaw undoubtedly is a contributing factor to its aplastic condition. When the ankylosis is a recent one there is not much deformity (Case 4).

PHYSICAL FINDINGS

The physical findings in these cases are the following:

1. There is flattening of the jaw on the unaffected side, most pronounced near the tip of the chin.
2. When the patient attempts to open his mouth, the teeth move from 1/60 to 1/100 inch downward and deviate a little in the direction of the ankylosed side, because of a slight sliding forward of the mandibular articulation on the unaffected side as the muscles of the neck are put on tension in the effort made to open the mouth.
3. A sliding motion on the unaffected side can be felt by the palpating fingers, and the muscular activity on that side is very much greater on attempted opening of the mouth than on the ankylosed side.
4. The muscles on the ankylosed side are more atrophied than those on the unaffected side.

In only one case (Case 1) of this series of nine intra-articular ankyloses of the temporomandibular articulation was there failure to diagnose the side affected, and in that case I was entirely misled by the history given us. All the data, including the mother's information, pointed to the left side as the one involved in the original lesion (a middle-ear abscess which had been opened and drained), when, as a matter of fact, the ankylosis was on the right side, and therefore the history could not have been correct. That case taught me to base the diagnosis on the points mentioned above rather than on the history.

TECHNIC OF OPERATION

In all of these cases of ankylosis of the jaw of the intra-articular type I have performed a typical and uniform arthroplasty, and the results which we have obtained have justified me in advocating this exact technic for these cases. The technic of this operation is not difficult, but it must be exact in its details in order to secure good results. I have employed the pedicled flap as the interposing material. It consists of fat and the aponeurosis of the temporal muscle, and sometimes includes a few muscle fibers.

In my earlier operations I fixed the tip of the flap to the connective tissue and internal portion of the capsule. Later I abandoned this procedure, and now I fix the flap at the basal angles only; by this method there is not that danger of injuring the internal maxillary artery, an accident which I encountered in one of my early cases. This flap is of the same shape and material as that used in my operations in 1902, but at that time I brought the flap under the zygoma down into the joint, while now I turn it over the zygoma into the joint.

At first I exposed the joint by a perpendicular incision just in front of the ear, extending from 1½ inches above the zygoma in the hair-line downward to the lower border of the zygoma. Later, I modified this incision, curving it slightly forward on the temple at its upper extremity. And then I adopted an L-shaped

incision (the one I make now); the perpendicular portion comes down to the upper border of the zygoma and then extends forward along its upper margin for a half to three-quarters of an inch, making the longitudinal portion (Fig. 1). That is a very satisfactory incision, one which leaves a very slight scar, most of it being hidden in the hair. It gives better access to the joint than does the perpendicular incision, because in some of my cases of bony ankylosis, the ankylosis extended forward on the zygoma from the glenoid to the coronoid process. The perpendicular incision is made for the purpose of securing the fat and fascia of the temporal muscle.

I have divided the ankylosis by means of chisels, Gigli saw or with an olive-tipped dental burr driven by an electric motor. The latter is much more rapid, but,

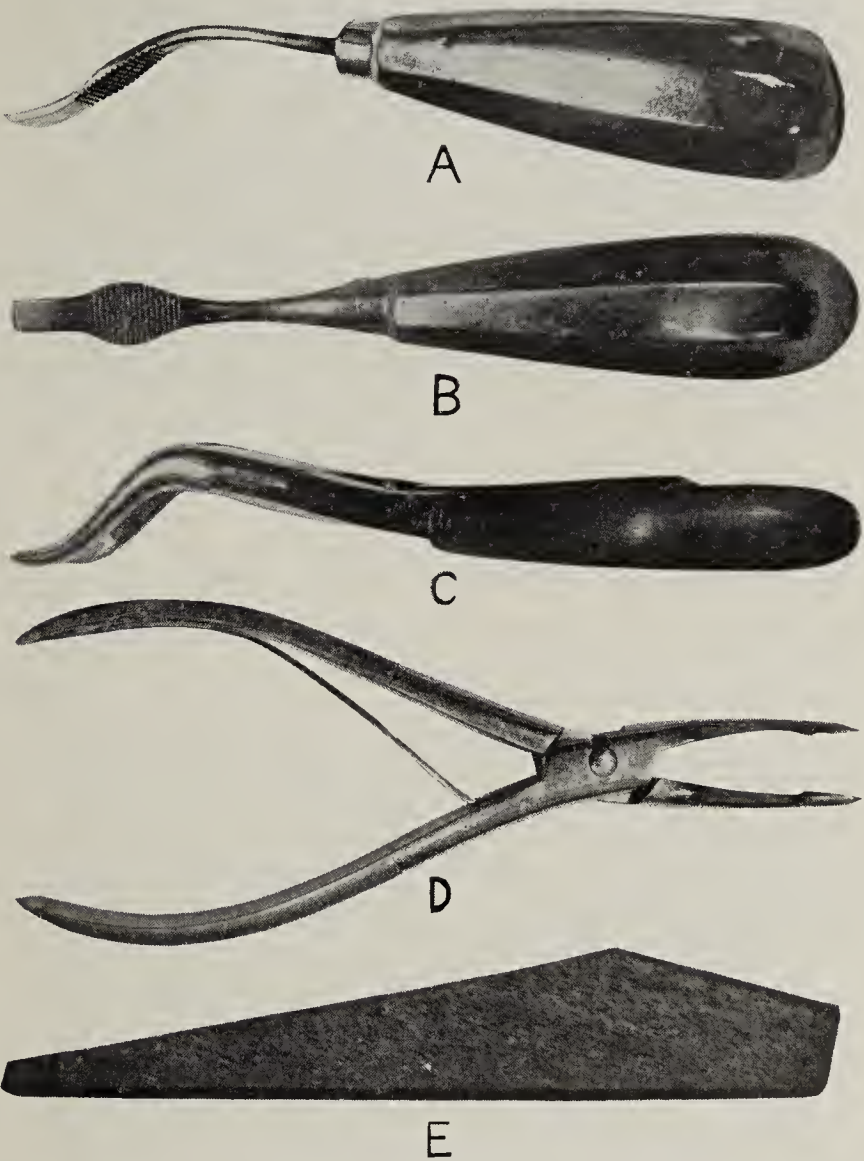


Fig. 2.—A, B, Dr. Murphy's periosteotome, side and back view (somewhat reduced); C, D, bone-cutting forceps or nippers, side and front view (somewhat reduced); E, the interdental block designed by Dr. Murphy to maintain the desired spread of the jaws. It is made of wood and since it is wedge-shaped, the degree of opening can easily be regulated by withdrawing or pushing in the block.

on the whole, is not so satisfactory, I believe, as the chisel. It is needless to point out that the greatest caution is required in the use of the chisel, or the burr for that matter, because of the close proximity of the brain, which is separated from the head of the mandible by a very thin transparent plate of bone only.

DETAILS OF THE OPERATION

After the incision has been made, as described above, the edges of the wound are retracted, the lower lip being displaced downward over the lower border of the zygoma, in order to give a good exposure of the joint. Then the tissues are separated with a special curved periosteotome (Fig. 2, A and B) all around

the anterior surface of the line of union and further separated with a similar instrument around the posterior surface. When the bone is laid bare, the two instruments are passed behind the neck of the bone, one from each side, so that when they are in place

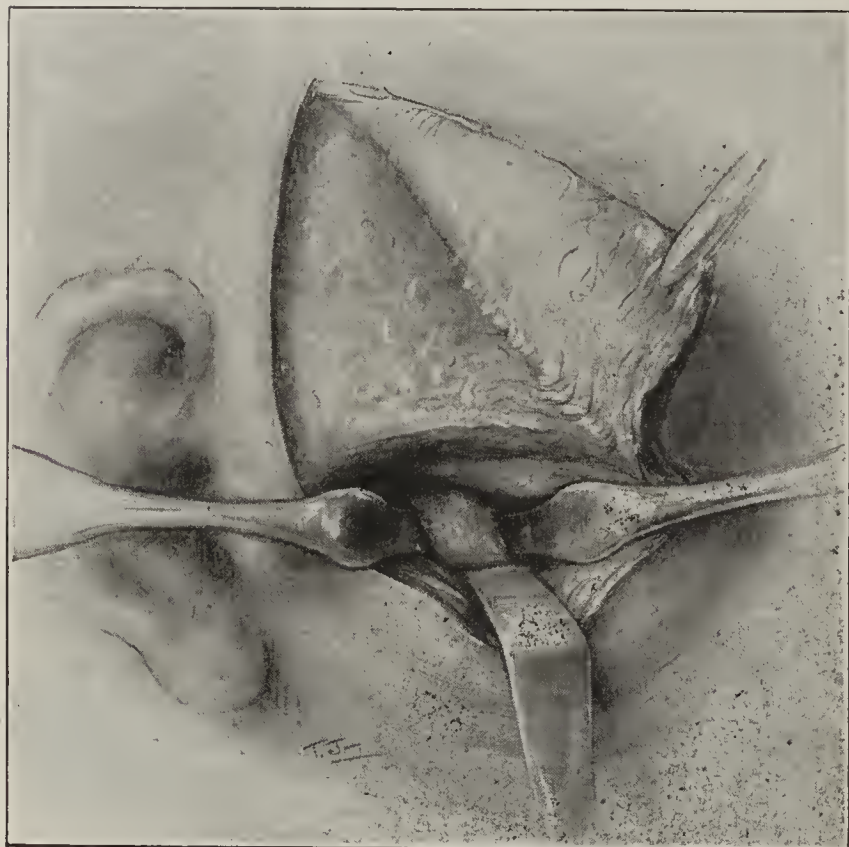


Fig. 3.—The curved periosteotomes encircling the condyle and neck of the mandible.

they completely encircle the neck of the mandible behind close to the head, holding the soft parts retracted during the excision of the bone, so that the articulation is fully exposed (Fig. 3). The insertion of these instruments and their retention in position during the excision of the bone form the key to the success and safety of the operation. Injury to the internal maxillary artery, which closely hugs the neck of the mandible, is thus avoided. These periosteotomes also act as retractors, keeping the field open for inspection during all of the work. The chisel or burr then divides the bone on the level of the tubercle, without endeavoring to remove the articular surface of the head of the bone, as there is danger of penetrating the base of the skull when an effort is made to excavate all of the head. If bony ankylosis is present, $\frac{1}{3}$ inch of the neck is excised, so that one can put the tip of the finger between the divided fragments across the space over the inner margin of the neck at the base of the zygoma. This must be done carefully, and ample bone must be removed, so as to admit of the insertion of the interposing flap of fat and fascia. The periosteum should be left attached to the bone that is removed. The deeper fragments of the bone can be taken out with a small rongeur (Fig. 2, C and D). If one desires, as soon as the periosteotomes have been passed behind the neck of the bone, a small and full-curved aneurysm needle may be used to carry a silk thread around the neck of the mandible. This thread acts as the carrier for the Gigli saw (Fig. 4), which is used to divide the bone; this method is rapid and effective. The difficulty of inserting the saw is slight, but the acute angulation of the instrument, which necessarily occurs, occasionally causes it to break, giving one some inconvenience in replacing it. On the whole, I do not see that it is handled as easily

as the chisel. As soon as the bone is completely divided, the mouth can be opened readily by the anesthetist (Fig. 5).

The interposing fat and fascia flap should now be prepared. The perpendicular incision is elongated up on the temple, say for a distance of $1\frac{1}{2}$ inches. Then a U-shaped flap of fat and fascia is elevated from over the temporal muscle, about $\frac{3}{4}$ inch wide and $1\frac{1}{2}$ inches long, leaving the base attached to the upper margin of the zygoma. This flap is freed from above downward, folded downward over the zygoma and packed into the bony gap previously described, from which a portion of the neck of the bone has been removed. The flap is packed into the cavity, and at its anterior and posterior basal angles it is securely tacked, with a few catgut sutures, to the fascia and periosteum, so as to retain it in position (Figs. 6 and 7). Then the skin wound is accurately closed with horsehair, dusted with bismuth subiodid and sealed with collodion gauze. No other dressing needs to be applied. The scar is scarcely perceptible and is almost entirely within the hair-line.

No special effort should be made at this time to spread the jaws, as it is important that the lower jaw should remain steadied on the well side in order that the wooden block (Fig. 2, E) inserted on diseased side may maintain the wide separation of the molar teeth, until the interposing flap has healed in. This block also prevents compression and necrosis of the flap.

Summarizing the whole technic, the steps of the operation are as follows: (1) the L-shaped incision; (2) division of the ankylosis and removal of a segment of the mandibular neck; (3) raising the flap of temporal fascia and fat; (4) interposing the flap and fixing it in place; (5) closure of the wound.



Fig. 4.—The Gigli saw used to divide the mandible.

RESULTS

The results which I have obtained in these cases have been satisfactory. The operation is one of the most gratifying in surgery, so far as results are concerned. There has been but one ultimate failure, and that I believe was due to one of three factors: (1) I

did not remove the periosteum with the bone; (2) there possibly was absorption of the interposing flap with ossification of the new-formed connective tissue, as occurs in detached trochanteric fascial flaps in arthroplasties on the knee and other joints, and (3) the parents did not carry out the instructions as to maintaining the wooden plug in position after the patient left the hospital.

In this case (Case 4), seen last nine months after the operation, there was limitation of motion, but not a bony ankylosis. The boy's parents did not attend to the blocking of the teeth since his discharge from the hospital two weeks after the operation, as they were instructed to do. He had good motion immediately after the operation. The immediate successes have been complete.

I have had nine cases of intra-articular ankylosis and two of extra-articular fibrous fixation. In the last-mentioned two cases, I employed the method

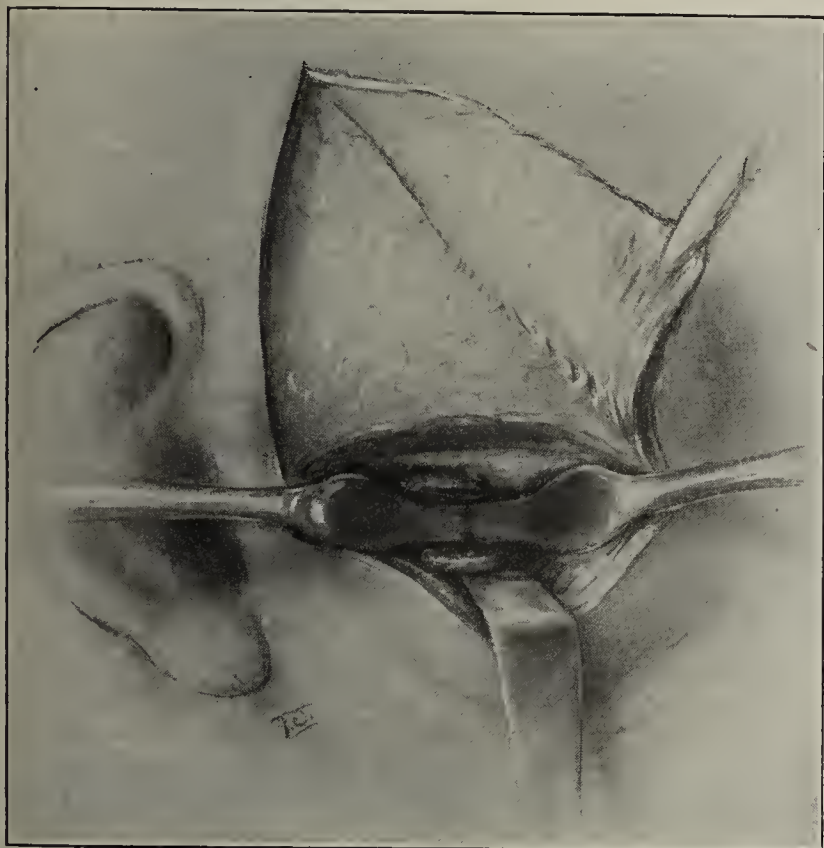


Fig. 5.—The gap left after the exsection, with the curved periosteotomes still *in situ*.

which I believe is original with me. It consisted in the utilization of mucous membrane pedicled flaps taken from the hard and soft palate as an interposing medium between the divided cicatricial connective-tissue masses for the purposes of preventing a recurrence of the fixation.

REPORTS OF CASES

CASE 1.—Ankylosis of Right Temporomaxillary Articulation.—F. D., boy, aged 15, was admitted to Mercy Hospital, Sept. 3, 1912, on account of absolute fixation and deformity of the lower jaw. The history given by his family was as follows:

When he was 6 months old a swelling developed rather suddenly in front of the tragus of the "left" ear. A few days afterward pus discharged from the ear through the external canal for four or five days and then the swelling disappeared. There was no swelling over the mastoid then nor has there been since. In fact, there has been no further trouble in that ear. His parents stated that he had no throat or skin trouble and that there was no noticeable deformity of the jaw then. Not until twelve months after the ear trouble did they note that his jaw was fixed. Since then he has been unable to open his mouth.

Examination.—The lower jaw is deformed. The normal angle is absent. The chin is narrow, pointed, recedes and is situated to the right of the median line. The molar teeth articulate normally, but the upper front teeth project beyond the lower about half an inch. The skin for a thumb's breadth to the left of the symphysis menti is contracted. This con-



Fig. 6.—The temporal fascia and fat flap freed and prepared for insertion.

traction extends into the tissues of the neck. The lower jaw is pressed firmly against the upper, so that the patient has no motion in any direction. There are no enlarged lymph-nodes perceptible in the neck. There is no discharge from either

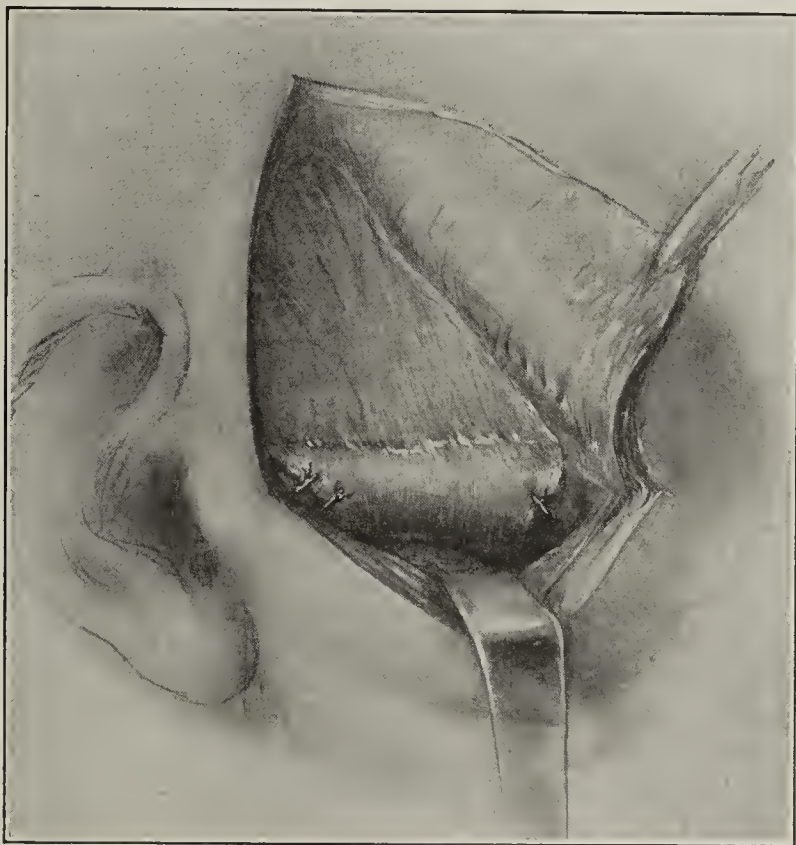


Fig. 7.—The temporal fascia and fat flap secured in its interposing position by sutures.

ear now and no signs of a recent or old mastoid trouble. There is also a marked retraction of the jaw, with a considerable flattening of the left side of the face (Figs. 8 and 9).

Operation.—As all the data which could be obtained in this case pointed to the left side as the seat of the trouble, it

was concluded to operate on that side. Sept. 7, 1912, a 2-inch perpendicular incision was made, extending along the front of the ear on the jaw, commencing an inch and a half above the zygoma and extending down to its lower margin. Most of the incision was in the hair-line, so that very little of the scar would be visible later. The tissues were divided close to the ear, retracted forward on the cheek and down below the zygoma out of the field of operation. The joint was exposed at once. There was no intra-articular ankylosis, but a capsular contraction was present, the result of the long fixation of the joint. The attachment of the temporal muscle to the mandible was freed, but the jaw remained fixed. A second incision was made just beneath the angle of the jaw parallel with the ramus, and through this the masseter was freed from its attachment, as well as the internal pterygoid. Still there was not a particle more motion in the jaw than before.

The roentgenograms in this case were very indefinite, as they usually are in these cases, and no assistance was received from them.

This being one of the early cases of ankylosis of the jaw, I had not yet learned to recognize from the facial deformity which side was involved. Later, I learned that the full side of the face was the one to attack and not the flattened side. The failure to get the jaw to drop after the division of these three muscles led me to the conclusion that a mistake might have been made by the parents and friends of the boy in giving us the history, and that it was the right and not the left



Fig. 8 (Case 1).—Marked flattening of left side of face and fullness of right side. Considerable deviation of chin to the right of the median line.



Fig. 9 (Case 1).—Great retraction of the skin; in fact, there is hardly any chin. This is characteristic in these cases, when the condition occurs early in life.



Fig. 10 (Case 1).—Six months after operation; patient's mouth wide open.

side which had been involved primarily when he had his ear trouble. Therefore I immediately exposed the right mandibular articulation.

An incision similar to that which was made on the left side was made in front of the right ear. The zygomatic attachments were divided at the ear and retracted onto the face out of the field, and when the joint was exposed, I found a bony ankylosis of the articulation, extending forward to the tubercle on the zygoma. It was one solid bony mass. This showed conclusively that the error had been made by the boy's parents in stating that it was the left side that had been involved in the middle-ear infection. My findings showed that it must have been the right side. This ankylosis was divided about a line below the anatomic articulation with a carpenter's narrow straight chisel, a portion of the condyle of the mandible was removed and the jaw immediately dropped down. There was free motion. A flap was then raised from the temporal muscle, consisting of fascia and fat. The tip of the flap was turned down into the joint and interposed between the temporal bone and the mandibular neck, so as to prevent the recurrence of the ankylosis. The flap was tacked in place at its tip to the internal capsule on the neck of the mandible with a few chromicized catgut sutures. The zygomatic attachments were replaced in their normal position and fixed. The deeper portion of the wound was closed with catgut and the skin incision with horsehair. The wound on the left side of the face was also closed with horsehair. Collodion gauze dressings were applied.

Result.—On the morning of the next day the patient was able to open his mouth voluntarily far enough to introduce two fingers. Further progress was uneventful. He had motion in his jaw, free and voluntary, and no pain. The stitches were removed on the sixteenth day. There was primary wound healing. The range of motion was increased rapidly by placing a wooden wedge between the teeth. Word was received from the boy six months later that he could hold an apple in his mouth (Fig. 10).

This case is interesting because of the fact that ossification occurs in certain white fibrous structures in the embryo, and these structures have a tendency to ossify in postnatal life, if subjected to infection or irritation.

The result in this case was encouraging in every way, and in none of the subsequent cases did I fail to make a correct diagnosis as to which side was involved.

CASE 2.—Ankylosis of Right Temporomandibular Articulation.—A. D. C., man, aged 24, was admitted to Mercy Hospital, April 9, 1913, on account of ankylosis in the lower jaw. Eighteen years ago he was kicked by a horse on the left side of the jaw just posterior to the mental angle, and sustained a compound fracture at this point. The wound suppurred and discharged pus for about two months, when a sequestrum

of bone or a tooth—he does not know which—was extruded from the wound, which then healed. Immediately after the accident the patient also had a discharge from the right ear which persisted for some time, he does not know just how long. He never had any pain in the ear before the discharge appeared or afterward. The fixation of his jaw was consequent to this ear discharge. In order that he might feed himself the upper right canine and bicuspid were removed (Fig. 11). The personal and family histories were otherwise negative.

Examination.—The lower jaw was fixed and immovable. The right side of the face was full and round (Fig. 12). The left side was slightly flattened from the angle of the jaw to the chin. The latter deviated to the right of the median line; the patient

also had a considerable retraction of the chin. The roentgenogram (Fig. 13) showed a complete obliteration of the right temporomandibular articulation. There was a bony ankylosis extending forward on the tubercle of the zygoma.

Operation.—April 17, 1913, the articulation was exposed by a 2-inch curvilinear incision beginning at the lower level of the tubercle of the zygoma half an inch in front of and on a line with the external auditory canal and extending upward into the hair in a curved direction. By retracting the wound edges and elevating the periosteum with a periosteotome, the site of the articulation was exposed. All anatomic landmarks were lost. An elevation that felt like the head of the mandible was visible and there was some fibrous tissue resembling the capsule of the articulation. There was no motion in the joint. The periosteum was very carefully removed from the head of the bone, and the ankylosis was divided with a narrow straight chisel. It extended forward to the tubercle, binding the mandible firmly to the zygoma. The head of the mandible was then removed with a bone-cutting forceps, leaving a space half an inch in width in which was placed the flap of fat and fascia deflected from the temporal muscle. The temporal flap measured 2 inches in length and an inch in width. It was raised from the temporal muscle and dropped down over the zygoma into the glenoid fossa, so as to cover the raw bony surfaces completely. The tip of the flap was fastened to the capsule on the internal surface of the mandible by

means of a few tacking catgut sutures. The basal angles were likewise fixed. The skin wound was closed in the usual manner.

The jaw moved quite freely after the operation. It was found that the opposite articulation was quite stiff, owing to a fibrous fixation, but nothing was done at this time to overcome it, as I preferred to keep it set until the wound healed and the vitality of the flap was assured. A week later the patient was again anesthetized and this fibrous fixation was overcome by forcibly prying open the mouth, care being taken not to injure the teeth or to fracture any of the bones. Success attended this effort.

Result.—The day following the operation, the patient had free voluntary motion in the jaw, which increased rapidly in range. The stitches were removed on the tenth day. There was primary wound healing. The mouth could be opened for 1 inch. When the patient left the hospital on the twenty-second day he could open his mouth for a distance of an inch and a half. A report received nine months after the operation states that the result is a most satisfactory one (Fig. 14).

There are several interesting points in connection with this case which bear emphasis. This man was kicked by a horse on the left side of his face and had a discharge from the right ear. He had no scar on the right side of the face. He evidently had a metastatic infection in the right temporomandibular articulation, and the abscess opened into the ear. He did not have an extension of the infection throughout the entire length of the chin, such as one encounters in mouth infections, typhoid infections or phosphorus necrosis, in which the whole lower jaw from symphysis up to the mandibular articulation may be involved, so that the head of the bone becomes necrotic and is exfoliated. In those cases the whole jaw may be removed as a sequestrum. There was no evidence that this patient had any such infection. We do know, however, that he had an injury of the left side of the jaw and that he had an infection in the right temporomandibular articulation. That is the condition which produced his ankylosis.

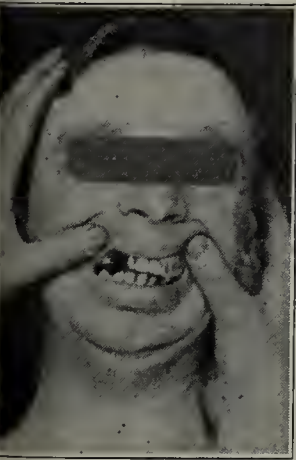


Fig. 11 (Case 2).—The lips are retracted to show the fixation of the jaw and the gap in the denture through which the patient fed himself for eighteen years.



Fig. 12 (Case 2).—Lateral view, showing the retraction of the chin. It is evident that that side of the face, the right, is not flattened. It was the right articulation that was ankylosed.



Fig. 14 (Case 2). — Eleven months after operation; patient able to open the mouth practically to the normal degree.

CASE 3.—Fibrous Ankylosis of Left Temporomandibular Articulation.—W. B., boy, aged 6, was admitted to Mercy Hospital, May 22, 1913, on account of inability to open his mouth more than half an inch. The boy was an eight months' child, born during a dry labor lasting twenty-four hours. It was early noticed that the child had difficulty in nursing but the reason for this was not discovered. When the boy was 18 months old, the mother noticed that the right side of the face was deformed, that is, it was flattened. The left side appeared to be full and round. About this time the

boy had pneumonia and when the attending physician attempted to introduce a spoon into the mouth for the purpose of examining the throat, he was unable to do so. When the boy was 3 years of age, his mouth was pried open and a cork was placed between the teeth. As soon as the cork was removed, however, the jaw immediately closed down to half an inch. The patient has never had any other illness than the pneumonia; no nose, throat or ear trouble, and no injury. He has been fed through a gap made in the upper and lower dentures by the extraction of a tooth in each.

Examination.—The physical deformity was striking (Fig. 15). The left side of the face was full and round.



Fig. 13 (Case 2).—Roentgenogram of right side of head made before operation, showing the complete obliteration of the temporomandibular articulation.

The right side was flattened over the body of the inferior maxilla. The mouth was slightly twisted; the chin was displaced to the left of the median line and receded. The patient could open his mouth for a distance of only half an inch (Fig. 16). There was a slight anteroposterior sliding motion in the right temporomaxillary articulation. There was no lateral motion whatever. The roentgenograms, one showing the mouth closed and the other open, were somewhat indistinct. The articulation was not clearly outlined, but the coronoid process seemed to change position when the mouth was open, so that I concluded that it was probably only a fibrous ankylosis of the left temporomandibular articulation, an opinion confirmed at operation.

Operation.—May 23, 1913, the articulation was exposed by means of the perpendicular incision made immediately in front of the ear, extending from a point half an inch below the zygoma, upward into the hair-line for a distance of 2 inches. By retracting the wound edges the articulation was easily exposed. On moving the jaw it was found that the coronoid process was free, but that there was a fibrous ankylosis between the head of the mandible and the fossa. By means of a scalpel

and a narrow quarter-inch straight carpenter's chisel the ankylosis was divided and about $\frac{1}{3}$ inch of the head of the bone was removed, so as to make room for the interposing flap, which was reflected from the temporal muscle aponeurosis in the usual manner. The flap was $1\frac{1}{2}$ inches in length and $\frac{3}{4}$ inch wide. It was dropped down over the zygoma into the joint, so as to cover the raw bony surface of the condyle. It was fixed in place by means of two tacking catgut sutures, one at each basal angle of the flap (Fig. 7). The skin wound was then closed in the usual manner.

Result.—On the morning of the following day the boy had free motion in the jaw in spite of the fact that there was a considerable edema of the left side of the face, especially of the field of operation. The stitches were removed on the ninth day. Primary wound healing occurred. The edema rapidly subsided and motion increased to such an extent that when the patient left the hospital, about three weeks after the operation, he could open his mouth easily a distance of an inch and a quarter (Fig. 17). A report received April 4, 1914, reads as follows: "The result I am sure will please you, as it is a perfectly splendid one" (Fig. 18).



Fig. 15 (Case 3).—The fulness of the left side of the face, the flattening to the right of the chin and the displacement of the latter to the left are very evident.

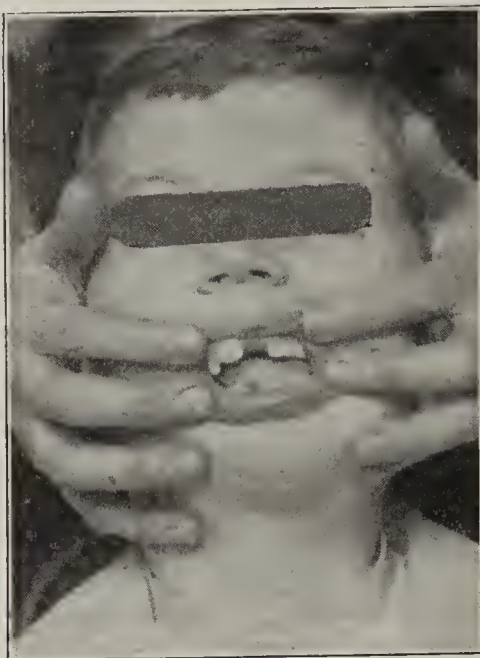


Fig. 16 (Case 3).—The extent to which the mouth could be opened and the gap in the denture through which the patient was fed.

This is the only case in this series in which there was an extensive edema of the face following the operation. The swelling was enormous and was undoubtedly caused by the manipulation of the tissues, and while it temporarily prevented active efforts on the part of the patient to move his jaw, it did not interfere with the final result, which was splendid. This, too, was the only case of intra-articular fibrous ankylosis. It did not involve the coronoid process which was free, as shown in roentgenograms of the mouth opened and closed. It will be noted that the operation which was performed in this case is similar in principle to that performed in the cases of bony ankylosis.

CASE 4.—Ankylosis of Left Temporomandibular Articulation.—D. C., boy, aged 13, was admitted to Mercy Hospital, June 6, 1913, because of complete fixation of the lower jaw. In September, 1909, the patient fell from a third-story window a distance of 45 feet, landing on a brick pavement. He alighted on his feet, but his knees were flexed forcibly and the body bent forward, so that the chin impacted with the knees. The result was two lacerations of the skin over the chin and several broken teeth. He was picked up unconscious, bleeding profusely from his nose, mouth and ears. He was taken to the hospital and remained unconscious for three hours. When he left the hospital on the sixth day he was unable to open his mouth. His jaw was fixed and has remained so ever since.

Examination.—The right side of the face is slightly flattened. The left side is full and round. He is unable to separate his teeth at all, but because of the retraction of the chin, which is considerable, he is able to feed himself. There is a space of about a half inch on a horizontal line between the upper and lower teeth. Diagnosis: Bony ankylosis of the left temporomandibular articulation (Figs. 19 and 20).

Operation.—June 7, 1913, an incision was made along the upper border of the zygoma, extending from the ear forward on the cheek for a distance of about $\frac{3}{4}$ inch. The skin flap was displaced downward, and the articulation was exposed. A bony ankylosis extending from the condyle to the coronoid process was found. By means of the straight $\frac{1}{4}$ -inch chisel, the ankylosis was freed and $\frac{1}{3}$ inch of the condyle and of the coronoid process was removed. The jaw then dropped down freely. A second perpendicular incision was then made extending from well up in the hairy portion of the scalp downward in front of the ear to the starting-point of the first incision. This gave ready access to the temporal muscle and fascia. The usual flap was raised, dropped down over the zygoma and tucked into the joint, so as to cover all raw bony surfaces. Fixation was maintained by means of two tacking sutures of catgut placed in the angles of the flap. The skin wounds were closed in the usual manner.

Result.—The day following the operation the boy opened his mouth voluntarily for the first time in nearly four years. He rapidly increased the range of motion by means of the wooden wedge which I use in all of these cases and by chewing gum. The stitches were removed on the eleventh day. Primary wound healing occurred. When the patient left the hospital, two weeks after the operation, he opened his mouth freely about an inch and a quarter (Figs. 21 and 22). When the boy was seen again, first about six months afterward and again nine months afterward, he had almost complete limitation of motion of the lower jaw, the result of neglect to carry out the prescribed after-treatment by means of the wooden interdental block. There was no return of the bony ankylosis, however.

This was the only case in this series, except Case 2 which occurred in an adult, in which the ankylosis was comparatively recent and did not come on early in life. It was the result of a distinct and definite trauma and not of an infection. When the articulation was exposed, I could find no trace or evidence of the fracture into the joint, but the history would lead to the belief that there must have been a traumatic fibrous arthritis with subsequent ossification. This is

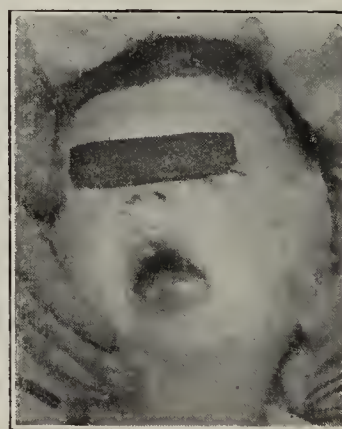


Fig. 17 (Case 3).—Thirteenth day after the operation; extent to which the patient could open his mouth.



Fig. 18 (Case 3).—Degree to which the patient could open his mouth voluntarily eleven months after operation.

the usual course that follows blows on the chin. The same type of ankylosis occasionally occurs in the elbow-joint when youngsters fall and strike severely on the olecranon.

CASE 5.—Bony Ankylosis of Left Temporomandibular Articulation.—F. C., boy, aged 7, was admitted to Mercy Hospital, June 13, 1913, because of complete fixation of the lower jaw. He was an orphan and little of his history could

be obtained. His guardians stated that he had never been able to open his mouth since birth. They did not know anything about the labor. When he was a baby (age not given) he suffered for several months with a discharging ear (which one not known), but he had not been able to open his mouth before that time.

Examination.—It was impossible to separate the teeth. Several teeth had been extracted in the front of the boy's mouth to allow of his being fed (Fig. 23). On an attempt to pry the mouth open, a slight forward sliding motion was detected toward the left side. The left side of the face was full and round. The right side was flattened. The chin was



Fig. 19 (Case 4).—There was not much fullness of the left side of the face or much flattening of the right in this case, the ankylosis having existed for only four years, commencing at the age of 9. There is no deviation of the chin, although there is considerable retraction.



Fig. 20 (Case 4).—Extent to which the patient could open his mouth before operation.

slightly retracted, but the coaptation of the teeth was normal (Fig. 24). Diagnosis: Bony ankylosis of left temporomandibular articulation.

Operation.—June 14, 1913, the articulation was exposed as in the previous case by means of the horizontal incision along the upper border of the zygoma and the perpendicular incision to expose the temporal fascia. It was found that the ankylosis was of the bony type and that it extended forward to the zygomatic tubercle. It was freed by means of a small olive-shaped dental burr, operated by an electric motor, and with a small bone-cutting forceps (Fig. 2, C and D) $\frac{1}{3}$ inch of the condyle was removed. The jaw immediately dropped down. The flap of temporal fascia was then raised from the muscle and inserted in the usual manner. The flap was fixed by means of two tacking catgut sutures placed at its basal angles. The wound was closed in the usual manner.

Result.—On the following morning the boy could open his mouth for about half an inch. Motion was encouraged by means of the wooden wedge, which was inserted between the molar teeth. The stitches were removed on the tenth day. Primary wound healing occurred. When the patient left the hospital on the sixteenth day he could open his mouth easily an inch and a quarter (Fig. 25).

On May 16, this patient returned to the hospital with a complete fixation of the jaw. Examination indicated that there was a bony ankylosis. On the 18th an incision was made similar to the original one and it was found that a complete bony ankylosis had recurred and had extended forward beyond the maxillary tubercle toward the coronoid process. All of the bone was excised, leaving a cavity of $\frac{1}{2}$ inch. A small connective tissue and fascia and fat flap was prepared with the base attached to the cheek tissues below the mandible. This was inserted and fixed by the angular tacking stitches as in previous operations, and the wound was closed in the usual manner.

All of the previously interposed flap had entirely disappeared, probably due to the pressure on account of the failure to maintain the interdental block in the usual way.

The day following the operation, the patient had no trouble in opening his mouth voluntarily for $\frac{3}{4}$ inch.

CASE 6.—*Bony Ankylosis of Left Temporomandibular Articulation.*—E. F., girl, aged 8, was admitted to Mercy Hospital, July 10, 1913, because of inability to open her mouth for more than $\frac{1}{4}$ inch. When she was $2\frac{1}{2}$ years old she had a cold, but was not ill enough to be put to bed. After two or three days she had severe earache on the left side, and a swelling appeared in front of and behind the ear. A week later she had an abscess in front of the ear at the maxillary articulation. The swelling around the ear became larger, very painful and tender, especially in front of the ear. The patient could open her mouth at this time and had no pain when moving the jaw. One week later the left ear began to discharge pus very freely and she also had a very bad diarrhea. She was very ill and had a high (?) temperature. The pain was so severe that in her delirium she pulled out her hair on that side of the head. The swelling around the ear increased in size and extent until the whole side of the face was involved and discolored. Five weeks after the abscesses formed, she was operated on (April 21, 1908). The abscess in front of the ear and the one into the maxillary articulation were opened and drained and the mastoid operation was performed. The wound into the maxillary articulation drained for two weeks; that in front of the ear continued to discharge pus for three months after the operation. The mastoid wound discharged pus for six months, during which time four operations were performed, more bone being removed each time. Following the last operation in October, 1908, the wound closed rapidly.

April 28, 1908, one week after the abscesses were opened, the mother noticed that the baby could not open her mouth more than she can at present. The fixation has remained in spite of repeated attempts at stretching.

Examination.—There was not much deformity in this case (Fig. 26). There was a little fullness on the left side of the face and a slight flattening on the right. The chin was almost in the median line and only slightly retracted. The mouth could not be opened more than $\frac{1}{8}$ inch (Fig. 27). The roentgenogram (Fig. 28) of the left side of the face showed entire obliteration of the temporomandibular articulation. Comparing this with the roentgenogram of the right side (Fig. 29), the difference between the two was quickly noted. Diagnosis: Bony ankylosis of the left temporomandibular articulation.



Fig. 21 (Case 4).—About two weeks after operation; extent to which the patient could open his mouth voluntarily.

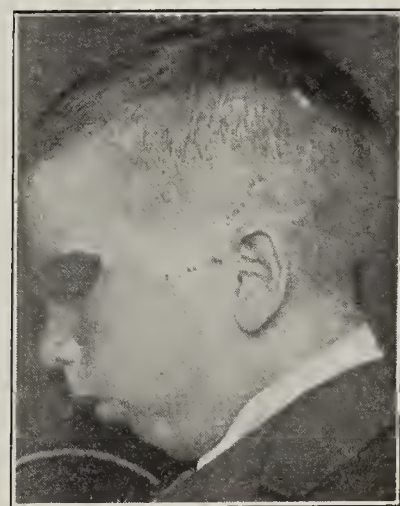


Fig. 22 (Case 4).—Skin wound two weeks after operation. This is a good illustration of the type of incision usually employed in these cases. The retraction of the chin shows very well in this picture.

Operation.—July 12, 1913, the left temporomandibular articulation and the temporal muscle were exposed by means of the L-shaped incision used in the two previous cases, that is, a horizontal incision extending along the upper border of the zygoma and the perpendicular incision in front of the ear, extending upward into the hair. When the articulation was exposed, the diagnosis was confirmed. The ankylosis was freed with the olive-tipped dental burr, as in the

previous case. One-third inch of the upper end of the condyle was removed with bone-cutting forceps. As soon as the ankylosis was freed, the jaw dropped down. A flap of temporal fascia and muscle, measuring $\frac{5}{8}$ inch in width and an inch and a half in length, was elevated from its bed, and dropped down over the zygoma and into the articulation, so as to cover all raw bony surfaces. Two catgut sutures placed at the basal angles of the flap secured its fixation. The wound was closed in the usual manner.

Result.—The following morning the patient had motion in the jaw, being able to separate the teeth for about half an inch. She was given the wooden wedge to use and when the stitches were removed on the tenth day, she was able to open her mouth for an inch. The wound had healed by primary union, but there was a slight collection of fluid underneath the skin above the zygoma. Three days later when the second dressing was made this fluid was removed by aspiration. It was a dark-colored, clear, odorless fluid, the result of oozing. The fluid did not reform and the patient left the hospital fifteen days after the operation. She was able to open her mouth fully an inch. She returned for examination on the twenty-second day. She could open her mouth easily for a distance of more than an inch and a quarter (Fig. 30). A photograph received six months after the operation shows that she has perfect use of her jaws (Fig. 31).



Fig. 23 (Case 5).—Absolute fixation of the jaw and the gap in the denture through which the patient was fed.



Fig. 24 (Case 5).—Bony ankylosis of the left temporomandibular articulation, with fulness of the left side of the face and some flattening of the right side over the body of the jaw. The chin is slightly deviated to the left.

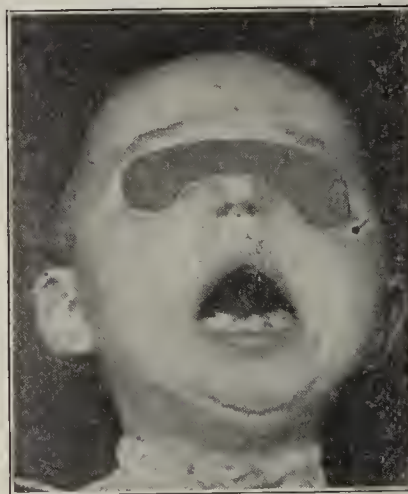


Fig. 25 (Case 5).—Photograph made about two weeks after operation, showing how well the patient could open his mouth.

This was one of the three cases in this series in which a hematoma developed after the operation. The hemorrhage during these operations is very slight, and there is little necessity for ligating bleeding vessels; but I am always very careful to ligate every bleeding point, because my experience in my arthroplasty work on the larger joints has taught me that that is the safest procedure, if one would avoid the occurrence of hematomas, which materially hazard the subsequent course of the case.

CASE 7.—Ankylosis of Left Temporomandibular Articulation.—L. J., man, aged 31, was admitted to Mercy Hospital, Oct. 31, 1913, with ankylosis of both hips, all of the vertebral joints, including the occiput to the atlas, the left temporomandibular articulation and a partial ankylosis of both shoulders.

In July, 1895, the patient fell from a horse, striking the ground forcibly with the lower end of his spine. He was able to get up immediately and walk, but he had severe pain in the spine. This persisted for several days and then disappeared entirely. In the spring of 1896, he had severe pains in the right hip, the pain coming on slowly and increasing in severity, without any other symptoms referable to the hip. He asserts that he was not subject to tonsillitis or

other infections in his nose, mouth, accessory sinuses or elsewhere, either at this time or previously. He consulted a physician, who examined him and discovered a marked scoliosis in the lumbar region. He walked without any support, however, but limped slightly. Some time during 1897 a plaster-of-Paris body-cast was applied to correct the scoliosis. He wore this cast for four years, when a leather jacket was substituted, and this too was worn for four years. During all of this time the right hip became more stiff but less painful. In 1903 he was forced to use a cane, as the right hip was very stiff. In the latter part of 1903, he began to have attacks of pain in the back of the neck, increasing on motion of the head. Finally the neck became stiff, so that he was unable to turn the head in any direction or bend his neck. In March, 1906, the left hip became painful and he was forced to resort to crutches. In June the left temporomandibular joint became affected and gradually power of motion in this joint was lost. The pain disappeared with the loss of motion. In September, 1906, the patient discarded his crutches permanently and not until then did he notice that he could not raise his arms to the full extent. He denied all previous illness, except typhoid at the age of 7; he said that there had been no lues and no neisserian infection.

Examination.—The spine was ankylosed from top to bottom. Both hips were stiff. Motion in the shoulders was restricted in every direction. The lower jaw was absolutely

fixed, so that the patient could not open his mouth at all. His head was acutely flexed forward, the chin almost resting on his chest. The conformation of his face indicated clearly that the left temporomandibular articulation was ankylosed. He had had several of his lower teeth extracted, so that he could take food. The right side of the face was flat; the left side was full and round and the lower jaw was slightly retracted.

Operation.—Nov. 10, 1913, the usual arthroplasty for this condition was done, except that instead of an attempt being made to separate the ankylosis with the chisel, the neck of the bone was divided, because there was so much new bone formation in the joint that it was feared that if an attempt were made to separate the ankylosis the underlying structures might be injured. Therefore, a new joint was made by dividing the neck of the condyle, allowing all of the head to remain in the fossa. The interposing flap was taken from the fat and fascia over the temporal muscle, and because of the sparsity of fat some of the muscle-fibers were removed with the flap. The flap was dropped down over the zygoma into the new joint and tacked with catgut sutures at its basal angles in the usual manner. There was much bleeding in this case and great care was taken to ligate every bleeding point. The wound was closed as usual.

Result.—The first dressing was made, November 22. The wound had healed by primary union and the stitches were removed. There was a considerable hematoma, however, under the skin over the temporal region. Two ounces of a clear, port-wine colored, odorless fluid were removed by aspiration. Microscopic and bacteriologic examination of this fluid was negative. It was aseptic. Two days later another aspiration was made, only half an ounce of fluid being removed. This fluid was likewise negative bacteriologically. The subsequent course of the case was uneventful. The range of motion increased rapidly from half an inch the day following the operation to about $\frac{3}{4}$ inch on leaving the hospital. The range of motion was limited by the impingement of the chin against the chest. The patient could masticate freely and regarded it as a great pleasure.

CASE 8.—Bony Ankylosis of Right Temporomandibular Articulation.—M. Van W., girl, aged 11, was admitted to Mercy Hospital, Nov. 6, 1913, because of inability to open her mouth. When $2\frac{1}{2}$ years of age she had a very severe illness lasting from five to six weeks. Her father stated that she had had a sore throat and expectorated purulent material. When she recovered, her jaws were stiff, but she could still open her mouth a little. Six months later she had a boil on the back of her left hand, next, one near the left elbow, then one in the left axilla, one on the left side of the neck and one on the right leg. All of these boils were lanced as they appeared and all discharged pus for a while and then healed. The limitation of motion in the jaw increased in degree until four years ago, when the jaw became absolutely stiff, the teeth being clenched together.

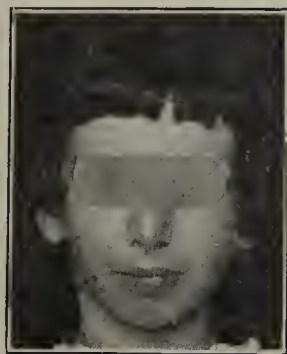


Fig. 26 (Case 6).—There was very little deformity in this case, just a slight deviation of the chin to the left.

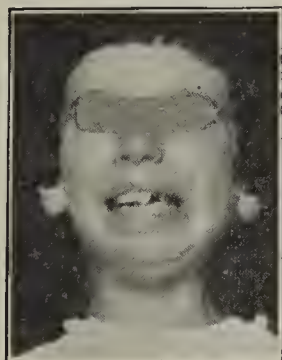


Fig. 27 (Case 6).—Extent to which the patient could open her mouth before operation.

The patient is said never to have had any trauma of the face or any other illness except the one mentioned.

Examination.—There is absolute ankylosis of the right temporomandibular articulation, bony in type. The right side of the face was full and round, the left side was flattened. The chin was retracted and drawn slightly beyond the midline to the right. There was no motion whatever in the jaw. **Diagnosis:** Bony ankylosis of the right temporomandibular articulation (Fig. 32).

Operation.—Nov. 15, 1913, the usual operation was performed, the joint being exposed by means of the L-shaped incision. The ankylosis involved the head of the condyle.

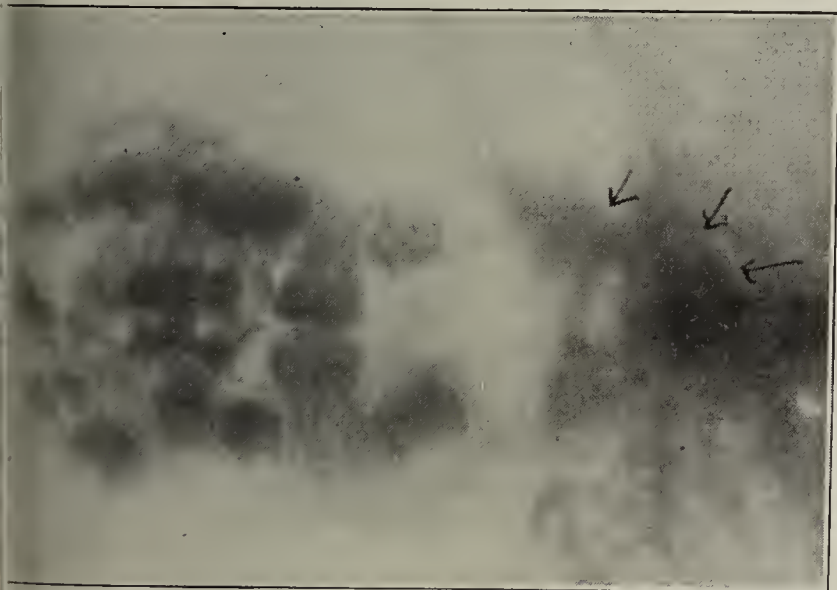


Fig. 28 (Case 6).—Roentgenogram of left side of head made before operation, showing complete obliteration of the temporomandibular articulation. Compare with Figure 29.

The bones were divided with a narrow straight chisel in such a manner as to retain the normal conformation of the joint as much as possible. The gap for the interposing flap was about $\frac{1}{3}$ inch in width. As soon as the ankylosis was divided, the mouth could be opened easily by the anesthetist, although the stiffness of the muscles and ligaments on the other side prevented the lower jaw from falling down. The pedicled flap of fat and fascia was raised from over the temporal muscle. It was an inch and a half long and an inch wide.

It was dropped down over the zygoma into the joint and was secured by tacking catgut sutures at its basal angles. The wound was closed in the usual manner.

Result.—The following morning, this patient, like all the others, could open her mouth easily more than half an inch. The range of motion increased rapidly and when she left the hospital three weeks after the operation the spread of the jaws measured an inch and a quarter. The wound had healed by primary union with no complications. A photo-



Fig. 29 (Case 6).—Roentgenogram of right side of head made before operation, showing a normal temporomandibular articulation.

graph received from this patient four months after the operation shows a superlatively good result (Fig. 33).

CASE 9.—Bony Ankylosis of Right Temporomandibular Articulation.—J. S., man, aged 25, was admitted to Mercy Hospital, Nov. 11, 1913, because of ankylosis of the right temporomandibular joint and the right hip, with a discharging sinus over the right clavicle and another in the right groin. In 1905, after he had been swimming, he had a chill and immediately afterward he noticed a stiffness in the right knee but no pain, redness or swelling. He does not know whether or not he was subject to an infection in any part

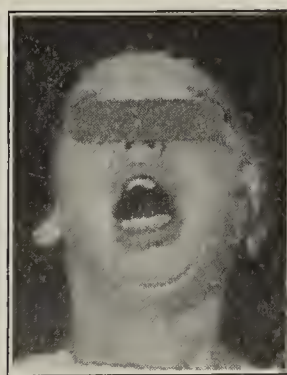


Fig. 30 (Case 6).—Extent to which the patient was able to open her mouth voluntarily, twelve days after the operation.

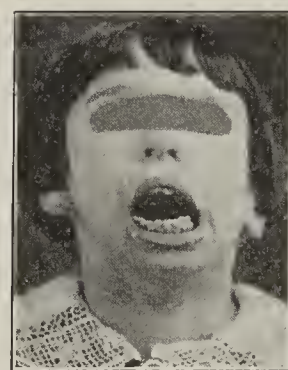


Fig. 31 (Case 6).—Photograph made six months after operation, showing a splendid spread of the jaws.

of his body at this time, nor had he sustained a trauma. He was able to use his knee without pain or discomfort. The following morning he was awakened by severe pain in the left knee and on examination he saw that it was red and swollen. A physician was consulted immediately, who made a diagnosis of abscess in the knee and prescribed hot fomentations. The following day the pain in the knee was very severe and the joint was greatly swollen. He had a high (?) fever and became delirious. He was removed to

a hospital, the leg was incised in several places and gauze wick drains were inserted. After the operation he was informed that the bone had been drilled into and found necrotic. He remained in the hospital about ten weeks with considerable elevation of temperature, and was delirious most of the time. The left hand and the left side of the neck had also been lanced and several incisions were made on the back along the spinal column. Pus was discharged from every opening. A large bed-sore developed over the left hip. When the patient left the hospital (he does not remember when), all the wounds had healed, except two in the left leg which were still discharging pus.

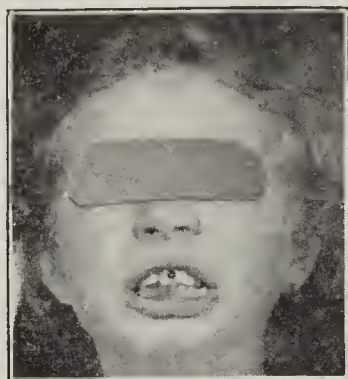


Fig. 32 (Case 8).—The jaw was firmly fixed, and there was the usual gap in the denture for feeding purposes.



Fig. 33 (Case 8).—Front view four months after operation, showing the mouth open to nearly the normal degree and in a perfectly plumb line.

Two years later the left leg was amputated in the upper third of the thigh. About one month later he first noticed a stiffness in his jaw, but there was no pain in the temporomandibular joints. Four weeks later an abscess appeared over the left clavicle. It opened spontaneously and discharged pus freely and, he thinks, some necrotic bone. Abscesses also formed over the right clavicle and in the right axilla, and they too opened spontaneously and discharged pus. Finally all wounds healed.

In 1910 he began to have severe pain and swelling in the right arm. An abscess formed, was opened and necrotic bone removed and after a short period of discharge, the wound healed. The right elbow was the next joint to become involved, and when the inflammation in this joint had subsided, he was unable to move it. It was ankylosed. The abscesses in the right groin and over the right clavicle, which are still discharging, developed one year ago.

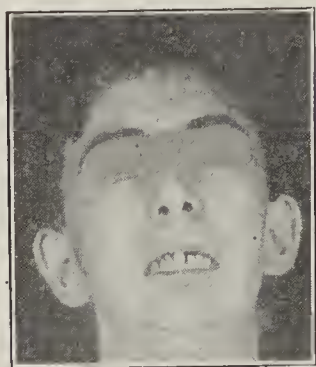


Fig. 34 (Case 9).—Ankylosis of right temporomandibular joint. The jaw is firmly fixed.



Fig. 35 (Case 9).—Four months after the operation the patient could easily open the mouth $1\frac{3}{8}$ inches.

Examination.—The right elbow was firmly ankylosed and flexed to nearly right angles with the arm. The jaw was fixed. The teeth could not be separated even for a fraction of an inch (Fig. 34). The left side of the face was flat. The chin was retracted and drawn slightly to the right of the midline. Diagnosis: Bony ankylosis of the right temporomandibular articulation.

Operation.—What the patient most desired was to open his mouth so that he could feed himself. Therefore only the temporomandibular joint was operated on. Nov. 12, 1913, the

usual arthroplasty was performed. The joint was exposed through an L-shaped incision. The ankylosis extended across to the tubercle and the usual interposing flap was placed. The wound was closed in the accustomed manner.

Result.—The morning after the operation the patient opened his mouth voluntarily about half an inch. The range of motion increased rapidly until at the time of the first dressing, made on the thirteenth day, he could open his mouth nearly an inch. The wound had healed by primary union. About 1 ounce of a clear bloody odorless fluid was removed by aspiration. Bacteriologic examination proved it to be negative. The stitches were removed on the thirteenth day. When the patient left the hospital, three weeks after operation, he could open his mouth about an inch and a quarter. The patient was seen again April 3, 1914. He could easily open his mouth $1\frac{3}{8}$ inches without the slightest pain or discomfort. Lateral motion of the jaw was perfect and the scar was scarcely discernible (Fig. 35).

The facial nerve, which leaves the skull through the stylomastoid foramen, passing forward across the lower portion of the parotid, is distributed to all of the muscles of expression of the face, and there is danger of injuring that nerve and getting a permanent paralysis of these muscles, particularly the fibers that pass to the temporal and supra-orbital zones. These can all be avoided by the L-shaped incision above the zygomatic level.

There is another element of danger connected with this work, namely, one cannot divide the ankylosis in the line of the original articulation, because if he does he is almost certain to penetrate the base of the skull. Therefore, I always remove the condyle of the inferior maxilla and do not clean out the glenoid fossa to make a cavity.

The location of the internal maxillary artery must always be borne in mind in the removal of bone, as it hugs the neck on the inner side closely and can easily be injured. If it is injured, it should be ligated at the bifurcation of the external carotid. The importance of making the incision above the level of the zygoma can be recognized at once, as it puts the scar-line beneath the hair.

The after-treatment is very important. Mastication should be started at the end of two weeks, preferably not earlier, because otherwise too much fibrous tissue will be produced between the ends of the divided bones. The wooden block (Fig. 2 E) should be placed between the molars on the operated side and kept there day and night for two weeks, to prevent possible compression necrosis of the interposing flap. The jaw should not be spread at the time of the operation, as that lessens the effectiveness of the interdental block in protecting the flap.

In all my arthroplasty work there is no operation that gives the same satisfaction to the patients as that for ankylosis of the temporomandibular articulation.

2526 Calumet Avenue.

Accidents on Steam Railways.—According to Accident Bulletin No. 49 of the Interstate Commerce Commission the number of persons killed in train accidents during July, August and September, 1913, was 211; the number of persons injured was 4,011. These figures are compiled from the reports made in 1913 by the railways to the Interstate Commerce Commission. The total number of casualties of all classes amounted to 3,173 persons killed and 56,644 injured. This includes 2,830 persons killed and 19,763 persons injured as the results of accidents sustained by employees while at work, by passengers getting on and off cars, by persons at railway crossings, persons doing business at stations as well as by trespassers and others.

A CASE OF PSEUDOMYXOMATOUS CYST
OF THE APPENDIX

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Reference to the literature concerning retention-cysts of the vermiform appendix leads one to believe that either the condition is rather infrequent or many cases are not reported. In 1905, Corning¹ stated that only about sixty cases of cysts of this kind, discovered at operation or at necropsy, had been reported, and that in 7,108 necropsies by various observers there were found only twenty-seven cases (less than 0.4 per cent.). At the same time Corning reported four cases from among 735 appendixes removed at operation and sent to his laboratory. Since then a number of cases have been reported, particularly in the foreign journals. Thus Weinhold,² in 1909, removed a large appendiceal cyst from a woman aged 74, having previously made a diagnosis of pedunculated myoma of the uterus. Wilson³ reports a case in which he had made a probable diagnosis of ovarian cyst, and another which ruptured during bimanual examination. Eden⁴ encountered a case in which there was also a large cyst of the right ovary, which had ruptured. Recently, Hammesfahr⁵ has described somewhat in detail his findings in two operative cases in which the contents of the cysts were pseudomyxomatous in character.

The formation of these cysts seems to be due chiefly to a chronic inflammatory process in the appendix, with obliteration of the lumen at the proximal end. Kinking of the organ and peritoneal adhesions may be causative factors.

In size, the cysts may range from very small to about 15 cm. long and 7 in diameter. The contents are generally described as thick, gelatinous, translucent material, which at times may be either blood-stained or greenish-yellow. It may be slimy or even watery in character. Most often the substance is made up largely of mucin or pseudomucin, but at times it may be colloid.

Usually the mucosa of the appendix has undergone marked atrophy or has disappeared. It may be pushed through the muscular coat in places to form with the serosa a false diverticulum.

The symptoms are commonly those of chronic appendicitis, but there may be no evidence of the trouble, not even a palpable tumor.

The importance of the condition depends on the possibility of rupture, which may give rise to the so-called pseudomyxoma of the peritoneum. According to Wilson,³ only twelve cases of peritoneal pseudomyxomas arising in this way are on record; but Trotter⁶ suggests that some cases with obscure symptoms may go unrecognized, and that others are regarded as examples of primary colloid carcinoma.

Through the courtesy of Dr. A. O. Singleton, who operated on the patient, we wish to report a case of unruptured, pseudomyxomatous cyst of the appendix.

History.—C. T., negress, aged 48, married, housewife, rather obese, consulted Dr. Singleton in August, 1913. According to the patient the present illness began two years previously, characterized by irregular attacks of pain and discomfort in the right iliac region. Six months before seeing Dr. Singleton she was operated on, she said, for movable kidney, but she did not know what the operator really did. No relief was afforded by the operation.

Examination.—A distinct operative scar was found in the right lumbar region. Palpation revealed a large movable mass in the abdominal cavity, on the right side, but owing to the thickness of the abdominal wall, no additional information could be gained. Diagnosis, probably a floating kidney.

Operation.—This was performed, Sept. 3, 1913. After an incision had been made in the right lumbar region, the kidney was found to be normal and fixed. So the incision was extended and the peritoneal cavity opened. This revealed a large cyst of the appendix, extending upward, free from adhesions, and with a stump of apparently normal appendix about 3.5 cm. long. For about one-third of the length of the cyst there was a distinct mesentery. An ordinary appendectomy was performed. Recovery was uneventful, and since the operation (eight months ago) the patient has been in good health.

Gross Appearance of Cyst.—This measured 11 cm. in length and 5 in its greatest diameter, that is, near the proximal end. The surface was white and irregular, and the contents seemed



Pseudomyxomatous cyst of appendix.

to be held under slight pressure. It was fixed several days in formaldehyd solution, and then cut open. Thick, white, rather opaque, gelatinous material filled the cyst. This could be picked up in jelly-like masses with the fingers. Chemically the material seemed to be pseudomucin, as portions were dissolved in sodium hydroxid and not precipitated by an excess of acetic acid. The wall of the cyst varied in thickness from 1 to 4 mm. Apparently, dark-colored bits of tissue were embedded here and there in the contents, especially in the distal portion. Keeping the specimen in formaldehyd solution soon caused the contents to swell, so that the edges of the cut wall gaped widely.

Microscopic Appearance.—Sections of the appendix near the cyst showed normal muscular coats with marked proliferation of submucosal tissue, so that the lumen was entirely obliterated. Sections of the cyst wall, taken from several different places, showed practically nothing but dense fibromuscular tissue, much of which had undergone hyaline degeneration. The nuclei of the peritoneum and of the connective tissue beneath were usually fairly well preserved. In no instance could epithelium be found, except the desquamated bits out in the cystic contents. The mucoid material itself, taking a light hematoxylin stain, was seen to be finely granular and at times fibrillar, with numerous irregular, open spaces.

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THE EARLY DIAGNOSIS OF LEAD-POISONING *

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The subject of occupational diseases has of late been attracting considerable interest. We are coming to a realization that diseases caused by industrial poisons or conditions under which industries are carried on have a marked influence on the morbidity and mortality of the community. What is of still greater importance, we recognize that such diseases are, at least in a very large measure, preventable. Since 1911 fourteen states of the Union have enacted laws requiring physicians to report to designated state authorities occupational diseases which they are called on to treat. The lists of these occupational diseases in the various states are not uniform, but most of them contain such conditions as poisoning from lead, brass, phosphorus, arsenic or mercury or their compounds, or from wood alcohol, anthrax or compressed-air illness.

In view of the fact that physicians of many states are now required to report the above-named occupational diseases, it is pertinent to inquire as to their early diagnosis. When can a diagnosis be made sufficiently definite to warrant the physician in reporting it to the proper authorities? Of all the diseases in the list none is of so common occurrence as is the poisoning due to lead or its salts, on account of the great variety of industries in which the metal or its salts are used. I therefore propose to consider the early diagnosis of plumbism the most common and by far the most serious in its effects on the health of the working population.

Lead-poisoning presents itself in a great variety of manifestations, and while the diagnosis in a well-marked case is usually not difficult, it may not be so clearly defined in the early stages of the intoxication. The tendency in such cases is not to make the diagnosis unless the objective signs are found which are supposed to be pathognomonic of the disease. This tendency to postpone the diagnosis in the absence of certain objective signs is dangerous and often does incalculable harm. The physician who fails to recognize tuberculosis, for instance, without the presence of tubercle bacilli in the sputum, very often fails to avail himself of the opportunity of arresting the disease in its incipency. The same is true of lead-poisoning. The waiting for certain signs before establishing the diagnosis may permit the poison to undermine the constitution of the worker beyond any remedial measures. The objective signs supposed to be pathognomonic of lead-poisoning, the presence of one or more of which is still regarded by many physicians as absolutely necessary before a diagnosis can be made, are the lead-line on the gums, basophilic degeneration of the red cells and the presence of lead in the urine and stools.

The technical difficulty of the last one is so great as to preclude it from being made a part of the routine examination in general practice. Moreover, the presence of lead in the excretions is not constant even in well-marked cases of lead-poisoning. On the other

hand, lead has often been found in the urine and more frequently in the stools of persons exposed to lead who do not show any evidence of intoxication.

OVEREMPHASIS ON LEAD-LINE AND BASOPHILIC GRANULES

The presence of the lead-line, and basophilic degeneration of the red cells, are objective findings which are in practical use in the diagnosis of lead-poisoning. As a matter of fact, neither one of these signs is pathognomonic of the disease, and while their presence is a valuable aid in the diagnosis of obscure cases, their absence should not be given undue weight against the diagnosis of lead-poisoning, when a history of definite exposure to lead can be obtained.

Basophilic granules in the red cells may be found in severe secondary anemias in which hemolysis has taken place, and are, on the other hand, often absent in cases in which a positive diagnosis of lead-poisoning can be made. In looking over a large number of records in which a definite diagnosis of lead-poisoning was made in the Outpatient Department of the Massachusetts General Hospital, by the clinical symptoms and the presence of the lead-line, I found that in nearly 50 per cent., basophilic granules in the red cells were absent.

Sir Thomas Oliver, who has devoted a great deal of time to the study of lead-poisoning, states that in only few instances of the great number of examinations of the blood that he has made, in early as well as in late cases of plumbism, has he found the basophilic granules. Basophilic degeneration of the red cells, in short, does not possess the diagnostic value which some attribute to it, but can at most be regarded as an important confirmatory sign.

Still greater importance is attached to the presence of the lead-line.

In my investigation of some of the lead industries of Massachusetts several years ago, for the State Board of Health, I had occasion to confer with many physicians who, from time to time, treated patients engaged in these industries, and I frequently found that no matter how suggestive the symptoms complained of were of lead-poisoning, the diagnosis was not made because of the absence of the lead-line. As a matter of fact, the lead-line presents a great many anomalies, and irreparable harm will often be done when a diagnosis of plumbism is not made because of its absence. In the investigation referred to above, I have frequently seen well-marked lead-lines among workers exposed to lead who did not present, at the time of investigation or at any previous time, any signs of ill health. On the other hand, if one looks into the very extensive literature on the subject, one will find many cases of severe lead-poisoning reported in which lead has been definitely demonstrated in the urine and stools, and yet no vestige of a lead-line could be found. Moreover, the lead-line is extremely rare when the gums are in a healthy condition and when the teeth are well cared for. Dr. Oliver fed experimental animals with lead for a long time without observing any lead-line. If, however, an infection of the gums of such animals was produced, the lead-line appeared within a short time.

The distinction between lead absorption and lead-poisoning is not, as a rule, clearly borne in mind. All persons working in lead, unless the most unusual pre-

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cautions are taken, inhale or swallow some of the poison, but it is excreted through the kidneys and the intestinal tract. As long as the excretion corresponds to the absorption, no symptoms will manifest themselves. If, however, for some reason, the balance is destroyed and the excretion diminishes, lead will be stored up in the tissues and poisoning is the result. The presence of the lead-line simply means that the person has been absorbing lead, and is in itself of no greater weight in the diagnosis of lead-poisoning than is the fact that the patient's history shows that he is working in a lead process, in which we know that he inevitably absorbs lead. A careful inquiry into the nature of the industrial process in which the patient is engaged is therefore of the utmost importance. The history of exposure is the all-important factor in the diagnosis of plumbism.

In cases of non-industrial plumbism, however, in which no history of exposure can be obtained, the presence of the lead-line or of the basophilic granules is of inestimable value in the diagnosis, since it offers a clue for the explanation of certain symptoms which would otherwise be obscure.

The following case-reports, taken from the records of the Massachusetts General Hospital will illustrate the reluctance, even among good clinicians, to make a diagnosis of plumbism in the absence of the lead-line, or stippling:

CASE 1.—A man of 36, a sheet-metal worker for eleven years, handles a great deal of lead in his work, complains of pains in the abdomen, loss of weight, weakness of extremities and attacks of diarrhea followed by constipation. No lead-line.

CASE 2.—A man of 34, a painter for ten years, complains of attacks of colic, headaches, obstinate constipation and general nervousness. No lead-line, no stippling.

CASE 3.—A man of 22, a painter for four years, complains of constipation, attacks of severe abdominal pains and headaches. He looks pale; no lead-line, no stippling.

CASE 4.—A painter of 22, who has worked at the trade for ten years, complains of obstinate constipation, pain in his joints, headaches, numbness and weakness of extremities; he is easily fatigued; no lead-line or stippling found.

CASE 5.—A worker in a rubber factory for six years complains of abdominal pains, obstinate constipation, severe pains in lumbar region, loss of appetite, and general nervousness; no lead-line found.

CASE 6.—A man of 49, a painter for twenty-five years, gives a history of lead-poisoning when he first started his work. He now complains of tremor and weakness of hands so that he frequently drops his brush while at work. He has attacks of abdominal pains, pains in his joints, and is pale. No lead-line or stippling found.

CASE 7.—A man of 38, who worked in a car-factory for fourteen years, and part of whose work consisted of mixing lead, complains of sharp pains in the abdomen, attacks of lizziness, fine tremor of hands, metallic taste in the mouth and pains in the extremities. He lost considerable weight. No lead-line or stippling found.

In none of the foregoing cases was a definite diagnosis of lead-poisoning made. There is no doubt, however, that if a lead-line was present in any of these cases, or if stippled red cells were found, even if the symptoms had been less characteristic, a positive diagnosis of plumbism would have been made. Yet the occupation of these patients was sufficient evidence that lead absorption was taking place, and the symptoms were sufficiently characteristic to warrant a definite diagnosis without the corroborative evidence of the lead-line or stippling.

In consequence of the undue weight which is given to the objective signs, persons who show themselves, by the symptoms of which they complain, susceptible to the influence of lead, are permitted to continue at their work without any additional precautions and without any warning as to the danger to which they are exposed. This is shown by the following illustrative case-reports, taken from the records of the out-patient department of the Massachusetts General Hospital. These patients attended the clinic for a long time, and no diagnosis of plumbism was made because of the absence of the lead-line or stippling. At some later date, however, although the symptoms were the same, the diagnosis of plumbism was made because of the appearance of one or more of the objective signs.

CASE 8.—A worker in a rubber factory came to the clinic complaining of precordial pains, headaches, pains in the arms and attacks of abdominal pains. He had evidence of mitral regurgitation. There was no lead-line, and no diagnosis of lead-poisoning was made. He came again eight months later with the same symptoms but of increased severity. A lead-line was found present at this time, and a diagnosis of plumbism was made.

CASE 9.—A painter of 23 came to the clinic, November, 1907, complaining of pain in the back, numbness and weakness of extremities, abdominal pains, headaches and nervousness; no lead-line was present, and no diagnosis was made. In 1912 he presented himself with the same symptoms. Lead-line and stippling were found and a diagnosis of lead-poisoning was made.

CASE 10.—A painter presented himself at the clinic in July, 1907, complaining of constant severe pain in the upper abdomen, attacks of vomiting, pains in the knees and dizziness. A diagnosis of arteriosclerosis was made. In July, 1913, he presented himself again with the same symptoms. A lead-line and stippling were found. Diagnosis, lead-poisoning.

CASE 11.—A machinist of 28 came to the clinic in 1906, complaining of attacks of severe abdominal pains, bad taste in the mouth, obstinate constipation, attacks of nausea and vomiting. He came many times during 1910 and again in 1911, complaining of the same symptom-complex. In December, 1911, a lead-line was found and many stippled cells. Diagnosis of lead-poisoning was made.

CASE 12.—A worker in a rubber factory, aged 57, came in 1904 complaining of pain in the cardiac area and the right shoulder, pains in hips and legs, weakness of extremities, dizzy spells, easily tired and constipated, also wasting of extensor muscles. No lead-line was found (patient had false teeth). No diagnosis of lead-poisoning was made until 1905, when lead was found in the urine.

CASE 13.—A carriage painter of 38 came in 1903 complaining of pains in the back between the shoulder-blades. There was no record of lead-line or stippling. No diagnosis was made. Later, in the same year, he came complaining of attacks of dull pain in the region of the umbilicus, and sharp pains in the lumbar region which kept him awake for two nights. A history of alcoholic excess was obtained for the last two weeks; no lead-line was found; diagnosis, alcoholism. In 1908 he came again, complaining of pains in his back and in his feet, general weakness and nervousness; no diagnosis was made. Several weeks later he came again complaining of the same symptoms. Lead-line was present at this time. Diagnosis of lead-poisoning was made.

The unwarranted delay so frequent in diagnosing plumbism even in the presence of a definite history of exposure to lead is well illustrated by the last case. For nearly five years this man had been presenting himself at various times at the hospital, complaining of a train of symptoms which, taken together with his work, should have made a diagnosis possible, and yet

he was permitted, during all that time, to continue his work without any special precautions, until the lead-line appeared, when the diagnosis of lead-poisoning was made.

EARLY SYMPTOMS OF PLUMBISM

It would of course be folly to attribute to lead all the ill health of lead-workers. The symptoms, therefore, have to be considered carefully before the responsibility of the diseased condition is laid to the industry. The symptoms of early plumbism are not well defined, yet there is a group of symptoms which, when not open to explanation on any other basis must, when a history of exposure to contact with lead has been obtained, be taken as evidence of early lead-poisoning. Indeed, it is important to inquire carefully as to any possible industrial exposure to lead whenever certain ill-defined states of ill health present themselves among workers, when such diagnoses, for instance, as anemia, debility, constipation, lumbago or chronic arthritis are made. Inquiries as to the details of the patient's work should be made, for unless the physician has a familiarity with the various industrial processes, the general designation of the patient's work may not indicate any exposure to lead.

Among the earliest manifestations of chronic lead-poisoning is the pallor of the skin, which is often out of all proportion to the actual anemia—that is, the reduced hemoglobin and red count. Associated with this pallor is a wasting of the subcutaneous fat first noticed in the infra-orbital region and about the buccinator muscles, producing a pinched appearance of the face. General muscular weakness with "rheumatic" pains in the joints, muscles and more particularly in the back, are of frequent occurrence in the early stages of the disease. Among the gastro-intestinal symptoms are anorexia, nausea, attacks of constipation, or constipation alternating with diarrhea. Loss of appetite, from whatever cause, among workers exposed to lead is always a symptom to be taken seriously, for, as has been pointed out by Legge, the absorption of lead is greatly increased when the stomach is empty. The most frequent gastro-intestinal symptom is the more or less characteristic colic generally referred to the lower abdomen, which comes in paroxysms, and may or may not be associated with tenderness. General nervousness, persistent headaches and dull mentality are also among the earlier manifestations. These symptoms should always be regarded seriously when occurring in persons exposed to lead, for they may be the precursors to the more serious nerve-lesions, such as wrist-drop, encephalopathy and to the more insidious and less dramatic changes in the vascular and excretory systems, that of arteriosclerosis and chronic nephritis.

IMPORTANCE OF EARLY DIAGNOSIS OF OCCUPATIONAL DISEASES

The laws enacted in many of the states requiring physicians to report to a central authority certain occupational diseases are measures in the interest of the public health. These diseases are preventable, and the duty of the central authority to whom the reports are made is, or should be, to investigate the cases as they are reported, trace the source of the poisoning, instruct the patients as to precautions, and undertake preventive measures against the occurrence of other cases.

In occupational diseases, as well as in communicable diseases, the most effective weapon in the prevention of their frequent occurrence as well as in minimizing the serious consequences to the worker, leading to permanent injury to health and often terminating in death, is to discover these cases in their incipency. This responsibility rests with the physician. He is in the vanguard in public health activity. It is through him that the public health authorities are made aware of the existence of preventable diseases, so that proper steps may be taken to detect and eradicate the dangerous spots which threaten the health and life of the community.

There is still another point of view which makes the recognition of occupational disease, whether it is due to lead or other industrial poisoning or conditions under which people are employed, of great importance. To remedy any social evil the first essential is to recognize its presence and its extent. It is only by a realization of the great amount of sickness and incapacity that is produced by occupational diseases that we can expect the proper remedial measures to be brought about. We have at present no available data of the extent of the well-defined specific occupational diseases, and still less adequate is our knowledge of the general effects of various industrial processes on the health of the workers. Our morbidity and mortality statistics, as far as their relation to occupation is concerned, are hopelessly inadequate.

The occupations recorded on hospital records are of little or no value as far as the study of the effects of occupation on health is concerned. The term "laborer," for instance, a designation assigned to a large proportion of the male outpatients, covers every conceivable kind of unskilled labor, and throws no light as to the nature of the work. The term "railroad worker" may mean a locomotive fireman, a gate-tender, or used as in a recent case which came to my notice, to designate the work of a young woman who was folding railroad time-tables in a printing-office.

A careful analysis and recording of the patient's work is essential not only for the diagnosis of the well-known occupational diseases, but also to extend our knowledge as to the effects of certain occupations on mortality and morbidity.

An intensive study in occupational diseases is now being carried on by Miss Susan Holton at the Social Service Department of the Massachusetts General Hospital under the direction of Dr. David L. Edsall. It is only by such intensive work that we may hope in time, by the accumulation of sufficient material, carefully investigated and recorded, to draw any inferences as to the effects of the various industrial processes on health.

SUMMARY AND CONCLUSIONS

The reporting of occupational diseases is a public health measure. Early diagnosis of these diseases is essential both to protect the worker from the most serious effects of the industrial poisons and to gather information as to the prevalence of these diseases.

In the diagnosis of plumbism, the most frequent occupational poisoning, there is in many quarters a tendency to give too much emphasis to the presence of the lead-line or basophilic degeneration of the red cells. While the presence of these signs is often of great aid in the diagnosis of obscure cases of non-industrial origin, their absence should not prevent

diagnosis when certain symptoms characteristic of early plumbism manifest themselves, more particularly when a history of exposure to contact with lead can be obtained.

The history of exposure is the all-important aid in the diagnosis, and careful inquiry should be made by the physician as to the details of the patient's work, and he should not be satisfied with a general designation which may not give any indication of exposure to lead.

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THE EFFECT OF INTRASPINAL INJECTIONS OF SERUMS WITH AND WITHOUT PRESERVATIVES *

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It is an established fact that the administration of antimenigitis serum by intraspinal injection has practically turned the former 70 per cent. mortality from epidemic meningitis into 70 per cent. recoveries. Accumulated experience, however, has apparently shown that the injection of the serum itself may have been the cause of death in a very small number of cases. These deaths have been explained in a variety of ways, and of these I shall mention here only the statement of S. P. Kramer that they were caused by the trikresol which had been added as a preservative to the serum, a contention which has recently been supported by Hale¹ on the basis of experimental work on dogs and cats.

EXPERIMENTS WITH TRIKRESOL

Because of the importance of this matter I have carried out during the last few months a series of experiments not only with dogs, but also with monkeys, in order to determine what effects are produced when serums containing 0.3 trikresol, 0.3 per cent. chloroform or 0.3 per cent. ether are injected subdurally. As control injections, horse-serum without any preservative, and Ringer solution were employed. In all animals the blood-pressure was recorded either from the carotid artery (dogs) or from the femoral artery (monkeys); the respiration was registered in all by means of a pleural cannula. The intraspinal injections in the dog were made after a laminectomy had been performed, for the results without this were very uncertain; in monkeys, however, the subarachnoidean space was tapped exactly as in human beings by introducing a needle into the second to the fourth lumbar space. The dogs were maintained at a constant level of ether anesthesia by intratracheal insufflation, a procedure which absolutely prevents death from central respiratory causes. The monkeys were kept under ether anesthesia by means of an ordinary ether cone and received no respiratory aid whatsoever, but always breathed spontaneously. The chloroform and ether serums were not warmed before injection.

The results of these experiments are briefly as follows:

Dogs are much more sensitive to the intraspinal injection of 0.3 per cent. trikresol serum than monkeys,

but dogs nevertheless tolerate up to 6 c.c. and more per kilogram without danger as a rule, provided that an efficient artificial respiration is maintained. In the dog, stoppage or impairment of the respiration is the great danger; the drop in blood-pressure, though often pronounced after larger doses, does not persist if the respiration is efficient.

ACTION IN MONKEYS

Monkeys, on the other hand, are relatively extremely resistant to 0.3 per cent. trikresol antimenigitis serum, and tolerate injections aggregating more than 6 c.c. per kilogram usually without any dangerous effect on spontaneous respiration. The blood-pressure generally shows a more or less decided drop, but the normal level is regained within some minutes. To illustrate the enormous quantities which a monkey can tolerate, the following experiment may be mentioned: A monkey of 2,835 gm. received intraspinally 21 c.c. of 0.3 per cent. trikresol antimenigitis serum (New York Board of Health), 23 c.c. 0.3 per cent. chloroform antimenigitis serum (Massachusetts Board of Health) and 10 c.c. of Ringer solution, and was in excellent condition at the end of the experiment. It is of interest that the same animal had received the previous day 6 c.c. trikresol serum and 15 c.c. chloroform serum intraspinally, and that on both days the respiration and blood-pressure were registered; moreover, on the second day the injections (usually 3 c.c. per dose, sometimes 5 c.c., at seven-minute intervals) were made while the animal had a full left-sided pneumothorax and was therefore not a normal animal.

Both in the monkey and in the dog the effects obtained on the blood-pressure and respiration by trikresol seem partly dependent on an increased intraspinal pressure: local applications of 0.3 per cent. trikresol in saline on the medulla of dogs does not give the same quantitative effect on the respiration and blood-pressure as subdural injections; and in monkeys a single injection of trikresol serum following several injections of normal serum exerts usually a greater effect on the blood-pressure than when trikresol serum is injected first.

Tests with serums containing 0.3 per cent. chloroform, 0.3 per cent. ether or no preservative at all, showed that they exerted qualitatively the same effects when injected intraspinally as trikresol serum, but quantitatively the disturbances of respiration and blood-pressure were definitely less. Chloroform serum caused in general a smaller effect on the respiration and blood-pressure than trikresol serum, but the best results were obtained with 0.3 per cent. ether serum and with serum without any preservative, although both still occasionally produced in the dog stoppages of the respiration lasting a minute or two, and a considerable lowering of the blood-pressure. In the monkey, however, normal serum or ether and chloroform serum produced practically only negligible effects on the respiration and blood-pressure.

THE IDEAL ANTISEPTIC

Without discussing the necessity for preservatives in therapeutic serums, it is clear that a volatile antiseptic would be the ideal one to use, for such a preservative could easily be removed by warming the serum container before injection.

The opsonic index of the same antimenigitis serum kept without antiseptics or preserved by 0.3 per cent.

* From the Department of Physiology and Pharmacology of The Rockefeller Institute.

1. For literature references see The Sources of Danger in Antimenigitis Serum, editorial, THE JOURNAL A. M. A., May 23, 1914, p. 1661.

trikresol, 0.3 per cent. chloroform or by 0.3 per cent. ether showed practically the same value after one month, according to experiments carried out by Dr. Martha Wollstein.

The experiments show that dogs in which laminectomy has been performed are much more sensitive to 0.3 per cent. trikresol serum than are monkeys in which intraspinal injection is directly made. The monkey in this as in other respects is more nearly related to man; and in view of the rarity of the accidents mentioned above in man it may be inferred that monkeys react to intraspinal injections in a manner more truly representing the effects in him.

It should be emphasized that respiratory failure is the great danger after trikresol injection in the dog, and that it occurs only rarely in the monkey. In my experiments the drop of blood-pressure even if profound was never fatal in the dog or monkey unless the respiration was permitted to fail. This danger was reduced in two ways: by being prepared to give efficient artificial respiration when necessary, and by replacing the trikresol with a volatile antiseptic like chloroform or ether. It must be pointed out, however, that artificial respiration was apparently necessary in some cases even when serums without any preservatives were injected intraspinaly.

APPEARANCE OF NON-COLLOIDAL NINHYDRIN-REACTING SUBSTANCES IN THE URINE

UNDER NORMAL AND PATHOLOGIC CONDITIONS AND DURING PREGNANCY *

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AND

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While we were studying the question of the possible substitution of aluminum hydroxid cream for the parchment diffusion thimbles in the Abderhalden serum diagnosis of pregnancy, there appeared Warfield's paper¹ on the presence of dialyzable ninhydrin-reacting substances in the urine of pregnant women. This led us to turn our attention to a study of the urine under normal and pathologic conditions and during pregnancy.

LITERATURE

Since the publication in 1906 of Pfaundler's² work on the determination of amino-acid nitrogen in the urine, there has remained little doubt as to the appearance of appreciable amounts of this class of compounds in normal urine. This work was confirmed a few months later by Krüger and Schmidt,³ using a different method. These investigators found amino-acid nitrogen to the amount of from 0.325 to 0.45 gm.

* From the Laboratories of Medical Research and Physiologic Chemistry, University of Illinois, College of Medicine.

* Owing to lack of space, this article has been abbreviated in THE JOURNAL by omission of several tables. The complete article is contained in the author's reprints.

1. Warfield, Louis M.: Presence of Dialyzable Products Reacting to Abderhalden's Ninhydrin in the Urine of Pregnant Women, THE JOURNAL A. M. A., Feb. 7, 1914, p. 436.

2. Pfaundler: Ztschr. f. physiol. Chem., 1900, xxx, 75.

3. Krüger and Schmidt: Ztschr. f. physiol. Chem., 1900-1901, xxxi, 556.

in from 5 to 6 per cent. of total nitrogen in normal urine.

Embden,⁴ and Embden and Reese,⁵ on the basis of results obtained by using their modification of the beta-naphthalin-sulphochlorid method, came to the conclusion that as high as 1 gm. of glycocoll may be eliminated daily under normal conditions.

In addition to the glycocoll compound there were found compounds of other amino-acids which Embden and Reese were, however, unable to identify. The weights of the amino-acid compounds isolated in five normal cases were as follows: 1.62, 2.74, 1.48, 1.73, 2.80 gm. daily. These amounts represent 4.32 to 5.10 per cent. of total nitrogen. This, according to the investigators, expresses the minimal amount. Since 1905 many investigations have been carried out on the amount of amino-acid nitrogen eliminated under normal conditions.

Frey⁶ found from 0.2 to 0.5 gm. amino-acid nitrogen under normal conditions; Magnus Levy⁷ from 2 to 6 per cent. of the total nitrogen, Henriquez⁸ 2 per cent. of the total nitrogen on a mixed diet, Masuda,⁹ in the case of low protein diet, from 1 to 3 per cent. of total nitrogen, and on high protein diet from 4 to 5 per cent. Joshida⁷ found amino-acid nitrogen varying from 0.5 to 2 per cent., and Falk and Saxl¹⁰ from 1.5 to 3 per cent., Siquorelli¹¹ found 2 per cent. of total nitrogen in normal cases on mixed diet. Galambos and Tausz¹² found from 0.236 to 1.05 gm. amino-acid nitrogen and 1.58 per cent. and 4.35 per cent. of total nitrogen.

It would appear from the evidence presented that amino-acids form an appreciable part of the normal nitrogenous elimination. If ninhydrin reacts with compounds containing the intact amino group in the α , β , etc., position to the intact carboxyl group, then all normal urine should react positively with the reagent, unless the urine contains interfering substances or the content of the amino-acids falls below the limits of delicacy of the reagent.

COLLECTION OF SAMPLES

The urine was obtained fresh and in nearly all cases about four hours after meal-time. The patients suffering from various pathologic conditions were on a liquid or light diet with the exception of the tabes and general paresis patients who were on a general diet. The pregnant women and the normal persons were on a general mixed diet.

METHOD

For the removal of the colloidal substances in the urine we used the aluminum cream according to the method of Marshall and Welker,¹³ who showed that this substance can be used for the quantitative removal of colloids from their solutions. Ten c.c. of urine was mixed with an equal volume of aluminum hydroxid cream and the mixture was shaken and filtered. Ten c.c. of the filtrate was treated with 0.2 c.c. of a 1 per

4. Embden: Verhandl. d. Cong. f. inn. Med., 1905, xx, 304.

5. Embden and Reese: Beitr. z. Chem. Physiol. u. Path., H. v. Meister's 1905-1906, vii, 411.

6. Frey: Ztschr. f. klin. Med., 1911, lxxii, 383.

7. Cited by Galambos and Tausz, Ztschr. f. klin. Med., 1911, lxxii, 325.

8. Henriquez: Ztschr. f. physiol. Chem., 1909, lx, 1.

9. Masuda: Ztschr. f. exper. Path. u. Therap., 1911, viii, 629.

10. Falk and Saxl: Ztschr. f. klin. Med., 1911, lxxiii, 325.

11. Siquorelli: Biochem. Ztschr., 1912, xxxix, 36; 1912, xlvii, 482.

12. Galambos and Tausz: Ztschr. f. klin. Med., 1913, lxxvii, 14.

13. Marshall and Welker: Jour. Am. Chem. Soc., 1913, xxxv, 820.

cent. ninhydrin solution and heated on a Chaddock burner for exactly one minute after boiling had begun. The depth of color was observed and noted after the tubes had been standing for half an hour at room temperature. In all the samples containing albumin the filtrate from the aluminum treatment was tested by means of the heat coagulation or Heller's ring test, in order to be certain that sufficient aluminum hydroxid had been used to remove all the albumin. A summary of results is given in Table 1. A complete tabulation of the results will be incorporated in the protocols in the reprint of this paper.

EXPERIMENTS OF COMPARATIVE STRENGTH OF REACTION
WITH THE FILTRATES FROM URINE, TREATED
WITH ALUMINUM HYDROXID AND
THE DIFFUSATES FROM PARCH-
MENT THIMBLES

A study was made of the comparative strengths of the color reactions with ninhydrin when the methods of diffusion through parchment thimbles and precipitation by aluminum hydroxid were used to remove the colloids. A number of urines which gave strongly positive reactions were compared. The diffusion was carried on in C. S. and S. 579 dialyzing thimbles, which had been previously tested to insure impermeability to

albumin and equivalent permeability to non-colloidal substances.

Diffusion time was twenty-one hours at room temperature.

The depth of blue color brought out on boiling 10 c.c. with 2 c.c. of a 1 per cent. of ninhydrin solution was greater in diffusates than in the filtrates from aluminum hydroxid.

These results are shown in Table 2.

A comparative study was made of the strength of the ninhydrin reaction on the urines direct, on the filtrates after treatment with aluminum hydroxid and on the diffusates through collodion bags and parchment thimbles.

Ten urines were studied from cases of acute contagious diseases. The urines were obtained fresh and the reaction with ninhydrin on the urine direct and on the filtrate after treatment with aluminum hydroxid was studied at once. The diffusion through collodion bags and parchment thimbles was allowed to proceed eighteen hours and the diffusates tested with ninhydrin. The results are shown in Table 3.

Contrary to the conclusions of C. E. M. Fischer,¹⁴ that the reaction might just as well be applied to any

14. Fischer: Ninhydrin Reaction of Urine, Correspondence Department, THE JOURNAL A. M. A., March 21, 1914, p. 950.

TABLE 1.—SUMMARY OF URINARY ANALYSES AND NINHYDRIN REACTIONS

| Class | Whole No. Cases | Specific Gravity Average | Reaction | | Albumin* | | Indican* | | Ninhydrin* | |
|------------------------------------|-----------------|--------------------------|--|-------------------|----------------------------------|------------------------|--|----------------------------|---|--------------------------------------|
| | | | Nature of | No. Cases | Result of Test | No. Cases | Result of Test | No. Cases | Result of Test | No. Cases |
| Normal | 8 | 1.0210 | Acid Not tested | 2 6 | 0 | 8 | \pm 0 | 2 6 | +++ ++ + — | 4 1 2 1 |
| Pregnant women | 22 | 1.0261 | Acid Faintly acid | 20 2 | + \pm 0 | 6 8 8 | ++ + \pm 0 Not enough | 2 4 8 7 1 | +++++ +++++ +++++ +++ ++ + | 5 2 8 3 1 3 |
| Carcinomas | 13 | 1.0176 | Acid Faintly acid Alkaline | 9 2 2 | +++ + \pm 0 | 1 1 6 5 | ++ + \pm 0 | 1 5 4 3 | +++++ +++++ +++++ +++? | 2 1 1 1 1 1 |
| Burns | 3 | 1.0196 | Acid Alkaline | 2 1 | \pm 0 | 1 2 | + \pm | 2 1 | +++ ++ + | 1 1 1 |
| Frost-bite | 2 | 1.0245 | Acid | 2 | 0 | 2 | \pm 0 | 1 1 | +++ ++? | 1 1 |
| Diabetes | 5 | 1.0288 | Acid Slightly alk. | 4 1 | +++ \pm 0 | 1 1 3 | + + 0 | 2 3 | +++ ++ ? | 1 1 3 |
| Tabes | 21 | 1.0219 | Acid Faintly acid Alkaline Faintly alk. | 18 1 1 1 | \pm \pm ? 0 | 2 1 18 | ++ + \pm 0 Red Deep red | 1 3 6 2 8 1 | +++++ +++++ +++++ +++ ++ ++? | 2 1 1 3 2 12 |
| General paresis | 2 | 1.0230 | Acid | 2 | \pm 0 | 1 1 | + | 2 | ? | .. |
| Tuberculosis | 10 | 1.0235 | Acid | 10 | \pm + \pm 0 | 1 1 2 7 | + \pm + 0 | 3 6 1 | +++? ? | 6 4 |
| Pneumonia | 7 | 1.0157 | Acid Alkaline | 6 1 | +++ ++ 0 | 1 1 5 | ++++ + \pm 0 | 1 2 1 3 | +++ +++? +++ + | 1 1 2 1 |
| Contagious diseases.. | 28 | 1.0185 | Strong acid Acid Faint acid + Acid | 5 20 2 1 | +++ ++ \pm \pm 0 | 2 2 2 1 21 | ++ + \pm 0 | 2 5 5 16 | +++++ +++++ +++++ +++ ++ ++? | 2 2 4 2 5 3 3 7 |
| Miscellaneous | 3 | 1.0196 | Acid Alkaline | 2 1 | \pm 0 | 1 2 | + 0 | 1 2 | 0 0 | 3 |
| Total number of Urines studied ... | 124 | ..... | ..... | .. | ..... | .. | ..... | . | ..... | .. |

* In these columns \pm means trace, \pm —, faint trace, and \pm ?, very faint trace.
1. Probably due to ingested iodid.

albumin-free urine, we find that the reaction is much better brought out after treatment by aluminum hydroxid or dialysis.

CONCLUSIONS

- 1. The presence of non-colloidal ninhydrin-reacting substances in urine is of no value as a means of diagnosing pregnancy.
- 2. The reaction may be absent or inhibited in the urine of pregnant women as well as in normal and pathologic urine.
- 3. In the various urines treated the only difference in the ninhydrin reaction between the diffusates through parchment, and the filtrates from the alum-

TABLE 2.—COMPARATIVE STUDY OF THE NINHYDRIN REACTION ON THE DIFFUSATE OF URINE THROUGH PARCHMENT THIMBLES AND THE FILTRATE AFTER TREATMENT BY ALUMINUM HYDROXID CREAM

| | Parchment | | Aluminum Hydroxid | |
|---|-------------------|-----------|-------------------|-----------|
| | Urinary Pigment | Ninhydrin | Urinary Pigment | Ninhydrin |
| 1 | Strong | ++? | 0 | ++? |
| 2 | Faint | +++++ | 0 | +++ |
| 3 | Faint | +++ | 0 | ++? |
| 4 | Negative | +++ | 0 | ++ |
| 5 | Negative | + | 0 | + |
| 6 | Faint trace | +++++ | 0 | +++++ |
| 7 | Negative | +++++ | 0 | + |
| 8 | Strong | 0 | 0 | 0 |
| 9 | Faint | ++ | 0 | + |

inum treatment were those of intensity of colors, the aluminum filtrates showing a less intense color with ninhydrin.

- 4. In the urines reacting positively with ninhydrin the removal of colloidal substances favors the production of the blue color given by this reagent with amino-

TABLE 3.—COMPARATIVE STRENGTH OF REACTION WITH NINHYDRIN ON URINES DIRECT, ON THE FILTRATES AFTER TREATMENT WITH ALUMINUM HYDROXID CREAM AND THE DIFFUSATES THROUGH COLLODION BAGS AND PARCHMENT THIMBLES†

| No. | Urine Direct | Aluminum Hydroxid | Collodion Bags | Parchment Thimbles |
|-----|--------------|-------------------|----------------|--------------------|
| 1 | * | 0 | 0 | 0 |
| 2 | Red† +++? | + | Red† +++? | Red† +++? |
| 3 | 0 | ++ | + | + |
| 4 | * | + | + | ++? |
| 5 | * | 0 | Red† ++? | + |
| 6 | 0 | 0 | + | + |
| 7 | ++++ | ++++ | 0 | + |
| 8 | * | ++++ | Blue | +++ |
| 9 | Red† +++? | + | +++++ | Red† ++? |
| 10 | 0 | 0 | ++? | 0 |

* No test made because of insufficient quantity of urine.
† Red reaction here means that the typical violet of the ninhydrin was modified by a reddish cast.
‡ In these columns 0 means negative.

acids. Such urines before diffusion or treatment with aluminum hydroxid give a color which is not so strong and has more of a reddish cast. This is not the result of the dilution alone.

- 5. The occurrence of either albumin or indican appears to have no influence on the ninhydrin reaction applied to the colloidal-free urine.

We wish to express our appreciation to the attending and house staffs of the Cook County Hospital for access to the clinical material and assistance in obtaining histories in the various cases.
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THE VIABILITY OF THE SPIROCHAETA PALLIDA IN DIFFUSE LIGHT AT ROOM TEMPERATURE *

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In connection with our work on the *Spirochaeta pallida* it occurred to us that it would be of much hygienic interest to determine how long the spirochete would survive, in diffuse light and at room temperature, under conditions simulating roughly those prevailing when syphilitic discharges are deposited as drops of fluid on hard surfaces, soaked in a cloth, a towel for instance, or dried on glass, as would occur in their deposit on drinking cups, etc.

In order to simulate as nearly as possible the conditions prevailing in discharges, we carried out this experiment with fluid cultures which were contaminated both with cocci and with bacilli in which very large numbers of spirochetes were present. The culture used was one that had been planted in a flask of mixed ascitic fluid and salt solution fourteen days before. This fluid contained rather more spirochetes per drop than we have seen, except in the most profusely positive primary and secondary lesions. In its composition of about half and half ascitic fluid and salt solution it was closely similar to exudates from the body.

The following experiments were made:

EXPERIMENT 1.—A series of twelve test-tubes, 20 cm. long, as used in the cultivation of the *Spirochaeta pallida* by Noguchi's method, were sterilized and, into the bottom of each were placed about 3 drops of the mixed culture. These tubes were then exposed, on the middle of a high table in a light laboratory room with southern exposure, in bright diffuse light. The temperature of this room ranged from 22 C. (71.6 F.) at the beginning of the experiment (April 27) to 25 C. (77 F.) at 6 p. m. and 21.5 C. (70.7 F.) at 10 p. m. At the end of varying periods, as indicated in Table 1, a bit of sterile kidney-tissue was placed into each tube, this covered with a mixture of neutral agar and ascitic fluid, the column then sealed with oil and the tube incubated. At the end of thirteen days, dark-field examinations were made and profuse growth found in the tubes marked "positive." The results of the experiment are found in Table 1.

TABLE 1.—RESULTS OF EXPERIMENT 1

| Tube No. | Planted after Hours | Result Determined after 13 Days* |
|----------|---------------------|----------------------------------|
| 1 | Immediately | + |
| 2 | 1/2 | + |
| 3 | 1 | + |
| 4 | 2 | + |
| 5 | 3 | + |
| 6 | 4 | + |
| 7 | 5 | + |
| 8 | 6 | + |
| 9 | 7 | + |
| 10 | 11 1/2 | + |
| 11 | 23 1/2 | — |
| 12 | 31 | — |

* In this and the following tables + means positive and — negative

EXPERIMENT 2.—In this experiment similar tubes were set up, but the material placed into them consisted of little bit of towel-cloth which had been dipped into the spirochete culture. An ordinary laboratory towel was cut into small squares, sterilized in a dry oven, and these little pieces dipped into the fluid culture until thoroughly soaked. The excess fluid was then shaken off but the cloth not thoroughly dried. Its condition was one of distinct moistness, though not drip-

* From the Department of Bacteriology, Columbia University, College of Physicians and Surgeons.

ping, when placed into the tube. The exposure was carried on just as before, the little bits of towel remaining during the period of exposure in the bottom of the test-tubes. Plants were made as in the previous experiment. The results are shown in Table 2.

TABLE 2.—RESULTS OF EXPERIMENT 2

| Tube No. | Planted after Hours | Result Determined after 13 Days |
|----------|------------------------|------------------------------------|
| 1 | Immediately | + |
| 2 | $\frac{1}{2}$ | + |
| 3 | 1 | + |
| 4 | 2 | + |
| 5 | $3\frac{1}{4}$ | + |
| 6 | $4\frac{1}{2}$ | + |
| 7 | $5\frac{1}{2}$ | + |
| 8 | $6\frac{1}{2}$ | + |
| 9 | $11\frac{1}{2}$ | + |

EXPERIMENT 3.—In this experiment the culture material was allowed to dry on pieces of broken cover-slips. The sterile cover-slips were dipped into the culture and placed in a Petri dish into the incubator. The first tube was planted immediately, while the slips were still moist. After one hour in the incubator the second slip was planted and close observation showed that this was not yet entirely dry—a slight film of moisture still appeared on it. Before the third planting was made the slips were removed from the incubator and dried in the air. Subsequent plants were made with absolutely dry material.

TABLE 3.—RESULTS OF EXPERIMENT 3

| Tube No. | Planted after Hours | Result Determined after 13 Days |
|----------|------------------------|------------------------------------|
| 1 | Immediately | + |
| 2 | 1 | + |
| 3 | $1\frac{1}{4}$ | — |
| 4 | $2\frac{1}{4}$ | — |
| 5 | $3\frac{1}{2}$ | — |
| 6 | $4\frac{1}{2}$ | — |
| 7 | $5\frac{1}{2}$ | — |
| 8 | $10\frac{1}{2}$ | — |

These simple experiments show that, when kept moist, the *Spirochaeta pallida* can live in diffuse light and at room temperature, under conditions of mixed culture (as occurring in the ordinary contamination of materials from the patient) as long as eleven and one-half hours. From the third experiment it appears that drying kills the organism rapidly. During the period of drying, however, for as long as one hour, the spirochete may remain alive.

We are quite aware that the artificial conditions produced by us do not exactly simulate those prevailing when the material is deposited freshly from the patient on articles freely exposed to the air and not enclosed in test-tubes. As far as the first consideration is concerned, it would seem that organisms deposited fresh from the patient might be even more thoroughly protected than those employed by us, in that they are often contained in mucous discharges which dry but slowly. Such material on a towel hanging in an ordinary privy or bath-room in which there is apt to be a great deal of humidity, may remain moist for a considerable period, although probably not so long as did the pieces of towel enclosed in our test-tubes. As far as the light conditions are concerned, these were probably more severe in our experiments than they would be in the ordinary dark corner in which are located the places where such contamination might take place.

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THE PRACTICAL SIGNIFICANCE OF THE ADRENALS *

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Although the last word in regard to the functions of the adrenals has by no means been said, enough evidence has accumulated to justify certain conclusions which will probably stand the test for further research.

Perhaps the most significant discovery of recent years is that epinephrin has the remarkable characteristic of going through the body and selectively stimulating the sympathetic nervous system, or, more specifically the terminal "receptive substance" which forms a functional connection between the sympathetic nerve-endings and the tissues.¹ The effect of the drug in any organ depends on whether or not it has a sympathetic innervation. If not, no effect occurs. If sympathetic fibers are present, the effect is stimulation or depression, depending on the function normally mediated by these fibers. Considering that the sympathetic system has a regulatory influence on many vital processes, the body is peculiarly exposed to the influence of the adrenal secretion. Moreover, this secretion acts strongly in remarkably dilute solution. For instance, the presence of 1 gm. in 100,000 liters, or 1 grain in 1,500 gallons of fluid bathing a piece of isolated intestine is sufficient to check its activity.² This being true, the adrenals are potentially a very important factor in regulating bodily activity. It thus becomes a very practical question as to when and under what conditions this highly potent substance is discharged into the blood-stream. If this occurs to any considerable extent, the adrenals must be regarded as an important factor in the normal physiologic functioning of the body as well as in nearly every symptom-complex.

The conditions governing adrenal discharge have been under investigation for the last three years in Cannon's laboratory at the Harvard Medical School.³ Cannon, in studying the activities of the alimentary tract, had noticed that an outburst of emotion — fear or anger — resulted in a checking of peristalsis which persisted some time after all evidence of the emotion had passed. He suspected that this might be due to the presence in the blood of epinephrin secreted as a result of the emotion. Direct research confirmed the fact that augmented adrenal discharge does occur as a result of strong emotion. If emotion causes such an effect, pain, the most common cause of emotion, might be expected also to cause adrenal discharge. This was found to be the case. Asphyxia has been shown by several investigators to be equally effective.

Since this adrenal discharge is purely reflex, and since reflexes are usually of direct benefit to the individual, the question arises, Of what use is this arrangement? McDougal has suggested that emotions are the mental representation of bodily activities: anger represents combat, fear represents flight. In case combat results, pain is at once experienced. Either flight or combat causes partial asphyxia — at least until the body has had time to adjust to the conditions. The adrenal discharge might be supposed,

* Read before the Illinois State Medical Society, Decatur, 1914.

1. Elliott: Jour. Physiol., 1905, xxxii, 401.

2. Hoskins: Am. Jour. Physiol., 1912, xxix, 363.

3. For an excellent summary of the research see Cannon: Am. Jour. Physiol., 1914, xxxiii, 356.

Primitive Ideas.—The heart, according to Aristotle, was the seat of the soul, and the birthplace of the passions, for it held the natural fire, and in it centered movement, sensation and nourishment.—Elliott, Greek and Roman Medicine.

therefore, to aid in some way in strenuous muscular activity; that is, to integrate the body for muscular response to the stressful condition which caused the discharge.

As a matter of fact, the injection of epinephrin does have a number of effects that aid in violent muscular activity. A quiescence of the whole digestive system results and the blood is shifted from the splanchnic circulation to the active muscles, the nervous and respiratory organs. The circulation in these organs is further increased by a rise of blood-pressure resulting from vasoconstriction of the splanchnic area and often of the skin, as well as by augmented cardiac discharge. A discharge of dextrose occurs, leading to hyperglycemia, whereby the laboring muscles supposedly obtain a better supply of energy material. This hyperglycemia has been observed as a direct result of strong emotion as well as of artificially augmented epinephrin. The well-known bronchodilator effect of epinephrin is of obvious utility in aiding free breathing whereby the oxygen necessary to violent activity is secured. Most striking of all, however, the laboring muscle itself is directly benefited. Cannon and Nice⁴ observed that after the injection of epinephrin or stimulation of the splanchnic nerves to cause adrenal discharge, the efficiency of a fatigued muscle is improved, sometimes 100 per cent. Gruber⁵ has found that recovery from fatigue is greatly hastened by the injection of epinephrin. The explanation of this fact is not definitely known, but a hint is offered by Evans and Ogawa's⁶ observation that in the heart at least the assimilation of oxygen is increased by epinephrin. Cannon, Gray and Mendenhall⁷ have discovered another remarkable fact which is of further use to the individual in case the stressful condition results in bodily injury: epinephrin lessens the coagulation time of the blood. This is true, however, only within physiologic limits for such quantities as can be obtained by stimulating the splanchnic nerves. In case greater quantities are employed, the coagulation is interfered with. With proper regard to this fact, epinephrin should come into frequent clinical use in combating hemorrhage. Cannon suggests that the pains of labor are of direct use to the mother in causing adrenal discharge and thereby protecting her from post-partum hemorrhage.

Some of these facts are of direct clinical importance. The emotional instability of the neurasthenic and continual worry or fear in the normal person probably subject them to frequent adrenal stimulation to the detriment of their vegetative activities, particularly of digestion. The dangerous influence of emotional stress in persons with high blood-pressure or hard arteries is to be ascribed partly to an adrenal factor. Similarly a diabetic is to be protected from conditions causing adrenal discharge because of the tendency of epinephrin to aggravate hyperglycemia.

The fact that injecting epinephrin is exactly equivalent to a general stimulation of the sympathetic system and the common supposition that an animal after removal of its adrenals dies in a condition of vasomotor failure, at least strongly suggest that the paramount function of these glands is to maintain tonus in the sympathetic system. This hypothesis may be

designated the "tonus theory." It supposes that the adrenals constantly pour into the blood-stream epinephrin in sufficient amount to keep the sympathetic system in a condition of partial stimulation.

A number of facts may be mentioned, however, which are not consistent with the theory. In the first place, the adrenal glands seem to have at best but a very limited capacity.⁸ The doses of the drug that are given in pharmacologic demonstrations are probably greatly out of proportion to any amount which the glands can secrete. If small quantities of the drug are given, the most prominent effect is a vascular depression.⁹ If during periods of quiet existence the glands have any effect, it is likely that it is a depression of the sympathetic system.

We have excellent reason, however, to think that ordinarily the sympathetic system is not at all under epinephrin influence. It is easy to place ligatures in such a way that they can be drawn tight from outside the body and shut off the adrenal circulation without affecting any other important structures. While a blood-pressure record is being taken on an animal so prepared, the adrenals can be isolated quickly. Whatever influence they may have been having is immediately removed. If they have been keeping up sympathetic tonus, a fall of blood-pressure should immediately occur; but the effect of so isolating the glands is nil.¹⁰

Another fact may be mentioned: If epinephrin be injected at a very small but gradually increasing rate, no effect at all is at first to be seen. Then various changes occur. One of the earliest is a depression of peristalsis. This is noted before any tonic influence on the circulation appears.¹¹ It is obvious that any mechanism which could keep up sympathetic tonus only at the expense of intestinal paralysis would be of little use. This fact, as suggested by O'Connor, has an important clinical bearing. There have been numerous attempts to incriminate the adrenals in cases of high blood-pressure; but any degree of epinephrin secretion sufficient to cause continual hypertension is out of the question and the explanation, whatever it be, is to be sought elsewhere. This conclusion is strengthened by the observation that epinephrin glycosuria is also produced before the blood-pressure is raised.¹²

Attractive as the tonus theory is, such data render it no longer tenable. But the fact remains that adrenal extirpation is fatal and the final symptoms are supposed to include a primary failure of functions under sympathetic control, notably of blood-pressure. Elliott¹³ has offered the suggestion that adrenal deficiency results in the loss, not necessarily, of any tonic stimulant, but of a substance necessary for the maintenance of sympathetic irritability; that is, that epinephrin is of importance in the transmission of impulses through the myoneural "receptive substance." There is nothing in the available evidence which disproves the suggestion.

8. Hoskins, R. G., and McPeck, Clayton: The Effects of Adrenal Massage on Blood-Pressure, *THE JOURNAL A. M. A.*, June 7, 1913, p. 1778. Osgood, cited by Cannon: *Am. Jour. Physiol.*, 1914, xxxiii, 356.

9. Moore and Purinton: *Arch. f. d. ges. Physiol.*, 1900, lxxxi, 483. Hoskins, R. G., and McClure, C. W.: The Adrenal Glands and Blood-Pressure, *Arch. Int. Med.*, Oct., 1912, p. 353. Cannon and Lyman: *Am. Jour. Physiol.*, 1913, xxxi, 376.

10. Kahn: *Arch. f. d. ges. Physiol.*, 1911, cxl, 216. Hoskins and McClure: *Am. Jour. Physiol.*, 1912, xxx, 192. Trendelenburg: *Ztschr. f. Biol.*, 1914, lxiii, 155.

11. Hoskins and McClure: *Am. Jour. Physiol.*, 1912, xxxi, 59.

12. Gremenitzki: *Biochem. Ztschr.*, 1912, xlv, 186.

13. Elliott: *Jour. Physiol.*, 1904, xxxi, p. xx.

4. Cannon and Nice: *Am. Jour. Physiol.*, 1913, xxxii, 44.

5. Gruber: *Am. Jour. Physiol.*, 1914, xxxiii, 335; *ibid.*, xxxiv, 89.

6. Evans and Ogawa: *Jour. Physiol.*, 1914, xlvii, 446.

7. Cannon and Mendenhall: *Am. Jour. Physiol.*, 1914, pp. 225, 243.

251. Cannon and Gray: *Jour. Physiol.*, 1914, p. 232.

Another hypothesis equally capable of explaining the results of adrenal extirpation has been made, namely, that the adrenals in some way directly promote the metabolism of the muscular tissues.¹⁴ In the absence of the glands, myasthenia develops. This asthenia, if it included the circulatory apparatus, would lead to low blood-pressure. The negative phase of the hypothesis is equally tenable, that is, that the adrenals destroy some substance which interferes with muscular metabolism. In this form the suggestion is an old one.

Elliott's suggestion is amenable to experimental investigation. If adrenal destruction results in an interference with sympathetic functioning, the fact should be easily demonstrable. Accordingly, a series of experiments has recently been carried out in our laboratory at Northwestern in the hope of determining the matter.¹⁵ We used the vasomotor system as a criterion of the condition of the sympathetic system as a whole. The method, in brief, was to isolate the adrenal glands and then, after the animal began to react to adrenal deficiency, to test the functional condition of various parts of the vasomotor apparatus. The injection of pituitary extract, which acts on the vascular musculature itself, showed that this tissue was not impaired. Similarly epinephrin showed that the myoneural receptive substance reacted normally. The condition of the sympathetic cells proper was determined by injecting nicotin, which selectively stimulates these. At a time when the animal was almost moribund, the reaction to nicotin was not only unimpaired, but often even somewhat augmented. Finally, stimulation of afferent nerves produced an undiminished pressor effect. It was concluded, therefore, that the vasomotor system as such is not influenced by adrenal destruction. Parenthetically, attention may be called at this point to a fallacy in the clinical use of epinephrin as a test of *sympathicotomie* in exophthalmic goiter and other conditions. Epinephrin has little or no influence on the sympathetic system proper. Its action is restricted to peripheral structures, that is, to the "receptive substance." An exaggerated reaction to epinephrin does not at all indicate, as is popularly supposed sympathetic irritability. Indeed, as Elliott has shown, it is a characteristic sign of sympathetic degeneration. We have had numerous opportunities to observe that there is no necessary parallelism between true sympathetic irritability and augmented reaction to epinephrin. The use of epinephrin in this connection, therefore, is absurd. Nicotin would be a much more logical agent.

In connection with the experiments just mentioned we were able to confirm the observation that low blood-pressure does result from destruction of the adrenals, but that there develops a marked weakness of the heart which is alone enough to account for the hypotension. Experimental adrenal deficiency, therefore, is seen to involve selectively the cross-striated muscle, cardiac as well as skeletal. The same is probably true of Addison's disease.

In view of the fact that the adrenals consist of two distinct parts the question arises, Which of these is concerned in such experiments? The results of adrenal deficiency are commonly ascribed to loss of the medullary portion from which epinephrin is

secreted. Without attempting any exhaustive discussion of the question, some of the more pertinent evidence may be mentioned. If *epinephrin deficiency* were the significant factor it could easily be compensated for by the continuous injection of the drug; but observers are agreed that this procedure is futile.¹⁶ Death at best is but slightly delayed. Biedl¹⁷ has concluded from extirpation experiments in animals in which the two parts of the gland are separate that it is the loss of cortical substance which causes asthenia. Various observers have seen animals kept alive after adrenal extirpation by the hypertrophy of fragments left behind in the operation; but in such cases it is the cortical tissue that hypertrophies.¹⁷ Moreover, as Loewy¹⁸ has recently reported, the characteristic syndrome of Addison's disease may develop in patients in whom the cortical tissue alone is deficient. Weed¹⁹ of Johns Hopkins has recently reported a crucial experiment on the point. By successive operations an animal was deprived of all its adrenal tissue except one small fragment. Ligatures were then so placed that the circulation of the cortical part was destroyed, but the medullary part left unaltered. The animal promptly died.

On the whole, it seems most likely that the characteristic asthenia of adrenal deficiency is due to the loss of cortical tissue, whereas the medullary part has as its chief function the furnishing of a special stimulant to enable the body to cope with emergencies.

In summary we may say that the available evidence indicates that the adrenals secrete a substance, epinephrin, of remarkable potency. This substance selectively affects the tissues having sympathetic nervous control, thereby affecting many vital functions. Adrenal discharge occurs when the individual is subject to stress, as strong emotions, pain or asphyxia. The discharge integrates the body for muscular response: (a) by shifting the blood from the vegetative to the motor, nervous and respiratory organs; (b) by increasing blood-pressure; (c) by causing discharge of dextrose into the blood for use of the laboring muscles; (d) by dilating the bronchioles, permitting freer breathing, and (e) by reducing fatigue. It also hastens the coagulation time of the blood; a, b and c are of direct clinical importance.

During quiet existence the epinephrin secretion, if occurring at all, is below the threshold necessary to stimulate the sympathetic system. Sympathetic activity *per se* is not impaired by adrenal extirpation.

Adrenal destruction results in fatal asthenia of the skeletal and cardiac muscle. This is probably due to loss of adrenal cortex, not epinephrin-secreting tissue. Addison's disease is probably due, therefore, to functional failure of the adrenal cortex.

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16. Battelli: Compt. rend. Soc. de biol., 1902, p. 1138. Gradinescu: Arch. f. d. ges. Physiol., 1913, clii, 203.

17. Biedl: Innere Sekretion, Berlin, 1913.

18. Loewy: Deutsch. Arch. f. klin. Med., 1913, cx, 373.

19. Weed: Verbal Communication before the American Society for Experimental Pathology, Dec. 30, 1913.

Qualities of a Surgeon.—Celsus, who lived during the reign of Augustus, described the qualities which should distinguish a surgeon as follows: He should not be old, his hand should be firm and steady, and he should be able to use his left hand equally with his right; his sight should be clear, and his mind calm and courageous, so that he need not hurry during an operation and cut less than required.

15. Hoskins and Wheelon: Am. Jour. Physiol., 1914, xxxiv, 172.

14. Oliver and Schäfer: Jour. Physiol., 1895, xviii, 230. Hoskins and McClure: Am. Jour. Physiol., 1912, xxx, 195.

PRACTICAL STUDY OF GOAT'S MILK IN
INFANT FEEDING AS COMPARED
TO COW'S MILK *

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This study was made to learn, if possible, why goat's milk agrees better with some infants than cow's milk. The babies were selected at random from the inmates of St. Mary's Infant Asylum and Maternity Hospital. The goat's milk averaged from 0.5 to 1.5 per cent. richer in fats than the cow's milk used in this institution. Nevertheless, in making our modifications of the two milks the same amount of each milk was used in the stock formulas. Consequently the caloric value of the goat's milk modifications was greater than that of the cow's milk.

We shall present our data under various headings.

RESULTS OF GASTRIC ANALYSES

All test-meals were withdrawn one hour from the middle of the feeding. The amount recovered averaged, in fourteen cases, nearly twice as much of cow's milk formulas as goat's milk, the accurate ratio being 41:27 c.c. This points to the slower digestion of cow's milk.

The curds of the goat's milk formulas were smaller and more flocculent, corresponding to the appearance in test-tube digestion.

The analyses in fifteen cases with goat's milk, and in fourteen cases, in the same children, with cow's milk, gave the averages shown in Table 1.

TABLE 1.—AVERAGES OF ANALYSES WITH GOAT'S MILK AND COW'S MILK

| | Goat's Milk | Cow's Milk |
|----------------------------------|-------------|------------|
| Free hydrochloric acid | Once | None |
| Combined hydrochloric acid | 22.00 | 28.20 |
| Acid salts | 5.53 | 5.30 |
| Total acidity | 28.4 | 33.50 |

In a previous paper¹ we calculated the average gastric analysis on (a) barley-water and (b) proprietary foods containing some proteins, fat, sugar and carbohydrates, but no milk. For convenience of comparison, we give in Table 2 the averages of these and also of modified goat's and cow's milk, as shown in Table 1. This table indicates the greater stimulating effect on the stomach of cow's milk than goat's milk, the greater stimulating effect of both than of the proprietary foods made without milk, and finally the greater stimulating effect of all three than of barley-water.

In some vomiting cases Table 2 gives definite information as to the causal factor of this condition in these four kinds of foods (a) through direct gastric stimu-

TABLE 2.—COMPARISON OF ANALYSES

| | Free Hydrochloric Acid | Combined Hydrochloric Acid | Acid Salts | Total Acidity |
|---|------------------------|----------------------------|------------|---------------|
| Barley water | 2.10 | 5.60 | .... | 9.00 |
| Proprietary foods containing some proteins, fat, sugar and carbohydrates, but no milk | None | 10.50 | .... | 17.40 |
| Goat's milk with rice water and 2 per cent. cane-sugar solution | None | 22.00 | 5.53 | 28.40 |
| Cow's milk with similar and other modifications | None | 28.20 | 5.30 | 33.50 |

* Read before the Pediatric Section of the New York State Medical Society at Rochester, April, 1913.
1. Sherman, DeWitt H.: Gastric Analysis in Infants, THE JOURNAL A. M. A., May 7, 1910, p. 1514.

lation, (b) because of the size and density of curds and (c) because of slower digestion.

CLINICAL OBSERVATIONS

As regards absorption and gain in weight our statistics are indefinite for three reasons: First, the babies being institution babies were apt to gain slowly; second, owing to an epidemic of streptococcus infection, which had swept through the infant's ward, causing gastro-intestinal disturbances so serious that about one-fifth of the babies died, the digestion of those who did recover, was more or less impaired; and third, because a certain number, who were doing well, were removed from the institution through adoption before our experiments were finished.

Of the number tested, sixteen cases in all, on similar formulas, twelve gained more rapidly on cow's milk modifications, and four on goat's milk. The gain of the former group was in the ratio of 3:1. The gain of the latter group was in the ratio of 9:1. Consequently those who did gain on goat's milk gained more rapidly than on cow's milk, but fewer gained on goat's milk.

In infantile atrophy and inanition, three cases, goat's milk was no more suitable than any other food.

Taste of Goat's Milk.—At first the babies did not finish all their bottles, not liking the flavor of the food as well as of cow's milk. This surprised us, because there seemed to us to be no unusual taste, as is usually supposed to be the case. If the milk is clean, we think the strong taste so common in Switzerland is unnecessary, and believe that the taste, as well as odor, is due to lack of udder cleanliness or possibly the type or food of the goat. In the goat's milk taken from three sources in this state — Geneva, East Aurora and Buffalo — we have never found the strong taste or odor commonly supposed to be characteristic of goat's milk.

Fats.—In goat's milk the fat averaged from 0.5 to 1.5 per cent. higher than in cow's milk. The more thorough emulsification of the fat in goat's milk, possibly the finer fat globules, prevents the separation of the cream on standing, as occurs in cow's milk. This fact may be an element in reducing the tendency to regurgitation in goat's milk as compared to cow's milk, and further, may be a very important factor in lessening the liability to sour vomiting, due to fatty acid fermentation, so common in high fat mixtures of cow's milk.

Strength of Formulas.—The babies, as a whole, tolerated equally well similar amounts of goat's or cow's milk with the same diluents, but as the goat's milk contained higher fat than cow's milk, they actually received more fat per feeding, and hence higher caloric value. It is consequently strange that more babies gained, as stated above, on cow's milk than on goat's milk modifications.

In our formulas, fat rarely averaged over 2.25 per cent. in goat's milk, and was a little less than 2 per cent. in cow's milk.

Stools.—On goat's milk the stools were as a rule smaller and of a more vivid yellow.

Age.—This did not influence materially the ratio of gain on goat's versus cow's milk, but the younger the baby, the more the evidence pointed toward a greater gain on goat's milk.

Vomiting.—Of twenty-four children receiving both goat's and cow's milk formulas, five vomited goat's milk some, and none cow's milk. The explanation

may be the slightly lower fat percentage in the cow's milk formulas. On the other hand, in certain cases goat's milk is often tolerated in similar amounts because of the fact that there is less gastric stimulation, that is, smaller, lighter curds.

After getting accustomed to goat's milk more children seemed hungry, and cried more at night than when taking cow's milk.

The type of modification commonest used was similar amounts of goat's milk or cow's milk diluted with rice-water and 2 per cent. cane-sugar.

We are very much indebted to Dr. W. H. Jordan, director of the New York State Agricultural Experiment Station, for sending us for six weeks 16 quarts a day of goat's milk in the best of condition. We are also indebted to Sister Frances and Sister Clare at St. Mary's Infant Asylum and Maternity Hospital for their assistance and cooperation in our work.

680 West Ferry Street—2378 Main Street.

THE HEMAUROCHROME REACTION

HERBERT S. CARTER, M.D.

WITH

SELMA GRANAT AND SARA DUPONT

NEW YORK

In June, 1913, T. G. Davis¹ of Los Angeles called attention to a substance which he called "hemaurochrome,"² which he found present in the urine in certain diseases. This he concluded was derived from hematin and occurred as a result of blood destruction in such diseases as carcinoma and sarcoma, in a series of cases of which he never failed to find the reaction. He also found it in malaria, anemias due to intestinal parasites, essential anemia due to near malignant disease of the lymph-glands and ductless glands, especially in hyperthyroidism in splenic, myelogenous and pernicious anemias.

In the cases here tabulated the reactions were divided into (1) negative, (2) faint (pinkish color), (3) moderate and (4) marked reaction. As the real hemaurochrome gives a rather deep pink, only the moderate and marked reactions are considered as positive.

During the past eight months the urine of about 350 cases of all sorts from the medical and surgical services of the Presbyterian Hospital, New York, have been tested for this reaction and the results are here tabulated.

The greatest interest at first naturally centered about the cases of new growth of all kinds, as it was hoped that a valuable method of differential diagnosis between malignant and benign tumors might be proved, Davis having reported such favorable results. There were seventeen cases of carcinoma and two of sarcoma; of the nineteen cases, ten were proved malignant by necropsy or operation, and in nine the diagnosis was practically certain from the clinical findings. Of these nineteen cases, in four, of the malignancy of which there was absolute certainty, the reaction was missing or inconclusive. Four cases of those clinically malignant also failed to show the reaction. Six of

the certainly malignant cases gave positive reactions and five of those clinically malignant did also. To put it in another way, four positively malignant and four probably malignant cases failed to give the reaction, and six positively malignant and five probably malignant cases gave the reaction.

The only reasonable conclusion one can reach in regard to these cases showing a new growth is that if the reaction is moderately or strongly positive, malignancy can be suspected. Negative findings, however, do not by any means rule out the diagnosis, so that the usefulness of this test is decidedly limited and Davis' contention is not borne out.

Of the three cases of malaria, two showed a marked reaction, and it seems likely that this would be regularly so. Of the anemias, three cases of splenic anemia failed to show a reaction. In two cases of pernicious anemia, one failed, and the other gave a marked reaction. Of the simple and secondary anemias, the percentage of hemoglobin seemed to have little influence on the presence or absence of the reaction; the complicating conditions apparently determined it. In classifying the cases by diagnosis, however, we were struck with the frequency with which we met a positive reaction in gastro-intestinal ulceration, particularly in cases diagnosed as peptic ulcer, whether gastric or duodenal. Of these there were fifteen cases of fair certainty, most of them proved by operation, necropsy or a typical history with hemorrhage. Of these, three gave no reaction (one was made one month after the operation) while twelve gave good reactions. Two of these cases gave the reaction during the early part of the series when we were chiefly concerned with the diagnosis of cancer, operations, however, proving them both simple ulcerations (in one, sections were cut from the excised ulcer). In five cases diagnosed as simple hyperchlorhydria without discoverable lesion, two cases gave a good reaction, and the subsequent history of both makes it most probable that they were really cases of ulcer.

It was hoped that in this large percentage of positive reactions in ulcer cases we might have found a helpful diagnostic point in the often difficult task of differentiating ulcer from chronic appendicitis or gall-bladder disease. There were six cases of chronic appendicitis examined, two of which gave positive reactions; both these cases were unproved; both patients complained of epigastric pain and were in the doubtful class.

Four cases of gall-bladder disease were examined, all failing to show a reaction, so that the presence of a good reaction in these doubtful cases is at least highly suggestive of ulcer.

One investigator thought that the presence of considerable amounts of indican in the urine accounted for many reactions, but in this series this was distinctly not the case, as of the fourteen cases that gave a marked reaction for indican, none showed a positive hemaurochrome. The presence of indolacetic acid had no influence on the reaction. There were twenty-four normal cases examined, none of them giving a reaction. There were numerous surprises in the following cases, however, in that some cases gave reactions entirely unexpectedly, none of them belonging to any of the classes in which Davis had found reactions:

Nervous dyspepsia, 2 positive. Both cases suspicious of ulcer, not proved.

1. Davis, T. G.: Am. Jour. Med. Sc., June, 1913, p. 857.
2. Hemaurochrome test: To 100 c.c. of urine add 10 c.c. hydrochloric acid. Heat slowly until it boils, remove and when cool add 10 c.c. ether. Agitate carefully. After twelve hours pour ether into a white porcelain dish and evaporate. If the reaction is positive there is a deep pink color left in the dish.

Chronic cardiac decompensation, 21 negative, 3 positive.
 Jaundice, 1 positive.
 Gastroparesis, 1 positive.
 Atonic constipation, 4 negative.
 Intestinal fistula, 3 negative.
 Typhoid fever, 9 negative, 4 positive (day of disease not a factor).
 Arthritis deformans, 2 positive.
 Diabetes mellitus, 5 negative, 2 positive.
 Cerebral hemorrhage, 1 positive.
 Hematuria, 1 positive.
 Gonorrheal arthritis, 1 positive.
 Aneurysm of arch, 1 positive.
 Syphilis (or Wassermann), 19 negative, 4 positive.
 Bronchitis, 10 negative, 1 positive (probably also malarial).
 Pneumonia, 8 negative, 1 positive.
 Neuritis, 1 negative, 3 positive.
 Periostitis, 1 positive.
 Dementia paralytica, 1 negative, 1 positive.
 Chronic nephritis, 9 negative, 3 positive.
 Septicemia, 1 positive.
 Myositis, 1 negative, 2 positive.
 Not diagnosed, 3 negative, 4 positive.
 Esophageal stenosis, 1 negative, 1 positive.
 Chlorosis, 16 negative, 15 positive.

One or more cases in the following conditions were examined, none of them showing a reaction: pleurisy, exophthalmic goiter, fatty liver, enterocolitis, acute poliomyelitis, vomiting of pregnancy, polycythemia, secondary anemia, ulcer of the leg, lipoma, enteroptosis, endometritis, uterine fibroids, acute appendicitis, acute parenchymatous nephritis, acute articular rheumatism, neurasthenia, acute leukemia, general arteriosclerosis, constipation, gastritis, tuberculosis, pyelitis, hydronephrosis, cholelithiasis, hysteria, scarlet fever and senility.

In reviewing these findings it will be seen that this reaction of hemaurochrome in the urine is far too frequently found in a wide variety of diseases to be of any specific importance. Indeed, one hesitates to attach any real importance to its presence in a case of suspected cancer or of gastric ulcer when we should like certain help in diagnosis, for the cases may be free of these diseases but still give positive reactions from some other and apparently trifling cause.

It may be said, however, that at least 50 per cent. of cancer cases give a positive reaction as well as a preponderating number of cases of peptic ulcer. In the latter condition especially it would seem worth while making the test in a very large number of cases, that sufficient operative or necropsy data might be obtained to establish its actual incidence. At present all one can say is that a positive reaction in cases presenting symptoms of peptic ulcer makes that diagnosis probable, particularly in contradistinction to a possible gall-bladder irritation or chronic appendicitis, and it may prove to be a test of greater negative than positive value.

66 West Fifty-Fifth Street.

The Speed of Progress.—Primitive views still prevail everywhere of man's relation to the world and to the uncharted region about him. So recent is the control of the forces of nature that even in the most civilized countries man has not yet adjusted himself to the new conditions, and stands, only half awake, rubbing his eyes, outside of Eden. Still in the thaumaturgic state of mental development, 99 per cent. of our fellow creatures, when in trouble, sorrow or sickness trust to charms, incantations and to the saints. —Osler: Specialism in the General Hospital.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. ITS ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

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Therapeutics

SOME OVERLOOKED CAUSES OF CHRONIC ILLNESS

(Concluded from page 1725)

EYE-STRAIN

In spite of frequent reference to this subject, only a small proportion of physicians consider it important though it is generally recognized that headaches are frequently due to eye-strain. About 90 per cent. of all recurrent headaches are due to conditions in the eyes. Of course, only a certain proportion of such headaches will be cured by correcting the optical defects; in fact, some patients will have eye aches in spite of corrective glasses. There may be congenital or acquired muscle weaknesses that are impossible to cure; that is, an eye that will meet one test at one time will give an entirely different test on other days. Such patients are the greatest chronic sufferers that we have; they are always subject to actual headache and disturbing reflexes, and still they do not die from it. As just stated, actual headaches, especially frontal or in the eyes, are recognized by most physicians as due to eye defects, and such patients are sent to

oculists. It is not recognized, however, that some patients who have no headache still may have reflexes from eye-strain. These reflexes are largely gastric, and vary from flatulence, hyperacidity and delayed digestion to dizziness, nausea and vomiting. These patients may have cold hands and feet, shiverings, feelings of faintness and often have palpitation attacks and irregular hearts. They may even have cardiac pains.

There are patients who have been treated for neurasthenia for months, or even years; patients who have had their stomachs washed out daily for a time, or weekly for a longer time for supposed stomach trouble; patients who have been treated for heart-disease, for hyperacidity, for gastric ulcer, for intestinal indigestion, etc., who have been cured by the proper glasses; if there is any astigmatism, keeping the glasses straight is especially important.

The following items are essential to the best results in cases of eye-strain:

1. The oculist must carefully test each eye and decide with care on the glasses needed.

2. The best optician possible should be selected to fill the prescription, and he should give careful attention to the kind of frame, the length of the posts and the closeness to the eye at which the glasses should sit, etc. In fact, the adjustment is all-important.

3. The patient should return to the oculist to ascertain if the glasses are correct and correctly adjusted.

The oculist is no more infallible than are the rest of us, and we should urge a patient to continue with one oculist until it is proved that he does not succeed in correcting the defect in the patient's eyes. Then the patient with defective eyes has a right to seek consultation just as if the disturbance were in any other part of the patient's anatomy. Also, it must be impressed on an astigmatic patient that a correct glass must always be in the proper position; the moment that that glass is deflected, it does not cure the ocular error. Consequently, frequent adjustment by the optician should be advised and urged. Also, the patient should understand that his eyes will change, and consequently the glasses will need to be changed, the length of time varying from six months to several years.

In making a careful examination of a patient who comes for varying conditions (and it is astonishing how many of these patients will come saying they have heart-trouble or stomach-trouble, and the whole emphasis is put on some other part of the body than the eyes) we should first exclude as well as we can every possible organic condition that could cause the disturbances present. The examination of the urine should never be forgotten. Specific questions aiming toward the elaboration of the part the eyes play in the disturbances are as follows:

1. Is there headache?

2. Is there nausea, and what is the relationship of the nausea or vomiting to the headache? Does the headache always precede the vomiting? We shall find that the "bilious attacks" are generally headache attacks. Also, we shall find, when the stomach is not at fault, that as soon as the headache ceases the patient has a good appetite for his next meal. No inflamed stomach can be bad one day and all right the next.

3. What is the periodicity of these headaches, or attacks of nausea or vomiting, or indigestions, or heart-pains? This means not only the frequency, but

also the relationship to activity, which will be mentioned later.

4. What is the duration of the disturbance, whatever it is?

5. At what age did these disturbances begin? We shall often find that they go back to school-life.

6. Does the patient like a dark room?

7. When attempting to read, study or write, does he become unexpectedly drowsy?

8. What is the effect of diet? We often ascertain that a patient has omitted from his diet first one article of food and then another, until his diet is down almost to a starvation one, to no purpose; the stomach upset is still repeated.

9. What is the relation of the headaches or stomach or heart reflexes to reading, to work, to theater-going, to card-playing, to the watching of a parade, to visiting the stores and shops, to riding in the cars and to going to the "movies"? All of this will progressively inform us, and will gradually make an impression on the patient. Still we have said nothing about the eyes; we have simply, by our questions, elicited facts. We will find that such a patient often cannot remain throughout a theater performance, or even through a church service. He also gets nervous if he rides in trolley cars; he has ceased to play cards; has gradually stopped reading, and has even become melancholic.

After such questioning, your patient will soon say to you, "Why, Doctor, is it my eyes?" And yet you have not said a word about eyes.

The presbyopic headache is more likely to be in the morning, and may be occipital. Such a headache may be due to high blood-pressure, to insufficient action of the kidneys or to the absorption of some substance produced by intestinal indigestion. A frequent cause of such headaches, however, is presbyopia.

Before leaving this subject, let it be urged that when pain exists anywhere in the head, with functional stomach and heart disturbances, after excluding all other causes by careful examination, the patient's eyes should be studied.

DISTURBANCES OF THE PARATHYROIDS

We do not yet know a great deal concerning the activity of the parathyroid secretion, but it has been shown that these glands are necessary for life, that convulsions occur if all of them are removed, and that the feeding of parathyroid or the administration of calcium will prevent these convulsions and save life. They may be abnormally secreting in certain forms of epilepsy; they may not be doing proper work in many forms of convulsions. Some forms of tetany are quite probably due to a subsecretion of these glands, and the feeding of parathyroid, or the administration of calcium is beneficial. Subthyroid secretion and subparathyroid secretion may be the cause of some forms of puerperal convulsions. It may always be wise to give a pregnant woman, during the last months of pregnancy, medicinal doses of calcium. She needs it not only for the growth of her child, but also to preserve her own teeth and to prevent softening of her own bones, to say nothing, perhaps, of combating the intoxication that may be caused by an insufficient parathyroid secretion.

The relationship of hypersecretion of the parathyroids to certain nervous diseases has not yet been shown, although such a study presents many possibilities of clinical and therapeutic interest.

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SATURDAY, JUNE 6, 1914

THE "DAY OF REST" AND HUMAN EFFICIENCY

The refreshing influence of the weekly recurring "day of rest" on a person subjected to the strenuous routine of a busy life is a feature which he himself can duly appreciate in terms of his "feelings" and "spirits." If it is desired to demonstrate the need of such relaxation and the benefits derived therefrom in some objective way, a method is not easily forthcoming. The problem is one which, in its broadest aspects, has a far-reaching importance in every community. The efficiency of the working man, the desirable length of the working-day, the interjection of pauses for rest in the schedule of labor for persons of different ages and stations in life—questions of this sort are constantly arising for solution by some plan which excludes purely subjective impressions and permits some more scientific basis for a tenable judgment in the matter. Not only in the field of manual labor, but also in innumerable other walks of life, in the case of the schoolchild, the office-boy, the factory-girl, the banker and the merchant, efficiency is the key-note of the times. Fatigue is the enemy of efficiency; and to detect and compensate for or overcome it, is the duty of those concerned with the promotion of human welfare.

In view of this it is of more than passing interest, from the standpoint of both public and personal hygiene, to ascertain suitable methods of approach to the problem of fatigue and the lessons which it discloses. Dr. Martin¹ and some of his associates in the Laboratory of Physiology at the Harvard Medical School have devised a satisfactory procedure for estimating variations in electrocutaneous sensibility in human beings. With the onset of general fatigue a progressive rise occurs in the value of the threshold stimulus. This, in turn, signifies a progressive lowering of sensitiveness, and, according to the view of Grabfield and Martin, a diminishing tone of the nervous mechanism as a whole. The Harvard physi-

ologists have made a long series of experiments on first-year medical students in good health who were following a regular routine of school work during six days of each week. The routine was interrupted weekly by the Sunday recess, an interval occupied variously by the students, but in no case in precisely the manner of the week days. The daily observations made on these persons during several weeks show that at the beginning of the week the irritability tends to be high, that from then until the end of the week there is a fairly continuous decline in irritability, as judged by the sensory threshold, and that following the interruption of the routine by the intervention of Sunday, the irritability returns to the original high point.

The decline in irritability is interpreted as a cumulative result of general fatigue incident to routine. What is even more significant, however, is the added fact that a pronounced break in the routine—such as the "day of rest" occasions—may bring about a return of sensitiveness to a high point or, in other words, it restores the nervous tone. Studies continued in this direction should lead to some useful conclusions regarding the optimum of work, with respect to both its duration and type, that should determine the conditions under which the organism of man may be maintained without depletion.

THE PRESENCE OF DIPHTHERIA ANTITOXIN IN THE BLOOD OF NORMAL PERSONS

It has been known for some time that diphtheria antitoxin is present in the blood of at least some persons who, so far as known, never have had diphtheria. It is believed that the antitoxin may be transmitted to the child from the mother; it is present in the blood of about 80 per cent. of the new-born, but it soon begins to fade away.

Recently a method has been devised by Römer which makes it possible to titrate accurately the amount of antitoxin in the blood. Briefly, the method consists in the intracutaneous injection in guinea-pigs of a minute quantity of diphtheria toxin and the serum to be tested for antitoxin. If no necrosis results, the toxin has been completely neutralized by antitoxin in the serum. By this method, which permits of accurate quantitative measurement, Otto¹ has tested the serum of a number of persons under different conditions some being in close contact with diphtheria patients others not. It was found that there was more than one one-hundredth of a unit of antitoxin in each cubic centimeter of the blood of those who, without having been sick, had been in close contact with cases of diphtheria; others usually had much less. Of six fresh nurses who had less than one one-hundredth o

1. Martin, E. G., Withington, and Putnam, J. J., Jr.: Variations in the Sensory Threshold for Faradic Stimulation in Normal Human Subjects, III, The Influence of General Fatigue, *Am. Jour. Physiol.*, 1914, xxxiv, 97. Grabfield and Martin: *Ibid.*, 1913, xxxi, 308.

1. Otto, R.: Ueber den Gehalt des Blutes an Diphtherie Antitoxin bei gesunden Erwachsenen, Rekonvaleszenten und Bazillenträgern, *Deutsch. med. Wchnschr.*, March 12, 1914, p. 542; abstr., *THE JOURNAL A. M. A.*, April 18, 1914, p. 1291.

a unit per cubic centimeter of blood, two suffered from diphtheria. These observations are significant because they indicate that this amount of antitoxin in the blood — one one-hundredth of a unit per cubic centimeter — probably suffices to protect against diphtheria. Indeed, Behring is said to have previously expressed his belief in the truth of this theory, and the object of his new diphtheria vaccine is to induce the production of at least that much antitoxin by the body itself. Older persons who have not had diphtheria may carry antitoxin in the blood in comparatively large quantities; nevertheless, the production of the antitoxin must be attributed to effects of invasion of diphtheria bacilli. In other words, the condition is one of active immunity due to infections of such mild character as to escape notice. Undoubtedly physicians and seasoned nurses who are freely exposed to diphtheria and yet rarely contract the disease owe their safety to an active immunity, the result of repeated contact with the bacilli. Otto found that diphtheria carriers, both those who had had the disease and those who had not, contained more antitoxin in their blood than patients who had just recovered from an attack. This shows that the mere presence of bacilli in the throat is sufficient to stimulate the production of antitoxin on which the immunity of the carrier himself would seem to depend.

These observations are of much interest with respect to the problems of susceptibility to diphtheria. By the means of Römer's method, and also of the method described by Schick,² it is now possible to determine whether or not a person is susceptible to diphtheria, a question that often is of great practical importance.

LARGE CITIES AS HEALTH RESORTS

"Were I a physician, I could prescribe nothing but — 'Recipe: ccclxv drach. Londin. per annum'" (365 doses of London a year). Thus wrote a noted Londoner, Horace Walpole. "If a few days in London does your neurasthenic patient no good, his case may well be helpless and hopeless." These, the words of Dr. Clippingdale addressing the balneologic and climatologic section of the Royal Society of Medicine a few weeks ago on London as a health resort and as a sanitary city.³ Those who are accustomed to send their patients to the mountains, the fashionable spa, the seashore or the "health resort" may ask whether this is merely subtle humor or ill-concealed sarcasm at the expense of what has been called "the healthiest, with the exception of Madrid, the ugliest city in the world." Or are we as a profession perhaps unduly oblivious of the suitability of a large city for certain

maladies, chiefly of a psychopathic or neuropathic nature? Let us follow Clippingdale's essay in this direction.

There are not a few persons who have a dread of open spaces, for example, the country. It is to such that a very large city, on account of its size and the almost infinite number of diversions it permits, appeals most remarkably. The London life is to such persons the material on which they live. There are persons who prefer looking on men and artificial things. The loneliness of the woods and green fields appals them. Many a patient sent to the monotony of the sea-shore to recuperate finds his first real joy and comfort in the return to the motley throng of some great city. In this spirit Charles Lamb once wrote: "I am naturally inclined to hypochondria; but in London it vanishes, as do other ills. The man must have a rare receipt for melancholy who can feel dull in Fleet Street."

Despite the numerous epithets of antipathy which have been recorded against the great English metropolis, despite the alleged lack of esthetic attributes, Clippingdale stoutly defends its suitability for persons suffering from certain nervous "dyscrasiae"; cases, not of true pathologic conditions, but of simple digression from the normal; cases of hypochondria, melancholia, insomnia and neuralgia of non-organic origin, the drug and alcoholic habits and morbid introspection; cases, in fact, requiring the very opposite of a "rest-cure." He insists that many means for rational psychotherapy are provided by the diversions of a great city. "Its historic, artistic and literary associations," writes Clippingdale, "its many picture-galleries and museums, its numerous places of amusement, the business activity, the Attic regions of Belgravia and the Alsatian retreats of the East End all combine to produce a state of exhilaration not met with elsewhere. In fact, it has been jocosely remarked that if Londoners themselves fell into a state of lethargy nothing would arouse them from it unless it were two Parliamentary elections in one year, together with an earthquake in the Strand." There is, of course, an underlying germ of truth in all of this. Not every man can be rescued from depression by the soothing environment of a sanatorium or the joys of the outdoor life. The heart of the city is like balm to a persistent minority who must be dealt with in the practical experience of every consultant.

As for London itself, we are reminded that the annual exodus therefrom is a "comparatively modern invention." Speaking from statistical comparison of the general mortality, it is a healthy city. Its natural advantages are enhanced by the large number of open spaces in its midst. If the climate is nothing to boast of, it must be remembered that "fog is not an atmosphere of poisonous microbes." After all, the question of liveableness in any environment is, as a rule, one

2. An Easy Test for Susceptibility to Diphtheria, editorial, THE JOURNAL A. M. A., April 11, 1914, p. 1176.

3. Clippingdale, S. D.: London as a Health Resort and as a Sanitary City, PROC. ROY. SOC. MED., 1914, vii, Balneological and Climatological Section, p. 33.

of the temperament and adaptability of the individual. Americans have braved the dreaded tropics with comparative comfort and remained in perfect health. Manila and Panama have lost the terrors of climate, while the far North has become the field of pleasure-seekers. The healthfulness of an environment, urban or suburban, inland or coastwise, has become almost entirely a question of personal hygiene and mental satisfaction coupled with the indispensable accompaniments of public sanitation.

THEOBALD SMITH AT THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH

The recent announcement¹ of the appointment of Theobald Smith of Harvard University as the head of the projected department of animal pathology, made possible by an additional endowment to the Rockefeller Institute for Medical Research, deserves something more than passing mention. The epoch-making contributions of this distinguished American investigator are, we apprehend, not so prominently known as they deserve to be. There is a tendency in this country, in connection with all fields of scientific work, to magnify the importance of those researches which especially lend themselves to popular exposition or exhibit some scintillating feature which quickly catches the public eye. Too often as a people we forget the fundamental researches — sometimes laborious and even hazardous — on which the superstructure of some familiar practice is based. The wonders of the dynamo are allowed to overshadow the underlying experiments of Faraday; the originality of an investigator like Theobald Smith is forgotten in the contemplation of the practical results that have followed his efforts. It is a pleasure, therefore, to refer to a fine appreciation which has just appeared in *Science* from the pen of one who evidently is familiar with the history of medical microbiology.² We are reminded that while Dr. Smith was yet a subordinate in the Bureau of Animal Industry in Washington, he had occasion to study the Texas fever of cattle, then the cause of great economic loss to the farmers and cattlemen of that as well as other states, and of countries the world over. He found at last that the disease was caused by a protozoan parasite so small that it found a spacious abode within the purlieu of a single red cell of the blood, which it ruthlessly destroyed. Smith and Kilborne announced also that this piroplasma, as it was called, is conveyed from animal to animal through the intervention of a cattle-tick, in which the protozoan undergoes a developmental cycle on which the perpetuation of its kind depends. They further learned that cattle recovered from the fever had become immune, and though well, might indefinitely carry the piroplasma in the blood

and be a perpetual source of infection for cattle fresh from another district.

The physician of to-day can well appreciate what the discovery of insects as carriers of infective microbes has meant to medicine and to mankind. This finding alone would entitle most workers to everlasting fame. Dr. Smith's epoch-making contributions did not stop with the study of the etiology of Texas fever. Smith and Salmon were the first to announce, in 1886, that animals could be immunized not only by living germs but by sterilized cultures of the dead germs. "This announcement," says the writer in *Science*, "did not seem to start even a ripple in the bacteriologic pool." The germinal idea contained in these early experiments, however, in the course of time resulted in the manufacture of antitoxin.

Probably few persons who are not experts in this field realize that the forerunner of the wonders of modern anaphylaxis is described in the *Theobald Smithsche Phänomen*, as our German colleagues early termed it. This is one of the numerous evidences of that keenness of observation which further preceded the important innovations in bacteriologic culture that are to-day indispensable. The distinctions between bovine and human tubercle bacilli emphasized by Dr. Smith are still fresh in the minds of those who have followed the long controversy on this subject.

Without recounting further details of an eminently successful career we may congratulate the Rockefeller Institute, already so fortunate in having made itself an unsurpassed center for medical research, on the discriminating selection of another distinguished and productive member.

THE AQUEOUS HUMOR

Various structures of the eye, such as the lens, suspensory ligament and vitreous humor, receive no direct vascular supply; but depend on the intra-ocular fluid for their nutrition. This aqueous humor is continually renewed by the transudation of fluid from the blood-vessels of the ciliary processes into the anterior part of the vitreous cavity, the amount increasing with a rise of blood-pressure in the capillaries, or a fall in intra-ocular pressure. The latter in turn is affected by the blood-pressure and by variations in the escape of the fluid through the filtration angle. If the anterior angle becomes blocked as the result of inflammatory or other changes, the intra-ocular pressure rises gradually far above normal. This may seriously affect the circulation of blood through the retinal vessels, so that atrophy of the retina is produced as well as disturbances of the nutrition of the eye.

The increased intra-ocular tension in glaucoma is well known. The changes in the chemical composition of the aqueous humor not only in local eye disturb-

1. THE JOURNAL A. M. A., May 23, 1914, p. 1671.

2. T. M. P.: Professor Theobald Smith and a New Outlook in Animal Pathology, *Science*, 1914, xxxix, 751.

ances, but also because of alterations in the quality of the blood, are less evident. The involvement of the eye in systemic or constitutional diseases is not unfamiliar. In diabetes the sight is often defective, and not infrequently the detection by an oculist of a commencing or well-developed cataract or a retinitis first arouses suspicion of a possible underlying disease. To speculate extensively on the immediate effects which the aqueous humor can have on the eye structures which it bathes and nourishes is of little avail until the factors which determine the chemical composition of the intra-ocular fluid are somewhat better understood. Like the cerebrospinal fluid, with which it has frequently been compared, the aqueous humor has generally been classed as a slightly modified lymph. This simple point of view does not take into account the possibility that the intra-ocular fluid is not a mere transudate, but is dependent for certain details of its composition on the selective function of the cells through which it originates. In contrast with true lymph, the aqueous humor normally contains no leukocytes, and its content of protein is extremely low (0.025 to 0.02 per cent.). The characteristics of such a fluid resemble those of some glandular secretions rather than those of tissue lymph, and for this reason one cannot prophesy precisely what changes it may undergo in connection with alterations in the nutrition of the body as a whole.

Most of the known facts concerning the aqueous humor have been learned from analyses made on fluid obtained post mortem. Under such conditions chemical changes almost invariably have intervened. Dr. Ask¹ of the institute for medical chemistry at Lund in Sweden has lately investigated the sugar content of the aqueous humor in both man and animals, obtaining the fluid by drainage from the anterior chamber. His analyses show a close relationship between the concentration of sugar in the fluid and that in the circulating blood. Under ordinary normal conditions with a blood-sugar content of from 0.1 to 0.13 per cent., that of the aqueous humor will be from 0.12 to 0.15 per cent.; the primary fluid and that formed later show the same sugar concentration. When by experiment the content of sugar in the blood is caused to vary, the resulting hyperglycemia is accompanied by a parallel rise in the sugar content of the intra-ocular fluid. In pronounced pathologic conditions, however, when the excursions of the blood-sugar from the normal are very extensive, the content in the aqueous humor may fail to reach the blood maximum. This may be due to the slowness of the exchange between the blood and the eye-fluid, and perhaps also in part to some regulating secretory mechanism in the interior of the eye. In a case of human diabetic cataract, the sugar content and aque-

ous humor alike were found above normal (0.24 per cent.). Although in such conditions the intra-ocular fluid and the blood agree in composition, in other conditions, such as glaucoma or seclusio pupillae, in which enforced stagnation of the fluid in the anterior chamber exists, a diminution of its sugar content is by no means excluded. The interrelations between the composition of the blood and the fluid in the interior of the eye point to the desirability in ophthalmologic practice of recognizing the existence of hyperglycemia, especially since in diagnosis the estimation of sugar in the blood is being used in connection with the older routine examination of the urine for evidence of glycosuria.²

HEREDITY VERSUS FOOD IN DEVELOPMENT

It has become a dictum among those most concerned with the physiologic function of the mammary gland that "breed rather than feed" determines the quality and output of milk. The food of an animal may be varied within very wide limits without altering the composition of its milk, provided that the ration is sufficient in amount. The only constituent which is known to be altered in milk by changes in the food-supply of the mother is the fat. The composition of butter may be affected somewhat by the food supplied to the cow; but normally little if any influence on the chemical make-up of the milk can be produced by wide variations in the mineral content of the food.

The question as to what extent, if any, the structure and development of the fetus can be affected by the character of the maternal diet is somewhat analogous to that which concerns the possible alterations in the milk produced by the mother. In a sense both the milk and the fetus may be regarded as produced by a specific organ; the one by the mammary gland and the other by the placenta. An idea current among cattle-raisers is that a high mineral content in the ration will cause excessive skeletal formation in the fetus and consequent difficulties at its birth. Similar views are sometimes expressed relative to the development of the human fetus. In view of the general specificity and uniformity of composition and structure exhibited by the normal products of cellular or glandular activity in the animal organism—a feature which is expressed by the fixity of species and the constancy of the products thereof—and, further, that many ingested substances fail to traverse the placenta directly, it might be expected that diet, so long as it is abundant enough, would exercise slight modifying influence on the structure of the fetus. That is, selective action on the part of the placenta with a definite control of the mineral content of the fetus might be expected, the size of the skeleton being fixed by the

1. Ask, F.: Ueber den Zuckergehalt des Kammerwassers, *Biochem. Zeitschr.*, 1914, lix, 1; Ueber den Zucker im Humor Aqueus beim Menschen, *ibid.*, p. 35.

2. The Variations in the Content of Sugar in the Blood, editorial, *THE JOURNAL A. M. A.*, Jan. 10, 1914, p. 131. McLean, F. C.: The Sugar Content of the Blood and Its Clinical Significance, *THE JOURNAL A. M. A.*, March 21, 1914, p. 917.

germ-plasm and controlled by heredity, rather than subject to the quantity of inorganic matter consumed by the mother.

It has been remarked that "assumptions in nutrition are dangerous." The questions raised in the foregoing discussion cannot well be tested by experiment on human beings; but the effect which a high lime-intake by the mother may have on the skeletal development of the fetus has been subjected to experiment in the domestic animals.¹ Since grains are deficient in calcium, farm rations made up wholly of them will not supply to growing animals a sufficient amount of this element. For this reason growing or breeding swine, fed entirely on grain, should receive an additional supply of calcium, as calcium carbonate or calcium phosphate or in leguminous hay. Any drain on the organism with consequent loss of calcium is thus averted. The new Wisconsin experiments, however, have shown that though the nutrition of the mother has a great influence on the offspring, the size is not modified by the liberal supply of any one element. Although a high calcium ration, containing over five times as much lime as the standard ration, was added to the feed of the mother during the entire period of gestation, no evidence was gained that the skeleton of the fetus was increased in any dimension or in calcium content thereby. As Hart and his co-workers remark, if size can be influenced at all by the quantitative relation of the nutrients supplied, it is clear that many factors are involved and not a single mineral element. Size is in a very large measure fixed by heredity.

Current Comment

CREATININ IN THE BLOOD

With the advent of the newer accurate and rapid methods for the clinical examination of the blood, chemical statistics on this fluid are accumulating to a surprising degree. Elaborate series of data are already available concerning the sugar-content and the concentration of various types of metabolic waste-products or catabolites, such as urea, uric acid and ammonia, in both health and disease. The mention of hyperglycemia or of an increase in the percentage of non-protein nitrogen in the blood begins to sound almost as familiar as the every-day reports of the clinical laboratory with respect to urinary findings. Somehow the problems of the composition of the blood appeal to those interested in the phenomena of abnormality as something preeminently significant. The unique rôle of the blood in the distribution of both food and waste gives an exceptional interest to the ascertained facts about it. Until very recently, owing to the lack of suitable analytic procedures, the number of creatin

literature has been exceedingly small. With their usual mastery of technic, Drs. Folin and Denis¹ of the Harvard Medical School have undertaken an elaborate series of such determinations in order to learn whether in pathologic conditions there is any specific retention of creatinin similar to the specific retention of uric acid in the blood in gout.² No such condition could be brought to light in the examination of the blood of two hundred patients at the Massachusetts General Hospital. Ordinarily, the content of creatinin ranges from 1 to 1.5 mg. per hundred grams of blood. Except in extreme conditions of retention approaching anuria the creatinin in the blood remains at the normal level. The completeness of the creatinin excretion in man is exceeded only by the still more complete removal of ammonium salts. It is interesting to note that the figures obtained from the common domestic animals do not differ materially from those derived from analysis of human blood, except in the case of birds. The absence of creatinin from the blood of these species confirms Paton's discovery that creatinin is not a normal waste-product of birds.

MORE MEDICAL JOURNALS?

The newest venture in the domain of medical journalism, represented by the publication of the *Hamburgische medicinische Uebersichtshefte*,³ raises the old question as to the desirability of the ever-increasing numbers of such enterprises. We have long believed that specialization in this field should be encouraged only so far as existing mediums fail to provide for the suitable expression of current medical experience and discovery. Far more can be accomplished in many directions by the unifying of forces and the better utilization of existing opportunities than by the dissipation—we cannot always call it expansion—of effort. The improvement and advancement of scientific medical journalism, and thereby of the sciences and arts that it serves, is not necessarily secured by more pages in a larger number of publications, but frequently far better by a critical editorial policy which, acting for the good of a profession rather than the promotion of individuals, rejects the commonplace and untenable and expects even the best of its contributions to conform to the highest standards of expression. Gallons of ink have been spilled in useless writing, and reams on reams of paper filled with reiterated histories, useless protocols, unprofitable controversy and preposterous trivialities—all to make so-called literature. The demands for novelties are frequently only the expression of personal ambitions rather than the crying needs of science or practice. With this preface we may proceed to the examination of the new journal emanating from the Eppendorfer Krankenhaus in Hamburg under the editorial supervision of Dr. Brauer, the director of the hospital, and Dr. Hegler of

1. Hart, E. B., Steenbock, H., and Fuller, J. G.: Calcium and Phosphorus Supply of Farm Feeds and Their Relation to the Animal's Requirements, Agric. Exper. Station, University of Wisconsin, Research Bull. 30, 1914, p. 21.

1. Folin, O., and Denis, W.: On the Creatinin and Creatin Content of Blood, Jour. Biol. Chem., 1914, xvii, 487.

2. The Gout Situation, editorial, THE JOURNAL A. M. A., Sept. 20, 1913, p. 970.

3. A biweekly journal, i, No. 1, April, 1914, published by Fischer med. Buchhandlung H. Kornfeld, Berlin W. 35. Subscription price 20 marks a year.

its staff. It is issued, we are told in the introductory notice, to meet the special needs of German or German-speaking physicians who are engaged in practice in foreign lands. We are further told that the numerous existing medical periodicals, despite their admitted excellence, offer, aside from results of purely scientific value, too many contributions which have only a transitory interest or concern only the specialist and theorist. It is the same set of statements that has appeared in correspondence of *THE JOURNAL* from time to time in the column on Knocks and Boosts, so that this point of view will not be unfamiliar to our readers. The *Ueberseehefte* are designed to act as a medium of scientific communication with those physicians who are settled on distant shores; to furnish to these colleagues authoritative accounts of the permanent acquisitions of medical science and the newest devices in practice. They are to be devoted to German progress and supported by German societies that have foreign interests. All national propagandas have a certain honorable justification. We have frequently spoken with pride of the publications of our own Bureau of Science in the Philippines. The real test of their justification for existence lies in the good accomplished; and this, in turn, depends on the intellectual pabulum supplied. The collaborators of the new enterprise are scattered from Buenos Aires to Shanghai, from Constantinople to New York, Dr. Flexner being the representative from the United States. The first number (53 pages) of the *Ueberseehefte* opens with a theoretical discussion and classification of "diatheses" by von Behring; papers on cardiac therapy, by Brauer; emetin treatment of amebic dysentery, by Ruge; the etiology of leprosy, by Unna, etc.; the usual book reviews and a few unimportant news items. Wherein the publication is expected to meet the needs of its subscribers better than do the excellent well-known medical weeklies of Germany, remains to be demonstrated; it is not shown in the initial number.

McCLURE'S MISTAKE

On another page,¹ in reply to numerous inquiries, we have stated once more the truth regarding the scopamin-morphin method of producing analgesia in labor and its unreliability and danger. The present effervescence of medical interest in this subject is excited by an outburst of enthusiasm concerning the treatment as applied at Freiburg, by Krönig and Gauss, published in the June issue of *McClure's*. The article appears under the signature of two women, evidently not medical authorities, and contains frequent quotations of statements credited to Krönig and Gauss. In an address delivered by Krönig before various societies when here last November, published in the May issue of *Surgery, Gynecology and Obstetrics*, statements are made almost identical with some of those in the *McClure's* article. We hesitate to believe that either Krönig or Gauss would instigate or endorse such a

sensational puff for themselves, but so clear does the evidence appear that this impression is almost forced on us. If the publication was sanctioned by either or both of them it indicates an advertising initiative which bids fair to rival Friedmann. It is needless to explain to physicians that many of the statements contained in the *McClure's* article are ridiculous. As usual, not the physician, but the credulous and innocent public will be harmed by this unfortunate exploitation.

GET OUT OF THE HABIT

Recently we received a manuscript from a man standing high in the profession, in which, among other things, a certain much-advertised proprietary medicine was recommended. The author was asked whether he was sure that he was getting good results from the preparation. His reply was instructive. To quote:

While I have used this preparation for years, I must say that I have not seen results that I could attribute to it directly, and its use has become merely a habit. As it has not been accepted by the Council, I shall drop the use of it, as I am not at all convinced that it is of any value.

Unquestionably, there are thousands of physicians who, if they would, might make as honest a statement as the one quoted.

ANATOMIC MODELS

The wide-spread use of the Born method of wax-plate reconstruction in the preparation of models illustrating the form and relations of minute anatomic structures has led to the preparation of a large number, representing the most diverse types of morphologic tissue components. Heretofore it has been necessary to send these valuable original models abroad in order to secure replicas. The trouble, expense and risk of accident incurred in transporting such fragile articles as, for example, a reconstruction of the glomerulus of the kidney, in connection with conditions difficult to meet have discouraged those desirous of securing such models. The Wistar Institute of Anatomy in Philadelphia, an institution which is not only serving to promote research along broad lines of biology, but also functioning as a clearing-house in matters of scientific publication, etc., has added another to its useful activities by establishing a department for what might be called the publication of original models. The institute will receive original anatomic models, produce as many replicas as may be subscribed for and distribute them for the actual cost of production. By this means teachers and students of anatomy will be enabled to examine more of the original models resulting from research in our best laboratories. According to the *Anatomical Record*,¹ the work will be done under the personal supervision of Dr. B. Eric Dahlgren, a well-known expert of wide experience in the production of biologic models. The first replica will be made under the supervision of the author of the model. The model will be retained at the Wistar Institute as a guide in the production of others.

1. See Queries and Minor Notes, Scopolamin and Morphin Anesthesia, p. 1829.

1. Announcement in *Anat. Rec.*, 1914, viii, 228.

Medical News

CALIFORNIA

New Officers.—Los Angeles County Medical Association, Santa Monica Bay branch, April 6: chairman, Dr. C. P. Thomas; secretary, Dr. Byron Palmer.

Immunization of National Guard.—To perfect plans quickly to render the national guard of the state immune against small-pox and typhoid fever, a conference of medical officers was called, May 11, by Maj. Charles W. Decker, commanding field hospital No. 1, at the Armory Exposition Park, Los Angeles.

Sanitation of Camp of "Army of the Unemployed."—Dr. Hugh Beattie, health officer of Sacramento County on an inspection of the camp of the "Army of the Unemployed," north of Sacramento, reported the conditions to be very bad and recommended the dispersal of the "army." In this he was not sustained by the state board. Sanitary Inspector Ross employed by the State Board of Health, after an investigation of the conditions, made such recommendations to the board that instructions were given to the local health officer to have the nuisance abated.

Rabies.—In March the supervisors of Sonoma County repealed the dog-muzzling ordinance which had been in force in that county since Dec. 4, 1913. The secretary of the State Board of Health immediately ordered the county quarantined under existing state laws. The order was subsequently modified to require the muzzling of dogs within those townships of the county most heavily infected with rabies. Los Gatos Canyon District of Fresno County was quarantined for rabies under Chapter 369 of the Statutes of 1913 on account of the presence of rabies in dogs, cattle and horses.

Fly-Traps Required by Ordinance.—Richmond has an anti-fly ordinance requiring that every person in charge or control of any store, market, restaurant or other place where food or foodstuffs are sold, served or dispensed, and every owner or person in charge of a public stable, shall maintain in his place of business one or more fly-traps properly baited. The size of these traps is fixed at a minimum of 500 cubic inches, and it is made the duty of the Health Department to inspect the traps from time to time to see that they are efficiently maintained. Under this ordinance the time of one man is given to baiting and attending to the traps.

Mosquitoes in California.—The secretary of the State Board of Health has requested the surgeon-general of the United States Public Health Service to take such action as might be necessary to prevent the introduction of *Stegomyia calopus* into the state. It is believed that the chief source of danger of entry of the yellow-fever mosquito is from Texas and Mexico by way of the railroad trains coming from those sections. The surgeon-general replied that the matter had been referred to Dr. Thos. R. Crowder, superintendent of sanitation of the Pullman Company, for an opinion as to the best method of handling the problem.

Personal.—Dr. and Mrs. John C. Taylor, Los Angeles, have been appointed medical missionaries to India by the synod of the reformed Presbyterian Church, and will be stationed at Patiala. They will leave for their post of duty early in September.—Mr. H. C. Moore, United States food and drug inspector, has been appointed food and drug inspector of the State Health Board without salary.—Mr. J. J. Rosenthal, Mr. Geo. L. Bell and Mr. Carlton H. Parker have been appointed inspectors for the State Health Board, and the commission of immigration and housing of California has been notified of the appointments.—Miss Violet M. Bathgate has been appointed assistant bacteriologist at the State Hygienic Laboratory, vice Miss Ethel Skolfield who has resigned.

CONNECTICUT

New Officers.—Norwich Medical Society, May 18: president, Dr. James J. Donohue; secretary-treasurer, Dr. Lester E. Walker.

Gift to Yale Medical School.—At its spring meeting, May 29, the General Education Board (Rockefeller Foundation) gave \$500,000 to the Yale Medical School on condition that the school procure complete teaching and medical control of the New Haven Hospital and that the teachers in the main clinical branches be placed on the full-time or university basis.

State Society Elects.—The Connecticut State Medical Society held its one hundred and twenty-second annual meeting at New Haven, May 20-21, under the presidency of Dr. D. Chester Brown, Danbury. The following officers were elected: president, Dr. Oliver C. Smith, Hartford; vice-presidents, Dr. Stephen J. Maher, New Haven, and John B. Kent, Putnam; secretary, Dr. Marvin McR. Scarbrough, New Haven (reelected); treasurer, Dr. Joseph H. Townsend, New Haven, and delegate to the American Medical Association, Dr. D. Chester Brown, Danbury. Hartford was selected as the next place of meeting. The society endorsed the work of the State Tuberculosis Commission and of the state sanatorium for tuberculosis.

GEORGIA

Personal.—Dr. John F. Lancaster, Forsythe, has been appointed quarantine and health officer of the port of Mobile, Ala.—Dr. Benjamin S. Purse, Savannah, has been elected chief surgeon of the Army of the Tennessee.

Hospital for Tuberculosis and Pellagra.—The commissioners of Bibb County, the Bibb County Medical Society, the City Council of Macon, and the Macon Board of Health are uniting their efforts for the establishment of a special hospital for the treatment of patients suffering from tuberculosis and pellagra.

IDAHO

Personal.—Dr. Franz H. Brandt and family, Boise; Dr. Clifford M. Cline, Idaho Falls, and Dr. William F. Howard, Pocatello, sail for Europe this month.

New Officers.—Southern Idaho District Medical Society at Caldwell, April 28: president, Dr. Samuel J. Miller, Caldwell; secretary-treasurer, Dr. Robert L. Glase, Boise. The next meeting will be held at Boise in July.

ILLINOIS

Personal.—Dr. and Mrs. Harry B. Bailey, Rockford, sailed for Europe, June 3.—Dr. Effie L. Abbott, a member of the Anna State Hospital, has been transferred to a similar position at the Elgin State Hospital.

Health Talks.—The laboratory of bacteriology of the University of Illinois, Champaign-Urbana, under the direction of Assistant Professor Otto Rahn, has arranged a series of lectures on public health to be given weekly during the first semester of 1914-15.

News about Sanatoriums.—During the last year, 160 patients were treated at the Chicago-Winfield Tuberculosis Sanatorium at Winfield, at a cost of about \$1.17 per day. Dr. James L. Anderson, Pittsburgh, Pa., has been elected medical director of the institution, to take office June 1.—The supervisors of La Salle County have awarded the contract for the construction of the new tuberculosis sanatorium at the county farm for \$7,643.—At a meeting of the Kane County Medical Society, at Geneva, May 6, the association heartily endorsed the proposition for a Kane County Anti-Tuberculosis Sanatorium, and pledged their support. The supervisors of Kane County have already appropriated \$5,000 toward the purchase price of a site for the sanatorium.

Chicago

Bust Unveiled.—A convocation of the College of Medicine of the University of Illinois will be held June 10, in honor of the unveiling of a bust of Dr. Daniel A. K. Steele.

Personal.—Dr. Frances Dickinson has been reelected president of the Artcraft Institute Guild.—Dr. Robert C. Reimche has assumed charge of the Chamberlain, S. Dak. Sanitarium.

Rush Medical Alumni to Meet.—The week of June 8-14 will be observed as "Homecoming Week" by Rush alumni. Special clinics will be held at the college and by alumni practicing in the city. The faculty will entertain the alumni with a banquet to be given June 10, at which Dr. Frank Eilling will preside.

Free Ice to be Distributed to Poor.—The Consumers' Company announce that free ice certificates would be available for needy and destitute families. The offer made first for all the ice needed for the Visiting Nurse Association has been expanded to include the Infant Welfare Society, the United Charities and every other recognized charitable organization of the city, including the Volunteers of America, Salvation Army and all deserving cases reported by clergy men and physicians.

INDIANA

Personal.—Dr. and Mrs. Charles A. Pfaffin, Indianapolis, sailed for Europe, May 30.—Dr. Thomas B. Eastman has been appointed a member of the Indianapolis Board of Health, vice Dr. Moses Thorner, resigned.

Marked Increase in Measles.—Reports of 2,628 cases of measles in Indiana were made to the State Board of Health for the month of April. Twenty-eight deaths from the disease were reported, and sixty-three counties recorded the disease as prevalent within their borders. The increase over the preceding month was alarming.

Sanatoriums Quit.—The Rockwood Sanatorium Company, which closed its tuberculosis sanatorium at Danville in June last, gave notice to the secretary of state, May 14, of its dissolution as an incorporated body.—The Plymouth Sanatorium and Hospital has been closed by order of the Board of Directors, and will be offered for sale. The building was erected in 1910 at a cost of more than \$50,000. Dr. Novitas B. Aspinwall, who has been in charge of the sanatorium, will conduct a similar institution in Plymouth in connection with Miss Aura Southwick.

IOWA

Personal.—Dr. and Mrs. Bert A. Bowers and family, Granville, left for Europe, May 14.—Dr. Millard F. Pritchard announces his retirement after forty years of continuous practice in Cherokee.

Iowa Medical Women Elect.—At the annual meeting of the Iowa State Medical Women, held in Sioux City, May 14, the following officers were elected: president, Dr. Kate S. Harpel, Boone; vice-presidents, Drs. Jeanette F. Throckmorton, Chariton, and Mary K. Heard, Iowa City; secretary, Dr. Margaret Armstrong, Des Moines, and treasurer, Dr. Grace F. H. Jerger, Waterloo.

KANSAS

Personal.—Dr. John B. Dykes, Lebanon, is a candidate for Congress from the sixth district of Kansas, on the Republican ticket, and has no opponent of his party, and as the district is normally Republican, it seems probable that he will be elected.

Physicians Exonerated.—In the case of Drs. Charles E. Bowers and Thor J. Jäger, Wichita, charged with negligence in treating and operating on Mrs. Nellie Stout, Hazleton, the court held that both doctors had used their best judgment, and the jury, without leaving the jury-box, rendered a verdict for the defendants.

KENTUCKY

Personal.—Dr. W. Ed Grant has been reappointed health officer of Louisville.—Dr. Borowski has been appointed medical inspector of the Department of Health of Louisville.

University News.—Dr. Henry Enos Tuley has succeeded Dr. W. Ed Grant as dean of the medical department of the University of Louisville.—Hon. D. W. Fairleigh, president of the board of trustees of the university, has resigned and been succeeded by Hon. Arthur Y. Ford.—Dr. Virgil E. Simpson has been elected president of the alumni of the university.

Hospital Notes.—The State Board of Control has decided that a hospital for the tuberculosis patients of the Eastern Kentucky Hospital for the Insane be erected at Lexington at once. The structure will cost \$300,000.—Dr. Joseph A. Stucky, Lexington, and representatives of the State Board of Health, State Anti-Tuberculosis Association, and American Red Cross, have established a clinic at Oneida for the treatment of trachoma, tuberculosis and hookworm.

State Hospital Changes.—Dr. Frank L. Peddicord, Burlington, has succeeded Dr. William E. Gardner as superintendent of the Kentucky Hospital for the Insane, Lakeland. Dr. Gardner has returned to his former home in Hardin county.—Dr. William E. Render, Brownsville, assistant physician to the Eastern Kentucky Hospital for the Insane, Lexington, has been appointed first assistant physician to the Central Kentucky Hospital for the Insane, Lakeland.—Dr. W. E. Campbell, Bowling Green, first assistant surgeon at the Hopkinsville State Hospital, has been appointed second assistant physician at the Eastern Kentucky Hospital.—Dr. H. G. Sanders, Campbellsville, has been appointed first assistant physician at the Hopkinsville State Hospital.

MARYLAND

Medical Board Reappointed.—The Police Board of Baltimore has reappointed the Board of Medical Examiners

which consists of Dr. James M. Craighill, chief police physician, and Drs. Hubert C. Knapp, Thomas P. McCormick, Walter F. Sowers and Elliott H. Hutchins.

New Officers.—Montgomery County Medical Society, April 25: president, Dr. John L. Lewis, Bethesda; secretary, Dr. Claiborne H. Mannar, Rockville.—Cecil County Medical Society: president, Dr. Harry A. Cantwell, North East; secretary-treasurer, Dr. Howard Bratton, Elkton.

Personal.—Dr. Tedrow S. Keyser of the staff of the Pitts Clinic, Baltimore, has resigned to accept a position with the Neurological Institute, New York City.—Dr. Wilbur P. Stubbs has been appointed medical examiner of the schools of Baltimore, vice Dr. Richard A. Urquhart, deceased.—Dr. Arthur H. Hawkins has been appointed representative of the Cumberland Academy of Medicine on the State Board of Health.—As a result of friction which is said to have existed several months between the mayor and Health Commissioner Nathan R. Gorter, a request was made, May 18, for the resignation of Dr. Gorter, to take effect immediately. Dr. Gorter has not resigned.—Dr. Jacob Thorkelson, Baltimore, has moved to Dickenson, N. Dak., where he will be associated with Drs. Homer A. Davis, Jesse W. Bowen, and Justus Ohage, Jr.

MASSACHUSETTS

Governor Selects Heiser.—Governor Walsh has confirmed the story that he has selected Surg. Victor P. Heiser, U.S. Public Health Service for health commissioner of Massachusetts, in the event of the passage of the bill reorganizing the State Board of Health.

Typhus Fever at Granite and Quincy.—May 20, 1914, a case of typhus fever was notified at Graniteville in an immigrant arriving at Boston April 23 on the steamship *Rhaetia* from Hamburg. He was taken ill May 8. Another case from the same vessel was found at Quincy. The patient was taken ill May 3.

New Officers.—Hampshire District Medical Association at Northampton, May 15: president, Dr. Edward W. Brown; secretary, Dr. Joseph B. Collins, both of Northampton.—Franklin District Medical Society, at Greenfield, May 12: president, Dr. John E. Urquhart, Ashfield; secretary, treasurer, Dr. Halbert G. Stetson, Greenfield.

New Secretary of Faculty.—The executive committee of the trustees of Tufts College, Boston, approved the appointment of Dr. Frank E. Haskins as secretary of the medical and dental faculties in place of Dr. Frederick M. Briggs, who will retire from active service September 1, to become professor of surgery and secretary of the medical and dental faculties, emeritus.

MINNESOTA

New Officers.—Rice County Medical Association at Northfield, May 14: president, Dr. Arthur C. Rogers; secretary-treasurer, Dr. Frederick U. Davis, both of Faribault.

Personal.—Dr. Peter C. Davison, Clara City, has sailed for Europe.—Dr. H. W. Hill will assume his duties as executive secretary of the Minnesota Public Health Association, July 1.

Sanatorium Notes.—Lincoln, Lyon, Redwood, Pipestone, Murray and Cottonwood counties have agreed jointly to construct a sanatorium for patients of those counties, and they have invited Rock, Noble and Jackson counties to unite with them. The counties have already levied a tax of 0.6 of a mill, and if the other counties take similar action, the amount will be raised to \$50,000. This, with the amount agreed to be paid by the state, will make the total amount available for his institution \$100,000.—Union, Chippewa, Renville and Yellow Medicine counties have considered and rejected the project of a tuberculosis sanatorium at Granite Falls. The chief argument appears to be that Lac Qui Parle County should have a sanatorium of its own.—St. Lewis County is to have a tuberculosis sanatorium to cost \$50,000. One half of this expense is to be met by the state.—Work on the construction of the new Goodhue County Sanatorium, near Cannon Falls, will be commenced this month. The building is to cost \$20,000.

NEW YORK

New Officers.—Mount Vernon Medical Society, May 15: president, Dr. Charles Krumwiede; secretary, Dr. Frank A. M. Bryant.

Personal.—Dr. John W. Conks, Syracuse, has been appointed professor of pathology in the North Dakota State University.

Sanatorium to Open.—The Metropolitan Life Insurance Company announces the dedication of its tuberculosis sanatorium for employees at Mt. McGregor, Saratoga County, June 20, at noon.

Antitoxin Farm.—The Hungerford Farm, Guilderland, has been sold to the state for \$9,500, and the state will establish a farm for antitoxin and hygienic laboratories, which have been maintained in Albany for several years.

New Clinic Established.—Physicians of Southold and Shelter Island have organized a clinic which is to meet regularly at the Eastern Long Island Hospital, Greenport. —The physicians of Patchogue are about to open a free dispensary.

Communicable Diseases.—The number of cases of scarlet fever in the Auburn prisons has reached nearly 80, most of the sufferers being in the women's prison. The prison staff of four physicians has received additional help from the State Health Department. It is said that the cases are all mild. —There is an epidemic of measles at Princes Bay, Borough of Richmond. In the neighborhood of 100 cases have been reported.

Child Welfare Campaign Exhibit.—An extensive campaign for the reduction of infant mortality in the state by means of lectures, literature and other forms of education and publicity has been inaugurated by the State Department of Health and itineraries for three exhibits are being prepared. They are planned not only to be instructive to mothers but to demonstrate the necessity and value of the visiting nurse, infant welfare stations, and other welfare work. A series of public meetings will be arranged for each city visited, and it is hoped that permanent welfare work will be organized in every city visited by the exhibits. In connection with this campaign a copy of the department's booklet on "How to Save the Babies" is being mailed to every mother in the rural districts of the state on the receipt of the birth certificate of her child.

Report of Vital Statistics.—A warning has been issued to physicians and registrars throughout the State in regard to reporting vital statistics. It is the purpose of the department to use to its full extent the authority with which it is vested to secure obedience to the provisions of the law in relation to vital statistics. The following is the notice:

To Physicians: The attention of all physicians is called to the provisions of the said law.

Every physician in attendance upon a birth must, within five days after such birth, file with the local registrar a certificate thereof on the prescribed form. Every medical certificate of death must be made out by the physician, last in attendance, in the form and manner prescribed. Every physician, who has not already done so, must register immediately with the local registrar.

All births which have not been reported within the period prescribed by law may be registered with the State Department of Health up to May 30 without penalty. After that date, it is the purpose of the Department of Health to take such legal action as seems necessary to secure full registration of all births occurring in this State, and to enforce the penalties prescribed by law.

Health News.—This is the title under which the State Department of Health has issued its last *Bulletin* and the first one for which Dr. Hermann M. Biggs, state commissioner of health, is entirely responsible. It is called the "Principal's Number" and is devoted to health work as it applies to the school, and to pointing out the function of the school in public health education. In his letter to the principals of the state Dr. Biggs states that it will be the purpose of the department so to prepare the *Monthly Bulletin* that it will be of special service to the school principals throughout the state as well as to the local health officers and other health workers for whom it is particularly designed. It will be the aim of the editor to include in each number material which is timely and important for children to know. This will be summarized under the heading "School Health Lessons." Dr. Biggs asks the principals to see that the gist of this monthly lesson shall be read and explained to the children either by the principal or by some teacher appointed by the principal at a designated assembly when both teachers and pupils are present.

New York City

Illegal Sale of Hypodermic Needles.—During the past week four druggists have been arrested and held on the charge of having sold hypodermic needles to persons other than physicians and without the prescription of a physician.

New Officers.—Flatbush Medical Society at Brighton Beach Casino, May 8: president, Dr. Walter D. Ludlum;

secretary, Dr. Stanley B. Thomas, both of Brooklyn. —Valentine Mott Society, New York City: president, Dr. Emil Heuel; secretary-treasurer, Dr. Joseph E. Lumbard.

Movies Teach Health Work.—The Motion Picture Exhibitor's Association of Greater New York has offered the Health Department the services of more than 800 moving picture theaters for the educational work of the Department. The start was made on May 16 when hundreds of theaters displayed slides calling attention to the "Clean-up" campaign inaugurated by Commissioner Goldwater. This will be followed by announcements concerning flies, typhoid fever, care of babies, etc.

Death Certificates in New York City.—During 1913 almost 65,000 certified copies of death certificates were issued by the Department of Health, as set forth in the *Weekly Bulletin* May 23. It is said that fully 80 per cent. of these were used in obtaining funds to bury the deceased person. The savings banks require them before money for burial purposes will be paid from the accounts of deceased depositors, many transcripts are required on account of the collection of insurance policies, the probate of wills in this and foreign countries, etc. Certificates sent abroad must be vided by the consul representing that country.

Hospitals and Isolation Wards.—In view of the fact that the Sanitary Code requires every public hospital and dispensary in the city of New York to provide and maintain a suitable room or rooms for the temporary isolation of persons suffering from infectious diseases, a survey of the hospitals and dispensaries of the city has revealed the fact that a considerable number of institutions have failed to comply with this requisition. It was discovered that 11 small hospitals and 39 dispensaries make no provisions for isolation. The department has appealed to the managers and the medical staffs of these institutions urging that they make an earnest effort promptly to meet the requirements.

Insurance Companies Cooperate with Health Department in Public Health Education.—In carrying on an extensive health campaign, the Department of Health has frequently found it difficult to reach large numbers of people quickly. After a conference with the representatives of the Metropolitan and Prudential Life Insurance companies, these companies have placed the services of their agents at the disposal of the Department of Health for the distribution of public-health literature. This means approximately 3,000 agents visiting the homes of 750,000 families weekly. The department seeks further cooperation along these lines and will be pleased to hear from organizations which are prepared to contribute assistance.

Personal.—Dr. Mark J. Schoenberg has been awarded by the New York State Medical Society the Lucien Howe prize for his research work on ocular anaphylaxis. —Dr. Jacques Loeb of the Rockefeller Institute for Medical Research, has been elected correspondent of the French Academy of Science, in the section of anatomy and zoology to succeed the late Lord Avebury. —Dr. Smith Ely Jelliffe has been elected a corresponding member of the Paris Neurologic Society. —Dr. Charles Bolduan has been appointed head of the new Bureau of Public Health Education of the Department of Health. —Dr. S. Adolphus Knopf gave the opening clinic, on June 2, for a postgraduate course to be inaugurated by the Bruchesi Tuberculosis Institute, Montreal.

Cancer as a Public Health Problem.—The *Monthly Bulletin* of the Department of Health of the city of New York is devoted to information concerning cancer. Curtis E. Lake, executive secretary of the American Society for the Control of Cancer, gives a statement of the cancer problem as it is at present understood, together with information and warnings to the public for the control of this increasing fatal disease. Some statistics are given which show that the mortality from cancer in the registration area of the United States per 100,000 population increased from sixty-three in 1900 to seventy-seven in 1912. In New York State the rate has increased from forty-three for the three-year period 1887-1889 to eighty-six for the period 1911-1913. Warning is given against radium fakes and other fake cancer cures.

Administrative Control of Whooping-Cough.—A plan for the supervision and treatment of whooping-cough has been developed by the Department of Health. A survey has recently been completed of the institutions, hospitals and dispensaries of the city, with a view to determining what institution treat whooping-cough at the present time, what institution desire to maintain whooping-cough clinics, and what facilities they possess for dealing with this disease: All together 11

institutions were visited; of these 78 reported that they had no patients with whooping-cough applying for treatment; only five have a district physician caring for whooping-cough cases in their homes; 67 institutions admitted that their physicians did not report all cases of whooping-cough to the Department of Health, and only four institutions maintained and supported classes for treating cases of whooping-cough on the premises. Three of these were hospitals and one a dispensary. The investigation shows why whooping-cough is so prevalent in this city and why it has failed of administrative control. The department will take up the question with the Associated Out-Patient Clinics and the hospitals, and it is hoped that before long adequate facilities for the care of patients suffering from whooping-cough will be provided.

OHIO

New Officers.—Ferry County Medical Society reorganized at Lexington, April 29: president, Dr. Calvin B. Holcomb, Corning; secretary-treasurer, Dr. Robert W. Miller, Hemlock.

Personal.—Dr. Walter E. Obez, Columbus, has been appointed assistant epidemiologist of the staff of the Ohio State Board of Health.—Dr. George Goodhue, Dayton, who was operated on, May 12, at Rochester, Minn., for intestinal ulcer, is reported to be doing well.—Dr. William H. Buechner, Youngstown, was given a dinner in honor of his fiftieth birthday anniversary by members of the medical profession and others, May 23.—Dr. and Mrs. Charles U. Hanna, Zanesville, sailed for Europe June 4.—Dr. and Mrs. Charles M. Neldon, Coshocton, will sail for Europe June 12.

To Promote Medical and Dental Supervision of School-children.—Dr. Porter B. Brockway, Toledo, recently elected president of an organization for the promotion of medical and dental supervision of children in rural as well as in city schools, announces the following committee for cooperation with the superintendent of the public schools: Dr. William H. Peters, health officer of Cincinnati; Dr. Erwin A. Peterson, chief medical inspector, Cleveland; Dr. Herbert M. Platter, Columbus; Dr. Eugene F. McCampbell, Columbus, secretary, State Board of Health, and Dr. F. R. Chapman, Columbus, secretary of the Ohio State Dental Society.

Cincinnati

Hospital Staff Election.—At the annual meeting of the staff of the Cincinnati Hospital, May 28, the following officers were elected: president, Dr. Benjamin K. Rachford; vice-president, Dr. Robert Carothers; secretary, Dr. Meyer L. Heidingsfeld; and treasurer, Dr. Edwin W. Mitchell.

Alumni Meeting.—The Alumni Association of the Ohio-Miami Medical College has arranged an elaborate clinical program, beginning June 10. On this day, Dr. William E. Jaggard, Nashville, Tenn., will hold a clinic on surgery, and Dr. Christian R. Holmes, Cincinnati, one on otology. On June 11, Dr. Wendell C. Phillips, New York City, will lecture on the "Conservation of the Hearing Function," with illustrative cases, and Dr. George A. Fackler will conduct a clinic on internal medicine. In the evening, the annual banquet of the association will be held. On June 12, Dr. Richard C. Cabot, Boston, will conduct a medical clinic, and Dr. Joseph Ransohoff, Cincinnati, one on surgery. All of these clinics will be held in the morning, and at the Cincinnati General Hospital. The afternoons will be devoted to clinics at the various local hospitals. The commencement exercises will be held on the morning of June 13 at the gymnasium of the university.

PENNSYLVANIA

Health Board Superseded.—The Chester Board of Health was abolished May 18, and the authority of the board transferred to the Department of Public Safety.

Gift to School Library.—The Phi Beta Pi Fraternity has presented the library of the School of Medicine of the University of Pittsburgh forty-five bound volumes of THE JOURNAL of the American Medical Association.

Quarantine Hospital Inadequate.—The State Economy and Efficiency Commission has inspected the Quarantine Hospital at Marcus Hook, and report it inadequate to meet the demands of the increased immigration at this point.

College of Physicians' Banquet.—The annual banquet of the College of Physicians of Pittsburgh was held at the Fort Pitt Hotel, May 27. The guests of honor were Dr. Noble W. Jones, Portland, Ore., who spoke on "Principles Underlying the Medical Treatment of Gastro-Intestinal Stasis"; Dr. Villia Garry Morgan, Washington, D. C., and Dr. John P. Sawyer, Cleveland, Ohio.

To Train Medical Missionaries.—The Pennsylvania Medical Missionary Society is now entering on the last year of its first quarter century. The objects of the society are to give assistance to students preparing for medical missionary work, and to arouse interest in medical missions; to establish and maintain homes for the use of missionaries or of students preparing for this work, and to obtain systematic contributions of money for these objects. The new Rest Home for missionaries at home on furlough, at Ventnor, was opened this month. The society is interdenominational in all its endeavors.

Philadelphia

Memoir to Dr George MacClellan.—A memoir of the late Dr. George MacClellan, founder of the Pennsylvania School of Anatomy and professor of artistic anatomy at the Academy of Fine Arts, was read May 28, at the meeting of the philobiblion Club, by Dr. J. Chalmers DaCosta.

Lebanon Hospital Opened.—The new Lebanon Hospital at 1728 N. Seventh St., was formally opened June 1. The new building has a capacity of thirty beds and has a well-equipped laboratory for microscopic and chemical examinations. The nurses' training school will be installed as well as a staff of six nurses.

Memorial Meeting for Dr. Moon.—A tribute to the late Dr. Robert C. Moon was paid, May 23, by an audience of largely sightless people, who crowded Witherspoon Hall. The father of the recently deceased physician had invented the Moon type system of reading for the blind and the son, an able ophthalmologist of Philadelphia, had also largely devoted his best energies to relieve these sufferers.

Personal.—Dr. James M. Anders has been appointed by Mayor Blankenburg, a member of the Board of Health to succeed Dr. Walter H. Andrus, who resigned several months ago.—Dr. S. W. Newmayer, head of the division of child hygiene, has been appointed assistant chief medical inspector in the Bureau of Health, to succeed Dr. Charles A. Groff, resigned.—Dr. Edward A. Leonard, Jr., has qualified for the position of assistant chief resident physician of the Bureau of Charities.

Plans Relief for Blockley.—To relieve overcrowding at Blockley, Director of Health and Charities Harte proposes to use at once a portion of the \$60,000 available for a power plant in the new Home for the Indigent, at Holmesburg, in such a manner as to open the institution at an early date. With the installation of a temporary plant and the expenditure of possibly \$15,000 on beds and other furnishings, 1,000 men from Blockley can be transferred to the new institution.

Agreement on Bodies.—The controversy between the coroner's office and the State Anatomical Board over the disposition of unclaimed bodies has been tentatively settled by an agreement to take the affair to court and abide by the decision. A test case will be made of the first unclaimed body that comes to the department. The state board made a concession in the case of bodies on which post-mortem examinations have been made, for in the past the board has refused to accept them.

Demonstration by State Board of Health.—The meeting of the Philadelphia County Medical Society on May 27 was devoted to an exposition of the work of the State Department of Health. Beginning at noon, there was an exhibit in Cadwalader Hall of relief maps, models and charts of the work of the department. Demonstrators were in attendance, and literature regarding the subjects was presented to each visitor. In the evening the topic announced was "An Evening by the Department of Health, Commonwealth of Pennsylvania." Dr. Samuel G. Dixon, state health officer, delivered an address, and others spoke on "Vital Statistics," "Medical Division," "County Medical Work," "Typhoid Fever," "Engineering Division," "Laboratories," "Dispensaries," "Sanatoria," "Philanthropic Cooperation in State Tuberculosis Work" and "Experiences as an Intern in a State Tuberculosis Camp."

For an Effective Housing Bureau.—Under the supreme court decree in the housing and sanitation suit that a new division of the Department of Health and Charities could be established only by the will of the councils irrespective of the act of assembly authorizing it, Dr. Richard H. Harte, director of health and charities, on May 25, reinstated the three heads of the old divisions deposed by Assistant Director Wilson several months ago. The men reinstated were the head of the division of sanitary inspection, head of the divi-

sion of house drainage and head of the division of tenement house inspection. Dr. Harte has announced his determination to cooperate with councils in making the new division of housing and sanitation of the Department of Health and Charities, a most effective branch of the city government, and he will endeavor to prevail on councils to authorize the establishment of this new division and if councils are not willing to provide money for all the hundred inspectors authorized by the act of assembly, the department will do its best with the members of inspection the councils shall allow.

SOUTH DAKOTA

Personal.—Dr. Burtis T. Green, Brookings, sails for Europe June 13.

New Officers for State Association.—At the thirty-third annual meeting of the South Dakota State Medical Association held at Watertown, May 26-28, the following officers were elected for the ensuing year: president, Dr. Fred Treon, Chamberlain; vice-presidents, Drs. James B. Vaughan, Castlewood, and Francis M. Crain, Redfield; secretary-treasurer, Dr. Robert D. Alway, Aberdeen; delegate to American Medical Association, Dr. Edmund D. Putnam, Sioux Falls; alternate, Dr. Silas M. Hohf, Yankton. Sioux Falls was selected as the place of the next meeting.

WASHINGTON

Personal.—Dr. Irving Conditt, city physician of Seattle, has been appointed surgeon of the U. S. S. *McArthur*, engaged in coast and geodetic survey.

Rat-Proofing Ordinance.—The city council of Seattle has approved an ordinance, effective May 24, 1914, requiring the rat-proofing of all new buildings and buildings undergoing extensive repairs. The enforcement of the ordinance primarily devolves on the superintendent of buildings who will work in cooperation with the U. S. Public Health Service. Under date of May 26 the finding of a plague-infected rat was reported from Seattle.

GENERAL

Correction.—Dr. R. G. Hoskins calls attention to the fact that there is an inaccuracy in a statement made in his article, page 1803 of this issue, and that the statement beginning "Weed of Johns Hopkins has recently," etc., together with the reference should be deleted.

Military Surgeons Meeting.—The Association of Military Surgeons of the United States will hold its twenty-third annual meeting in Cincinnati, September 29-30 and October 1-2. Brigadier General Charles Adams, M. C., Ill. N. G. (retired), Chicago, is president of the association, and Dr. Charles A. Lee Reed, Cincinnati, is chairman of the committee on arrangements.

Bacteriological Standards for Milk.—*Public Health Reports*, May 15, contains a partial list of cities and towns in the United States of 10,000 population and over which have adopted a bacteriologic standard of purity for milk and cream. The total population of the cities included in the table given in the report is 21,043,325. The maximum number of bacteria allowed per cubic centimeter ranges from 1,500,000 for cream and 1,000,000 for raw milk, down to 10,000.

Gynecologists Elect Officers.—At the thirty-ninth annual meeting of the American Gynecological Society, held at Boston, May 19-21, the following officers were elected: president, Dr. Thomas J. Watkins, Chicago; vice-presidents, Drs. Frank F. Simpson, Pittsburgh, and Howard C. Taylor, New York City; secretary, Dr. Leroy Broun, New York City (reelected), and treasurer, Dr. J. Wesley Bovee, Washington, D. C. The place of meeting for next year was not decided.

American Pediatric Society Election.—At its twenty-sixth annual meeting held in Stockbridge, Mass., May 25-27, the following officers were elected: president, Dr. George N. Acker, Washington, D. C.; vice-president, Dr. Henry L. Coit, Newark, N. J.; secretary, Dr. Samuel S. Adams, Washington, D. C. (reelected); treasurer, Dr. Charles H. Dunn, Boston, Mass. (reelected); delegate to the Association of American Physicians, Dr. Abraham Jacobi, New York. The next meeting will be held in Cape May, May 25-27, 1915.

German Neurologist in America.—Professor Otfried Foerster, neurologist of Breslau, Germany, is now visiting the United States. He was a guest of several Chicago physicians during the week of May 23-30, and has now gone to the Rocky Mountain states. Professor Foerster will speak in the Section on Nervous and Mental Diseases of the American Medical Association in Atlantic City, June 24, his

subject being "The Borders of the Arcas of Anesthesia, Analgesia and Thermo-Anesthesia in Lesions at the Different Levels of the Sensory Tract."

Physicians' Study Travels.—The first annual tour of the American Society of Physicians' Study Travels includes the cities and health resorts in and between Philadelphia, Canada and New England. The number is limited to 125 persons, and the tour will start from Philadelphia, June 26, immediately after the meeting of the American Medical Association in Atlantic City, and will return to Philadelphia July 10. The expense per individual, including all charges en route, will be \$180. Those interested should communicate with the secretary, Dr. Albert Bernheim, 1225 Spruce Street, Philadelphia.

FOREIGN

Leprosy in Norway.—According to a table in *Public Health Reports*, May 29, from 1906 to 1910 the number of deaths from leprosy in Norway was 211. Of these 128 were males and 83 females. At the end of 1910 there were in that country 323 persons suffering from the disease, of whom 137 were males and 186 females.

Physicians in China.—In the part of China around the Shansi Mission of the American Board of Commissioners for Foreign Missions, there is a territory with only seven physicians to fourteen million people. There are many out-stations where patients are cared for, and several opium refuges are governed from Fenchow-fu. The board is continually calling for young physicians, but the response to the service has not been what it deserves.

Deaths in the Profession Abroad.—P. H. Eijkman, Scheveningen, the Netherlands, aged 51. Indefatigable in his efforts to promote international scientific intercourse, he founded in 1910 at the Hague the *Bureau preliminaire de la fondation pour l'internationalisme*. It listed then 192 different international organizations for medicine or the natural sciences.—I. Wickman, instructor in nervous diseases at the University of Stockholm and an early authority on poliomyelitis, aged 37.—D. Biondi, professor of surgery at the University of Siena.

Responsibility for Outer Garments Left in Waiting-Room.—The supreme court at Rome, Italy, recently decided a case on appeal in favor of a physician who was sued for damages as a patient's overcoat, left in the anteroom, had been stolen while he was with the doctor. The latter proved that the outer door was always locked and an attendant kept to open the door. He was considered to have thus acted "like a father" and the plaintiff's claim was not allowed. The judge emphasized that the responsibility of the physician in respect to office patients is not like that of a hotel-keeper for the belongings of his guests. The physician is responsible only *en bon père de famille* for the outer garments, umbrellas and canes left in the anteroom to the office, and this responsibility does not extend to traveling bags. The *Semaine Médicale* in commenting on this case compares the codes of various countries, all sustaining the equity of the decision.

CANADA

Budget for Health Department.—The health committee of Winnipeg has asked an appropriation of \$306,561.95 for the fiscal year. The chief items are for scavenger service \$140,064.40; salaries, \$70,910.40; and operating and maintaining crematories, \$67,627.15.

New Officers.—Toronto Academy of Medicine, May 5 president, Dr. Harry B. Anderson; secretary, Dr. Jabez H. Elliot.—Ontario Health Convention in Toronto, May 8 president, Dr. William R. Hall, Chatham; vice-president Dr. Angus W. McPherson, Peterborough.

Provincial Association Meeting.—At the thirty-fourth annual meeting of the Ontario Medical Association, held in Toronto, the expected divulsion of the provincial from affiliation with the Canadian Medical Association was sidetracked, the matter being referred to a special committee of nine including two who favored withdrawal, two who were satisfied with present conditions, and five members supposedly disinterested. The address in surgery was delivered by Dr. John M. T. Finney, Baltimore, on "The Cause of Failure in Operations for Cholelithiasis"; that in obstetrics by Prof. B. P. Watson, Toronto, who gave a historical review of "Forceps, Their Proper Use, Etc."; and that in medicine by Dr. Emanuel Libman, New York City, on "Subacute Bacterial Endocarditis." The following officers were elected president, Dr. David J. Gibb Wishart, Toronto; first vice-president, Dr. Adam T. Shillington, Ottawa; secretary, D.

Frederick A. Clarkson, Toronto, reelected; and treasurer, Dr. Jabez H. Elliott, Toronto, reelected.

CANAL ZONE

Treatment of Employees.—Circular 618, dated April 1, governs the treatment of employees in hospital and elsewhere. Employees will receive free treatment in the hospitals in case of injury or disease other than alcoholism or venereal disease. They will be admitted only on request of a physician of the health department or the head of a department or division to which the employee belongs. A charge of \$1 for each visit will be made by each physician of the health department of an employee at his home or quarters, except that no charge will be made for the first visit if the employee is unable to go to the hospital or dispensary. Employees living with their families may be treated free at home or in quarters if, in the opinion of the physician, they cannot go to the dispensary or hospital. Employees treated in special wards shall be charged a day and for a private room shall be charged \$1.50 per day. Special nurses will be charged for at the rate of \$3 per day and a special servant at \$1. Members of the families of employees may consult free of charge any physician of the health department at the hospital or dispensary. Other regulations in regard to charges in hospital for employees on different rates of pay, for Army, Navy and marine services, for diplomatic and consular corps and for the employees of contractors are also contained in the circular.

LONDON LETTER

LONDON, May 22, 1914.

Deaths Due to Salvarsan

Although it is possible to administer salvarsan in a large number of cases without any ill results being observed, the occurrence of fatalities from time to time proves the truth of the saying of the leading French syphilographer, Gaucher, that it is "a treacherous remedy." All the explanations, brought forward one after another with no little ingenuity by Ehrlich and his followers, have broken down, and after much resistance the fact has to be admitted that under circumstances which are not understood, salvarsan may produce the nervous form of arsenical poisoning with fatal result. The contention that fatalities were due either to errors of technic or to administration in cases in which the drug was contradicted by organic disease of the nervous or vascular system has been abundantly disproved. Most of the fatalities have occurred in young and vigorous patients, who, except for syphilis, were quite healthy. In England the number of reported deaths is small, but as in other countries, many are never published. A short time ago a man in Bradford suffering from anthrax was injected and died, as was admitted at the inquest, from arsenical poisoning. Two other deaths have recently been reported. In one a debilitated man aged 25, subject of syphilitic ulceration of the palate and larynx, was treated in Dublin. The heart and kidneys were apparently normal. An intravenous injection of 0.4 gm. of salvarsan was followed by two rigors and vomiting. After recovering from these symptoms he collapsed and died twenty-four hours after the injection. At the necropsy the heart and kidneys were found normal. In the other case, a young man, aged 23, in the secondary stage of syphilis and otherwise apparently healthy, received an intravenous injection of 0.6 gm. at St. Mary's Hospital and the same dose a fortnight later at Guy's Hospital. Three days after the second injection coma and convulsions occurred and the patient died. The necropsy showed visceral hemorrhages and hyperemia of the brain. The heart, liver and kidneys were normal. At the request Dr. Womack, the pathologist, gave evidence that death was due to acute arsenical poisoning in a person with idiocy or imbecility due to salvarsan. He referred to the case of an American who died in London after a second injection under similar circumstances. Another case of the same kind has occurred in Manchester. Ehrlich's attention having been called to the fatality at Guy's Hospital, he wrote a letter to the *British Medical Journal* stating that he associates the nervous phenomena after salvarsan injection, particularly hemorrhagic encephalitis, with the destruction of spirochetes in the capillaries of the brain and the liberation of the endotoxins. The vascular system, altered by the endotoxins, is not oversensitive to salvarsan as such, for otherwise the symptoms would appear immediately after the second injection instead of two days later. The delay indicates that a derivative of salvarsan has been formed into action which he believes is an oxidation product. A third factor which also comes into play is a deficiency of epinephrin, favoring dilatation of vessels. He therefore sug-

gests that epinephrin may be of use in overcoming "this scourge of salvarsan therapy." To this complicated explanation the reply may be made that it is almost entirely hypothetical and not sustained by evidence. Moreover, if it be true that salvarsan causes a dangerous liberation of endotoxin, this is surely an argument against its use. But that the symptoms are due to arsenical poisoning, pure and simple, is shown by their occurrence when salvarsan is administered in other diseases than syphilis and by their occurrence in patients who, having suffered from the disease and free from all manifestation of it, have shown toxic symptoms after injections administered as a precautionary measure. The profession seems to be so hypnotized by the well-earned reputation of a great pathologist as to be incapable of grasping the obvious with regard to these salvarsan fatalities.

PARIS LETTER

PARIS, May 15, 1914.

Personal

May 12, the Académie de médecine elected two national associate members, Dr. Jules Boeckel of Strassburg and Dr. Albert Calmette of Lille (*THE JOURNAL*, May 2, 1914, p. 1414). Mention of Dr. Jules Boeckel was made recently on the occasion of his departure from the civil hospital of Strassburg and his nomination as honorary member of the Société de chirurgie de Paris. Dr. Albert Calmette, who was born at Nice in 1863, when colonial and marine physician in 1890, founded at Saigon the first Pasteur institute outside of France. After his return to France, he became one of the most valued pupils of Pasteur, who in 1895 entrusted him with the task of organizing the institute of Lille, which he continues to direct. He has particularly studied the problems of plague and snake-poison serotherapy. He has given particular attention to the study of tuberculosis and has introduced antituberculosis dispensaries, which are generally preferred in France to tuberculosis sanatoriums.

Has a Military Officer the Right to Operate?

The very important question of unauthorized practice of surgery by military officers is now receiving the attention of the medical profession. In some of the frontier military posts of our colonies, there are no military physicians. The heads of such posts have been instructed by physicians in the elements of hygiene and medicine but not in surgery. In serious cases, sick or wounded men have been transported with all possible care to the nearest military infirmary or hospital. This prudent caution was not observed in a recent case. Dr. Granjux reports that in a post of southern Algeria, an officer amputated the leg of a seriously wounded brigadier. The fact was reported to the minister of war, who sent to the commander of the army corps a letter of congratulations in which he requested him to invite the director of the service of hygiene to prepare for the use of the southern posts a notice pointing out the superiority of conservative surgery and the means of practicing it even under unfavorable circumstances, thereby permitting the patient to await the arrival of a physician and avoid amputation. Dr. Granjux points out the great danger of such operations made by officers who have the best intentions, but necessarily lack the requisite skill, and observes that the minister of war, while ostensibly congratulating the amateur surgeon, conveys an implied reproof which is not made direct for fear of making trouble for him and for the government.

Nurses and Antityphoid Vaccination

An odd conflict has just arisen between the administration of the Public Charities and the nurses. The Public Charities has recently decided to vaccinate its nurses with the serums of Vincent or Chantemesse. The nurses' union (*syndicat*) has protested against the use of these serums, which it says have killed several nurses. The *syndicat* declares that the serum caused the death of two female nurses, one at the Beaujon Hospital and the other at the Necker Hospital, and that two other female nurses, one at the Lariboisière and the other at the Charité, have been made seriously ill. M. Mesureur, director of the Public Charities, replies that the deaths attributed to the antityphoid serum are really not due to the vaccination. The nurse at the Beaujon Hospital had received two inoculations and was not protected. She died of typhoid fever, which broke out a month after the last inoculation. The nurse at the Necker Hospital died also of typhoid fever, during the course of which three therapeutic injections had been made. The case, therefore, has no bearing on preventive vaccination.

BERLIN LETTER

BERLIN, May 15, 1914

Annual Meeting of the German Surgical Society

(Continued from page 1674)

THYROID TRANSPLANTATION

Kocher of Bern reported the permanent results of thyroid transplantation in man. In animal experiments it was possible to transplant the thyroid gland and its vessels, but only in case of autotransplantation, which is of no significance for the present question. No success has hitherto been obtained by means of homotransplantation. Probably the question also will be solved by some method of weakening the immunity of the recipient and increasing the vigor of the transplant. For the prevention of tetany, when it was not possible at the operation to preserve the epithelial bodies, Kocher immediately reimplanted these. Also for the prevention of cachexia strumipriva, when for any reason the entire thyroid had to be removed, he reimplanted a portion of the healthy tissue. In cases of cretinism, in which the patient's own thyroid is not available, the attempt must be made, if necessary, to obtain material from relatives. The successful cases which Kocher has to show have not been controlled by histologic examination because he does not regard himself as justified in removing again a gland that has once been implanted.

He plants the graft in the bone-marrow, the peritoneal cavity, the preperitoneal tissue, the omentum or, following the method of Payr, in the spleen, which seems to him especially suitable for the purpose. In ninety-three cases he had eighteen favorable results; some of the patients had previously been taking thyroid preparations internally. It should be noted further that there are cases in which these preparations are tolerated only after a thyroid-grafting operation. In cases of cretinism, he had good results in twenty-one cases. For transplantation, he prefers the thyroid from a patient with exophthalmic goiter which is in the stage of hyperthyroidism. For good results, a single transplantation is not sufficient; new material must constantly be supplied either by the administration of thyroid preparations or by multiple transplantations. In cretins, moreover, preliminary long-continued administration of the thyroid is necessary for success with the transplantation.

Eiselsberg of Vienna reported a case of myxedema in which an improvement was secured by repeated transplantation; but after a certain interval a new transplantation always became necessary. He has succeeded in transplanting the epithelial bodies but with only a temporary effect.

In a case of congenital lack of the thyroid, with complete idiocy, which Payr of Leipsic reported, an astonishing and unprecedented improvement lasting for two years and four months was achieved by transplanting a large piece of the mother's thyroid; but later a complete retrogression occurred. Three other transplantations gave satisfactory results. Payr said that in cases of acquired imperfect function of the thyroid, after failure of thyroid treatment, transplantation may be undertaken with good prospects of success. The causes for failure of transplantation in congenital cretins are partly the severe disturbances of development in the infantile brain which are present at the same time and partly the necessity of taking the graft from another individual. For an early diagnosis, Payr recommends a small exploratory incision in the neck. In this place, then, the transplant itself may be inserted or it may be embedded in the capsule of the thymus. There are many differences between the mode of action of transplanted thyroid tissue and thyroid treatment with the dried gland.

Stieda reported three cases of pronounced myxedema with more or less evident idiocy, in an 8-year-old boy, his sister of 7 and an 8-year-old girl. After the implantation of thyroid tissue, a pronounced improvement was evident in all three cases. At first it showed rapid progress and then became stationary. A disappearance of the myxedematous changes in the skin could be demonstrated as well as a growth in height and an evident increase in intelligence. Two of the children are still under observation, but the third died nearly four years later, after an operation for tuberculosis. At the necropsy this case, which had been especially improved, showed that microscopically the thyroid tissue implanted in the head of the tibia was no longer recognizable but, on the other hand, a small thyroid gland was found which had escaped discovery during life. Aside from the grafting operation, the children received no other treatment.

Schaack of St. Petersburg has repeatedly undertaken the implantation of the thyroid in the bone-marrow or in the subcutaneous adipose tissue and has seen improvement which, as a rule, however, lasted only two months. He has never observed a permanent cure.

Müller of Rostock implanted the thyroid in the bone-marrow of the tibia in one cretin, with merely temporary improvement. He later opened up the tibia again but found nothing left of the thyroid gland except a few isolated cells.

Enderlen of Würzburg stated his conviction based on wide experience that the thyroid implanted in this way will no longer maintain its life.

THYROID CYSTS

Riedel of Jena reported on the dangers and disturbances from cysts of the thyroid. Of 1,070 patients with goiter who were operated on, 148 had large isolated cysts. The latter often develop even in childhood and sometimes hinder the growth of the trachea to a remarkable degree (11 cases), and relatively often sink down behind the first rib or the sternum (21 cases). Exophthalmic goiter seldom occurs in a thyroid with cysts (6 cases); hyperthyroidism is more frequent (12 cases). If such patients are operated on under general anesthesia, the pulse in some instances sinks to the normal and remains thereafter slow; in others it becomes rapid again after subsidence of the anesthesia and the same symptom is seen in solid goiter with exophthalmic goiter.

In these cases there is a paralysis of the subcortical center of the sympathetic in the subthalamic region which, in turn, has relations with the posterior part of the frontal lobe of the brain. This center, that in exophthalmic goiter or in hyperthyroidism is primarily or secondarily stimulated, is paralyzed by chloroform. The primary factor of exophthalmic goiter, however, is often the disease of the thyroid shown by the morbid anatomy. If the greater part of the thyroid is removed by an early operation, the exophthalmic goiter also rapidly disappears. If the thyroid grows again the exophthalmic goiter immediately returns, but it disappears again as soon as the newly grown thyroid is removed, even if it is only very small, for it requires the influx of only a minute amount of the juice of the thyroid into the blood to stimulate the sympathetic center. In chronic cases this center remains irritated for a long time even for years, in spite of the removal of the greater part of the goiter or the thyroid cysts.

Effusions of blood easily occur into thyroid cysts, and still more frequently inflammatory changes occur (mostly circumscribed and harmless). Of three women with subacute attacks, two died of pericarditis or endocarditis, and one of pneumonia, although pus was found in the cysts in only one of the cases and serum in two. In one patient the inflamed cyst was probably tuberculous. Malignant degeneration of the cysts is very unfortunate. In two cases, carcinoma of the esophagus developed opposite old, hard, calcified substernal cysts, so that a causal connection between the two must be considered. Tough-walled cysts permit easy enucleation; sometimes a severe hemorrhage from the thyroid tissue, especially from the capsule, necessitates the almost complete removal of that half of the goiter. For the extirpation of the subcostal cysts, a long curved incision is necessary; the goiter separated at the isthmus must be loosened from the trachea and also higher up and so made movable, and then the subcostal tumor can easily be pushed up and drawn out of the chest. An enucleation of a subcostal cyst is dangerous on account of possible hemorrhage. The capsule of the goiter should be removed with it.

THE THYMUS AS A FACTOR IN EXOPHTHALMIC GOITER

Von Haberer of Innsbruck communicated his results from thymectomy in exophthalmic goiter and goiter. He has no record of sixteen cases of resection of the thymus. In fourteen cases the thyroid and the thymus were both removed; in two cases the thymus alone was removed, and one patient was cured. In eight cases there was exophthalmic goiter with hyperplasia of the thymus, while in seven there was simple goiter. The question whether in certain cases the thymus and in others the thyroid should be attacked operatively, has not yet been settled. There are several cases of exophthalmic goiter without hyperplasia of the thymus. Still, he believes that in all cases of exophthalmic goiter and goiter one should determine whether or not the thymus is unduly large and remove it in case of hyperplasia.

According to Albert Kocher of Bern, the experience in Bern is not the same. A participation of the thymus was found only in very rare cases. If it was discovered at operation its removal did not seem to be indicated, according

the experience there, as very frequently, after the removal of the thyroid, the thymus became reduced in size. The hyperplasia of the thymus seemed to Kocher to be a regional and familial affection. He called attention further to the connection between hyperplasia of the thymus and hypoplasia of the adrenals. In two cases of thymectomy one patient was cured.

In the discussion Klose of Frankfort referred the contradiction in the experience of the two previous speakers and himself to regional conditions, and briefly described his observations.

Schloffer of Prague regards thymectomy as not always a very easy operation. In one of his cases it proved peculiarly complicated. In conclusion, von Haberer gave his opinion that thymectomy in case of hyperplasia of the thymus presented no difficulties.

PUNCTURE OF THE CORPUS CALLOSUM

Stieda reported the results which had been obtained at the Halle clinic with puncture of the corpus callosum in genuine epilepsy and idiocy. One case of jacksonian epilepsy with a congested papilla was of special interest in that the attacks gradually ceased completely with no further signs of choked disk to date after four and one-half years, while in most cases of epilepsy there is only a temporary cessation but a decided weakening of the attacks.

An earlier operation will surely give better results, as the puncture of the corpus callosum is a minor operation, quickly made and not dangerous. It can be done without injuring the brain and without shock, and under local anesthesia. In comparison with the other methods of operating for genuine epilepsy, puncture of the corpus callosum is not only a competitor but probably deserves preference.

Hildebrand of Berlin has performed puncture of the corpus callosum twice and was not very much pleased with the results. He does not regard the operation as so very insignificant, as it is easy to injure a vein and produce dangerous bleeding.

Tilmann of Cologne in case of epilepsy first determines by a lumbar puncture whether there is increased pressure. If positive, he makes a puncture of the ventricle; if he also finds here an increased pressure, he punctures the corpus callosum.

Lossen of Cologne applied puncture of the corpus callosum in three cases of hydrocephalus without results. In his opinion, the operation must be made in several places in order to secure success. He recommends puncture of the interna magna, but in addition he makes a puncture of the corpus callosum and of the ventricle.

Schloffer of Prague has performed puncture of the corpus callosum about twenty times and observed a temporary unilateral paralysis following it in one case.

DEEP INJECTIONS OF ALCOHOL FOR NEURALGIA

Härtel has treated twenty-seven cases of trigeminus neuralgia according to his method with injections of alcohol into the gasserian ganglion with immediate relief in every instance with the exception of three hysterics. In relapses freedom from pain could always be secured again by repeating the injection. The method is superior to all operative and conservative peripheral methods and is calculated materially to reduce the number of intracranial operations.

GANGLIECTOMY FOR OCCIPITAL NEURALGIA

Oehlecker of Hamburg-Eppendorf reported on a new operation in the field of nervous diseases, namely, the extirpation of the second spinal ganglion in certain forms of occipital neuralgia. One patient had unbearable neuralgia recurring after a peripheral operation on the occipitalis major nerve and was completely cured by Oehlecker's operation. In another, the occipital neuralgia developed after injury of the anterior branch of the third cervical nerve, and the occipitalis major was extirpated together with the ganglion. The same operation was performed on a third patient in whose case it was assumed that the cause of the neuralgia, which came on after an operation for carcinoma of the tonsil and base of the tongue, was more centrally situated.

SURGICAL MEASURES IN PULMONARY TUBERCULOSIS

Friedrich of Königsberg reported on the systematic surgical treatment of pulmonary tuberculosis by removal of ribs and induced operative paralysis of the diaphragm, etc., by cutting the phrenic and intercostal nerves. The performance of the operation in two stages, the use of local anesthesia and the limitation of the extent of the resections in suitable cases have gradually led to the extension of the indications even to

cases of medium severity. He was not ready to give a final judgment on this operative paralysis of the phrenic nerve, but he took a very conservative and skeptical position.

Sauerbruch of Zurich described the indications for operative treatment. Fresh incipient cases are not suited for operation. Those cases, however, in which an active progressive process is present in both lungs are to be excluded. The cases best suited to the operation are those of a fibrous character. Of 122 patients operated on by an extrapleural plastic operation, 2 have died, 27 have grown worse, 65 remarkably improved and 24 are cured. One can speak of an actual cure only after the lapse of two years. Sauerbruch applies the same method of operation as Friedrich and is, in general, an opponent of using a filling.

Wilms of Heidelberg considers the use of a filling under definite indications as justified and curative. In addition to this, he is applying resection more and more. He has operated in 21 cases, with 1 death as a result of the operation and 2 occurring later. Four patients are cured, 7 remarkably improved and 5 others improved. His *Pfeilerresektion* technic cuts the ribs close to the spine and sternum.

BUDAPEST LETTER

BUDAPEST, May 4, 1914.

Birth and Death Statistics of Europe

The Hungarian Statistical Bureau publishes the following data of the population movement of Europe from 1902 to 1911. The increase of population in percentage is as follows:

| | Per Cent. |
|-----------------------|-----------|
| Russia | 18.81 |
| Servia | 15.83 |
| Roumania | 14.38 |
| Bulgaria | 14.12 |
| Germany | 13.64 |
| Holland | 12.79 |
| Switzerland | 11.65 |
| Denmark | 9.52 |
| Belgium | 8.61 |
| England | 8.30 |
| Austria-Hungary | 7.78 |
| Sweden | 6.99 |
| Norway | 6.69 |
| Italy | 6.05 |
| Portugal | 5.90 |
| Spain | 4.70 |
| France | 1.42 |

According to these statistics the Slavs themselves rank foremost and the Slavonic nations occupy the second place. From a geographic point of view the Balkan people are first, while the so-called *Kulturstaaten* (cultured nations) which lead in art, technical sciences, politics, etc., rank last.

The mortality statistics show quite a different picture. Here, naturally enough, the cultured states rank first. Taking ten thousand inhabitants as a basis, the rate of mortality from 1902 to 1912 is as follows:

| | |
|-------------------|-----|
| Russia | 298 |
| Roumania | 256 |
| Hungary | 294 |
| Servia | 236 |
| Austria | 232 |
| Bulgaria | 231 |
| Spain | 224 |
| Italy | 215 |
| France | 193 |
| Germany | 184 |
| Finland | 178 |
| Ireland | 173 |
| Belgium | 164 |
| Scotland | 163 |
| England | 152 |
| Switzerland | 150 |
| Holland | 149 |
| Sweden | 147 |
| Norway | 140 |
| Denmark | 140 |

Damages Paid by An Insurance Company to a Doctor for Libel

A well-known foreign insurance company working in Hungary circulated a letter to all the insurance companies with the information that it had withdrawn its confidence from a certain doctor, because his urine examinations were unreliable. As the doctor in question had been the medical adviser for several insurance companies, a large part of his livelihood has been derived from the examination fees, and considerable material loss was involved. On inquiry for the reason of his dismissal, the letters from the directors, containing instructions to dismiss him because he was an "unreliable doctor" were shown to him. The doctor sought the advice of the medical association, and was advised to sue the company for libel and damages. The question of libel has not been decided, as yet, but damages of \$2,000 (10,000 kronen) have already been awarded him.

Marriages

JAMES LYMAN WHITNEY, M.D., San Francisco, to Miss Elizabeth Goodrich of Saratoga, Cal., May 14.

JOSEPH H. WILLIAMS, M.D., Webster Groves, Mo., to Miss Maud North of Gray Summit, Mo., May 28.

ROBERT CLAYTON THACKERAY, M.D., Racine, Wis., to Miss Marion Browne, at Evanston, Ill., May 16.

GEORGE WASHINGTON GAULT, M.D., to Miss Mabel E. Sellers, both of Marysville, Pa., May 1.

LOUIS K. GUGGENHEIM, M.D., to Miss Maude Hellman, both of St. Louis, May 21.

Deaths

Ferdinand Eugene Daniel, M.D. editor of the "*Red Back*" *Texas Medical Journal*; and one of the best-known practitioners of the Southwest; died at his home in Austin, Tex., May 14, aged 74. He was born in Hicksford, Va., July 18, 1839, and was graduated from the New Orleans School of Medicine in 1862. Before his graduation, he had been a private of the line in the confederate service, and immediately after his graduation he reentered the service as surgeon. He also served during 1863 as Judge Advocate with the Army of the Tennessee, as secretary of the Army Board of Medical Examiners in General Bragg's division; and also on the staff of Lieut. Gen. Hardee. He was for many years a member of the State Medical Association of Texas, and was its first president in 1904, under the reorganization. Dr. Daniel was one of the founders of the first Texas medical college and a member of its faculty in 1867 and 1868. He founded the *Texas Courier Record of Medicine*, and established the "*Red Back*" *Texas Medical Journal* in 1885. Dr. Daniel was widely known as a writer, not only of polemics, but on scientific subjects.

James Gillespie Hunt, M.D. Jefferson Medical College, 1871; a member of the Medical Society of the State of New York; formerly president of the Northern Branch of the New York State Medical Association and Oneida County Medical Society; five years commissioner of the State Board of Health; local surgeon to the New York, Ontario and Western; Delaware, Lackawanna and Western, and West Shore Railways; a member of the staff of the Faxon Hospital, Utica, N. Y.; for three terms coroner of Oneida County; and for twenty years health officer of Utica; formerly assistant surgeon to the Forty-Fourth Separate Company, N. G., S. N. Y.; died at his home, May 17, from cerebral hemorrhage, aged 68.

John E. Brady, M.D. University of Buffalo, N. Y., 1860; a Fellow of the American Medical Association since 1866; a charter member of the Michigan State Medical Society; and for some time president of the Grand Rapids Medical and Surgical Society; coroner of Kent County, Mich., for several terms; surgeon to Butterworth and the Union Benevolent Association hospitals, Grand Rapids; formerly professor of physical diagnosis, and diseases of the chest, heart and lungs in Grand Rapids Medical College; assistant surgeon of the Forty-Fifth Illinois Volunteer Infantry during the Civil War; died at his home in Grand Rapids, May 18, aged 77.

James McDonald Keller, M.D. University of Louisville, Ky., 1852; medical director in the confederate service throughout the Civil War; once professor in Louisville Medical College and Kentucky School of Medicine, president of the Board of Education of Louisville, and president of the Kentucky State Medical Association; for forty years a practitioner of Hot Springs, Ark.; at one time president of the Arkansas Medical Society, and an honorary member of the Hot Springs-Garland County Medical Society; died at his home in Hot Springs, May 27, aged 82.

Edward Marsh, M.D. Bellevue Hospital Medical College, 1875; of Esperance, N. Y.; a member of the Medical Society of the State of New York; and one of the best-known practitioners of the Schoharie Valley; was struck by a freight train at Central Bridge, N. Y., May 19, and died from his injuries a few hours later in St. Peter's Hospital, Albany, aged 60.

John P. Webster, M.D. Hahnemann Medical College, Chicago, 1883; Harvey Medical College, Chicago, 1896; a Fellow of the American Medical Association; a member of the Mississippi Valley Medical Association, American Association of Railway Surgeons, and Erie Railroad Surgeons' Association; chief surgeon of the Chicago and Western Indiana Railway; local surgeon to the Erie and Monon systems; surgeon to the Englewood Hospital and St. Ann's Hospital Sanatorium; died at his winter home in Pasadena, Cal., May 24, aged 62.

Joseph Edouard Adolphe Lanouette, M.D. University of Bishop's College, Montreal, 1872; a member of the New Hampshire Medical Society and American Public Health Association; formerly president of the Manchester, N. H., Board of Health; and of the New Hampshire State French Medical Society; consulting surgeon to Sacred Heart Hospital, Manchester; surgeon of the Ninety-Second Battalion, Canadian Militia, from 1873 to 1881; died at his home in Manchester, May 16, from cerebral hemorrhage, aged 64.

Christopher Hamilton Tebault, M.D. Tulane University, New Orleans, 1862; surgeon of the Twenty-First Louisiana and Tenth South Carolina Infantry, C. S. A., during the Civil War; for two years teacher of anatomy in his Alma Mater; a member of the staff of Charity Hospital, New Orleans, for many years; surgeon-general of the United Confederate Veterans, for twenty-five years; one of the best-known practitioners of New Orleans; died at his home in that city, May 24, aged 74.

Brooks Ford Beebe, M.D. Medical College of Ohio, Cincinnati, 1880; a Fellow of the American Medical Association; a member of the Cincinnati Academy of Medicine, American Medical-Psychological Association, Mississippi Valley Medical Association and Ohio Valley Medical Society; for many years professor of mental diseases in his Alma Mater; died at his home in Cincinnati, May 29, from cerebral hemorrhage, aged 63.

John Forrest Dillon, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1850; who, after six months of practice, took up the study of law, and was judge of the seventh judicial district, and later a justice of the supreme court, New York; and professor of real estate and equity jurisprudence in Columbia University; died at the home of his daughter-in-law in New York City, May 5, aged 82.

William James Dugan, M.D. Jefferson Medical College, 1896; a member of the Medical Society of the State of Pennsylvania; professor of electrotherapeutics in his Alma Mater, and consulting neurologist to the Jefferson Hospital; bacteriologist to the Maigner Laboratory of Original Research, and Pepper Laboratory of the University of Pennsylvania; died at his home in Philadelphia, May 20, aged 45.

Murdoch Alexander Lindsay, M.D. University of Edinburgh, Scotland, 1908; professor of pathology and bacteriology in Dalhousie University, Halifax, N. S.; a pathologist in the employ of the Nova Scotian government; was one of the passengers lost by the sinking of the steamer *Empress of Ireland*, after collision in the St. Lawrence River, May 29.

John William Dowling, M.D. New York Homeopathic Medical College New York City, 1886; professor of medicine, and secretary of the faculty of his Alma Mater; attending physician to the Flower Hospital, New York City; died in Middletown, N. Y., May 11, from cerebral hemorrhage, aged 49.

Jephtha C. Clark, M.D. New York Homeopathic Medical College, New York City, 1885; for twenty-seven years a practitioner of Andover, N. J.; for several years a member of the Board of Education, and coroner of Sussex County; died at his home, May 16, from cerebral hemorrhage, aged 54.

Louis Hartnagel Redon, M.D. McGill University, Montreal, 1901; of Seattle, Wash.; a Fellow of the American Medical Association, aged 37; who was found unconscious in an alley, May 10, having apparently been injured by an automobile; died in a hospital in Seattle, May 11.

William Edward Sullivan, M.D. University of Michigan Ann Arbor, 1912; aged 36; a member of the Louisiana State Medical Association; and a practitioner of Monroe; died in that city, May 21, from the result of injuries received when his automobile ran into the Ouachita River.

William E. Reed, M.D. College of Physicians and Surgeons, St. Joseph, Mo., 1881; for more than thirty years a practitioner of Los Angeles, Cal.; died at his home in that city, April 17, aged 67.

William C. Henry, M.D. Miami Medical College, Cincinnati, 1870; a member of the Indiana State Medical Association; and a charter member and first president of the Dearborn County Medical Society; surgeon of the Eighty-Third Indiana Volunteer Infantry during the Civil War; died at his home in Aurora, Ind., about May 20, aged 73.

Robert Bailey Nelson, M.D. Vanderbilt University, Nashville, Tenn., 1903; a member of the Tennessee State Medical Association; of Memphis; aged 33; who was injured in a collision between his automobile and a railway train near Memphis, April 15; died from the results of his injuries at the Gantly-Ramsay Hospital, Memphis, May 12.

Howard B. Gates, M.D. New York Homeopathic Medical College, New York City, 1885; a Fellow of the American Medical Association; for many years superintendent of the San Jose, (Cal.) County Hospital; and later a surgeon of Los Angeles; died in Rome, Italy, May 9, from peripheral neuritis, aged 46.

George William Goetz, M.D. University of Louisville, Ky., 1910; of McKeesport, Pa.; was found dead on the railway tracks near Hawkins Station, Pa., May 12, aged 28. It is believed that Dr. Goetz was murdered and robbed and his body thrown on the tracks to conceal the evidence of the crime.

Philip B. Housekeeper, M.D. Jefferson Medical College, 1868; a member of the Medical and Chirurgical Faculty of Maryland; and physician to the Cecil County, Md., almshouse and insane hospital; died at his home in North East, Md., May 17, from heart disease, aged 68.

Charles Frederic Wainright, M.D. Bellevue Hospital College, 1889; of New York City; from 1880 to 1902, professor of internal medicine and dean of the University Medical College, Kansas City, Mo.; died at his home in Englewood, N.J., May 7, from heart disease, aged 55.

William M. S. Curtiss, M.D. Baltimore University, 1893; member of the Connecticut State Medical Society; in 1900 representative from Cornwall in the General Assembly; died at his home in Bristol, Conn., May 17, from nephritis, complicated by pleurisy, aged 43.

Mason Volney Hunt, M.D. Medical College of Ohio, Cincinnati, 1874; medical director of the Liberal Life Insurance company of Indiana, Anderson; and a member of the staff of St. John's Hospital, died at his home in Anderson, May 8, from heart disease, aged 65.

Daniel Morris Woolley, M.D. New York University, New York City, 1885; of Brooklyn; a specialist on diseases of the nose and throat; a member of the staff of King's County Hospital; died in a sanatorium in Flatbush, May 18, from carcinoma of the liver, aged 64.

William Shepard, M.D. Eclectic Medical Institute, Cincinnati, 1853; one of the founders of the Shepard Sanatorium; once a member of the legislature from Franklin county, Ohio; died at his home in Shepard, Ohio, May 15, from arteriosclerosis, aged 88.

William Crutcher, M.D. Jefferson Medical College, 1896; Fellow of the American Medical Association; and a member of the first state board of medical examiners of Arkansas; died at his home in Pine Bluff, Ark., May 22, from pulmonary tuberculosis, aged 47.

Charles Hemsted Burbeck, M.D. Albany, N. Y., Medical College, 1859; a Fellow of the American Medical Association; surgeon of volunteers during the Civil War; and a veteran physician of Troy, N. Y.; died at his home in that city, May 1, from pneumonia, aged 77.

Otis H. Babbitt, M.D. New York Homeopathic Medical College, New York City, 1882; a Fellow of the American Medical Association; for several years physician to the Cayuga County Jail; died at his home in Auburn, N. Y., May 8, aged 60.

James Hervey Neagle, M.D. Louisville, Ky., Medical College, 1876; a Confederate veteran, and for many years a practitioner of Portland, Ore., and Seattle, Wash.; died at his home in Seattle, May 8, from nervous breakdown, aged 70.

Henry Herbert Lee, M.D. University of Vermont, Burlington, 1881; a member of the Vermont State Medical Society; died at his home in Wells River, early in April, from carcinoma of the pancreas, aged 56.

James Alexander Ashbaugh, M.D. Trinity Medical College, Toronto, 1891; for eleven years medical health officer of Windsor, Ont.; died in the Guelph (Ont.) Sanitarium, May 1, aged 41.

Christopher John Miller, M.D. Western Reserve University, Cleveland, Ohio, 1864; for many years a practitioner of Mansfield and Richmond County, Ohio; died in the Odd Fellows' Home of Ohio, Springfield, Ohio, March 6, from senile debility, aged 80.

James D. Whitney, M.D. Cooper Medical College, San Francisco, 1863; for many years a practitioner of San Francisco, and at one time a member of the staff of Governor Waterman; died in the Vendome Hotel, San Jose, Cal., May 9.

Horatio S. Brewer, M.D. Bennett Medical College, Chicago, 1879; for twenty-five years a member of the staff of the Chicago, Milwaukee and St. Paul Railway; a veteran of the Civil War; died at his home in Chicago, May 18, aged 68.

Carl D. S. Fruh, M.D. Jefferson Medical College, 1885; at one time demonstrator of anatomy in his Alma Mater; for nearly forty years a druggist of Philadelphia; died at his home, May 13, from nephritis, aged 64.

John Brelsford House, M.D. Vanderbilt University, Nashville, Tenn., 1894; for several years health officer of Allen County, Ky.; died at his home in Scottsville, May 8, from cerebral hemorrhage, aged 49.

George Ralph Bugbee, M.D. Dartmouth Medical School, Hanover, N. H., 1872; a member of the State Medical Society of Wisconsin; died at his home in Wausau, Wis., May 14, from heart disease, aged 65.

Frank Henry Nettles, M.D. Washington University, St. Louis, 1905; a member of the Missouri State Medical Association; died at his home in Cape Girardeau, Mo., May 11, from nephritis, aged 41.

Sharon Peter Heilman, M.D. University of Pennsylvania, Philadelphia, 1900; formerly of Kittanning, Pa.; and surgeon of the Kittanning Plate Glass Company; died in Phoenix, Ariz., May 11, aged 40.

William Elmore Barr, M.D. Ohio Medical University, Columbus, 1902; formerly of London, Ohio; died at the home of his father-in-law in Columbus, Ohio, May 8, from tuberculosis, aged 36.

Lafayette Stuck, M.D. University of Michigan, Ann Arbor, 1877; for thirty-five years a practitioner of Allegan, Mich.; died at his home in that city, May 13, from cerebral hemorrhage, aged 66.

Ohan Gaidzakian, M.D. University of Vermont, Burlington, 1883; also a clergyman; formerly of Boston, Mass.; died in a sanitarium at Harmon-on-the-Hudson, N. Y., recently, aged 76.

Elmer Bertly Eddy, M.D. College of Physicians and Surgeons in the City of New York, 1873; of Providence, R. I.; died at the home of his daughter in that city, May 6, aged 65.

John H. Mathieson, M.D. McGill University, Montreal, 1871; formerly a member of the Board of Aldermen of St. Mary's, Ont.; died at his home in that place, May 10, aged 70.

Julius Benson Evans, M.D. Medical College of Fort Wayne (Ind.) 1880; a veteran of the Civil War; died at his home in Ada, Ohio, February 21, aged 70.

Felix Bernard Bramlette, M.D. University of Texas, Galveston, 1908; formerly of Greenville, Texas; died at his home in Austin, Texas, May 9, aged 30.

Omar Pasha Huston, M.D. University of Michigan, Ann Arbor, 1878; fell from a loft in his barn near Coweta, Okla., May 7, and was instantly killed.

Edwin E. Williams (license, Ill., 1893); a practitioner of Streator, Ill., for fifty-one years; died at his home, May 13, from chronic nephritis, aged 77.

Samuel B. Wright, M.D. University of Nashville, Tenn., 1875; died at his home in Stanford, Ill., May 13, from carcinoma of the throat, aged 63.

Nicholson C. Washington, M.D. Washington University, St. Louis, 1867; a Confederate veteran; died at his home in St. Louis, May 6, aged 70.

R. Pinkney Blackistone, M.D. University of Maryland, Baltimore, 1849; died at his home in River Springs, Md., recently, aged 91.

T. G. Butler, M.D. Medical College of Georgia, Augusta, 1860; of Malvern, Ark.; died at Pine Bluff, Ark., April 25, aged 84.

George W. Campbell, M.D. Jefferson Medical College, 1879; died at his home in Newport, Pa., May 5, aged 68.

D. C. Reese (license, Mo., 1883), died at his home in La Belle, Mo., April 26.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

GLYCO-HEROIN, SMITH

Report of the Council on Pharmacy and Chemistry

The following report was submitted to the Council by a referee and publication authorized.

W. A. PUCKNER, Secretary.

Glyco-Heroin, Smith, is marketed in a showy "patent-medicine" type of package, the label on which announces the presence of $\frac{1}{2}$ grain of heroin to the fluidounce and admits the presence of 3.5 per cent. alcohol, an active ingredient that is not discussed in any way in the literature sent out by the manufacturer.

The composition of Glyco-Heroin, Smith, is given as follows: "Each teaspoonful represents: Heroin $\frac{1}{16}$ grain, White Pine Bark $3\frac{1}{2}$ grains, Ammonium Hypophosphite 3 grains, Balsam Tolu $\frac{1}{4}$ grain, Hyoscyamus 1 grain, Glycerin Q. S." The alcohol is not mentioned in the formula.

The advertising matter says of the merits of the formula:

"Despite the fact that heroin, which is universally recognized as an invaluable respiratory sedative, is a conspicuous element of Glyco-Heroin, Smith, the other constituents, henbane, ammonia hypophosphite, balsam tolu and white pine bark are factors of no less importance; indeed, it is through the concerted action of its several ingredients that the preparation proves so notably beneficial in the class of affections in which it is indicated. The constantly increasing popularity of the preparation in the treatment of respiratory affections is the best adducible evidence of its value in such disorders."

The absurdity of this assertion will be appreciated on comparing the nature, quantities and activities of the several ingredients. Thus, while heroin, a potent habit-forming drug, is present in unusually large proportions, tolu, an innocuous or comparatively harmless product, is said to be represented by $\frac{1}{4}$ grain, a relatively small quantity, hardly sufficient to impart even a distinctive taste or flavor. Ammonium hypophosphite, in the amount said to be present, may be considered to be practically useless, while the dose of hyoscyamus, an additional narcotic, is fairly large. The white pine bark present is probably as active as would be a corresponding amount of white pine shavings or of turpentine sufficient to give the preparation a slight odor. The vehicle, glycerin, is claimed to be "notably advantageous," but not a word occurs in the discussion by the manufacturer in regard to the presence of alcohol, which is certainly quite as active medicinally as the balsam of tolu and contributes fully as much to the flavor or taste of the preparation as does the white pine bark.

In prominent type on the outer label of the trade package we are told that the preparation is intended for the treatment of "COUGH, ASTHMA, PHTHISIS, PNEUMONIA, BRONCHITIS, LARYNGITIS, WHOOPING-COUGH AND KINDRED AFFECTIONS." In much smaller type: "Glyco-Heroin (Smith) is distinctly a product designed expressly for the use of physicians." The circular included with the trade package, however, bears statements which would tend to encourage self-drugging by the layman, and in view of the manner in which the preparation is exploited are undoubtedly intended to do so. For instance:

"*Bronchitis*.—In the acute form of bronchitis, Glyco-Heroin (Smith) acts most happily. It tends to diminish the congestion and inflammation of the lining of the air passages, relieves the pain and institutes repair. . . .

"*Phthisis*.—In the treatment of the cough of phthisis, Glyco-Heroin (Smith) is used with the most gratifying results. It checks the night sweats, acts favorably upon the reflexes, increases expectoration and induces refreshing sleep.

"*Asthma*.—The preparation diminishes the intensity of the paroxysms and lengthens the intervals between their recurrence. By the administration of the preparation, asthmatic attacks can frequently be aborted.

"*Pneumonia*.—In the initial stage of pneumonia, the preparation exercises a calming, antipyretic and sedative effect. In the latter stages

of the disease, the analgesic and expectorant properties of the product are well displayed.

"*Whooping-Cough*.—Administered in doses of from five to ten drops, this preparation affords surprisingly satisfactory results. The cough rapidly loses its spasmodic character and the frequency of the paroxysms is considerably diminished."

How cruelly misleading the literature put out by the manufacturer of this nostrum is, will be apparent from a comparison of the rather large dose of heroin in a teaspoonful of the nostrum and the directions on the package that:

"The adult dose of Glyco-Heroin (Smith) is one teaspoonful repeated every two hours or at longer intervals, as the case may require.

"Children of 10 or more years, from a quarter to a half-teaspoonful.

"Children of 3 years or more, 5 to 10 drops."

A WICKED FALSEHOOD

Included in much of the advertising matter that has been put out is the bare-faced untruth that the preparation does not produce narcotism or habituation. Here is a quotation from an undated circular:

"Glyco-Heroin (Smith) is decidedly preferable to preparations containing codeine or morphine, by reason of the fact that it does not produce narcotism, constipation, gastric disturbance nor habituation, even though its administration be protracted."

That this assertion is not in keeping with facts is evidenced by the recent report of a study on the sale and use of heroin made by the U. S. Department of Agriculture. From the information gathered it appears that the sales of heroin and heroin-containing preparations have increased greatly, particularly in those states which have rigid laws preventing the indiscriminate sale of morphin and cocain. Investigation of the subject establishes the fact that many drug victims who formerly used morphin and cocain, and who under the new laws find it difficult to obtain these substances have begun using heroin, the sale of which is not as yet carefully restricted under state laws. The drug is said to be fully as dangerous as morphin, and by many is held to be much worse, for the reason that it occasionally kills the victim outright, and its habitual use is far harder to overcome than that of other drugs.

Phillips,¹ in discussing the prevalence of the heroin habit reports, among others, the case of a physician aged 60 who began to take heroin because he suffered from a chronic cough and thought there was no danger of habit from the use of this drug because he believed the statements of various manufacturing firms who claimed that there was no danger of habit.

In a pamphlet now being distributed to the medical profession, entitled, "Glyco-Heroin (Smith), an exposition of its components together with references to its value in the treatment of Bronchitis, Cough, Cough of Phthisis, Laryngitis, Pneumonia and allied disorders of the Respiratory Tract, the several alleged uses of the nostrum in the treatment of cough, "Regardless of the nature of its underlying cause . . . whether of recent origin or of long duration," are discussed at length, and eminent practitioners with degree extending the width of the printed page are quoted in support of the statements made. While it may be permissible for a theoretically trained medical tyro who lays claim to the right of appending the abbreviations M.A., M.D., D.C.L., L.R.C.I. to his name to laud a heterogeneous habit-forming cough syrup like Glyco-Heroin, Smith, similar testimonials from a man entitled to append Ph.G., M.S., M.D. to his name make one doubt the value of the training, either scientific, pharmaceutical or medical, that has been given the poor unfortunate who, according to his own statements, indiscriminately dose a female patient of 7 and a male patient of 40 with huge doses of heroin every two, four or six hours.

The danger of contributing to the spread of the heroin habit by the use of preparations of this type is indicated by an editorial in THE JOURNAL of the American Medical Association,² which points out that although heroin and its hydrochlorid have been in use but a few years they have already established themselves among the habit-forming drugs and

1. Phillips, John: Prevalence of the Heroin Habit, THE JOURNAL A. M. A., Dec. 14, 1912, p. 2146.

have become sufficiently conspicuous in this respect to awaken the thinking public to the deplorable results for which they may become responsible. Phillips,¹ in the article mentioned above, quotes Petty, who reports that in the last 150 cases of drug habit coming under his care he saw eight cases of heroin addiction. Three of these were initial cases; in one the patient had been cured of the opium habit, but following an operation heroin was prescribed, and the habit followed. The remaining four patients purposely substituted heroin for morphin, to which they had been addicted.

THE GROWTH OF HEROIN ADDICTION

The imminent danger of substituting heroin for either morphin or cocain is shown by the fact, reported by the U. S. Department of Agriculture, that during the early months of 1913 the coroner's office in Philadelphia County, Pa., held inquests on five sudden deaths from heroin poisoning. In each case the victim was a heroin fiend and took an overdose. Drug fiends are apparently able to consume relatively large quantities of morphin or cocain, but any sudden and material increase in the amount of heroin taken is liable to prove fatal. As indicating the wide sale of this substance, it is known that one druggist in Pennsylvania whose store is located in an undesirable section of his city has been buying heroin tablets in 25,000 lots.

GLYCO-HEROIN, SMITH, A "PATENT MEDICINE"

The popularity of Glyco-Heroin, Smith, as a household nostrum is suggested by the fact that one of the larger department-store type of drug-stores in the city of Philadelphia lists this preparation in its "patent-medicine" catalogue at \$1.75 per bottle and sells it freely to all who care to buy. This is due to the fact that Pennsylvania, like many other states, does not include heroin in the prohibited list of habit-forming drugs that can be supplied only on physicians' prescriptions.

To what extent Glyco-Heroin, Smith, is responsible for developing the rapidly growing heroin habit is of course problematic. It is reasonable, however, to suppose that a preparation, each teaspoonful of which contains so large a dose of heroin as does this nostrum, when taken as repeatedly and indiscriminately as is directed by the manufacturer, could offer possibilities for harm sufficient in number to induce the thinking medical practitioner to avoid its use altogether and at least to suggest to even the most commercial bluffer in the healing art the desirability of carefully considering its potency for harm before endorsing its use in the treatment of "cough and kindred affections."

AN EXPLANATION

It is never the intention of THE JOURNAL to do an injustice. Unauthenticated statements made to us relating to our article of April 11 regarding Wine of Cardui, manufactured by the Chattanooga Medicine Company, prompts the publication of the following:

The Chattanooga Medicine Company claims that only the alcohol needed as a solvent and preservative is used in the preparation of Wine of Cardui and that alcohol is only used for those purposes. They assert that they have employed leading chemists who have sought widely for another preservative, but without success, and that they once tried 5 per cent. and again 3 per cent. less alcohol but found that hundreds of cases of the preparation spoiled as a result of insufficient preservative. They state that the taste of the solution is such as to prevent its use as a beverage and that it is not so sold or used, in fact that in too large doses the preparation has been found to act as an emetic. Based on the foregoing statement it is apparent that the terms "poize" and "tipple," as these words are commonly understood, cannot be applied to the preparation.

The concern says that when the present managers took control in 1906, they eliminated from the wrappers claims

that, although for about thirty years presented in that same form, they felt might fairly be regarded as extreme; that their present desire and intention is to avoid on the wrappers or elsewhere claims that might reasonably or generally be objected to as extravagant.

In THE JOURNAL's article, John A. Patten, the principal owner of the Wine of Cardui business, was referred to, and his high standing in the organization of the Methodist Episcopal Church emphasized. To offset THE JOURNAL's criticisms, many letters are submitted to show that Mr. Patten is a man of high personal standing, and "that his relation to his church is based on his ability and service rather than on any financial gifts he may or may not have made."

Association News

PROGRAM OF PHILADELPHIA CLINICS

The following clinics have been arranged by the Committee on Clinic Days and will be held in Philadelphia on Monday, June 22, and on Friday and Saturday, June 26 and 27—the day preceding and the days following the Scientific Assembly of the Association. Fellows who attend the coming annual session can readily arrange to spend two days in Philadelphia by planning to reach that city on the morning of June 22. An hour's run in the evening will enable them to reach Atlantic City. In the same manner, they can arrange to spend the end of the week at these clinics.

FREDERICK DOUGLAS HOSPITAL, 1530 Lombard Street:

Monday, June 22.

11 a. m. Gynecologic Clinic. J. Q. McDougald.

5 p. m. Lecture Mental and Nervous Diseases. Alfred Gordon and R. W. Bailey.

Saturday, June 27.

11 a. m. Tuberculosis. C. A. Lewis.

Tinea Tonsurans. John P. Turner.

GYNECEAN HOSPITAL, 247 North Eighteenth Street:

Monday, June 22.

9 a. m. Gastroptosis. Henry D. Beyea.

10 a. m. Hysterectomy. Theodore A. Erck.

12 m. Hysterectomy. Brook M. Anspach.

Saturday, June 27.

9 a. m. Cystocele and Rectocele. George W. Outerbridge.

10 a. m. Prolapse of the Uterus. Henry B. Ingle.

11 a. m. Retroversion. J. Watson Martindale.

EPISCOPAL HOSPITAL, Front Street and Lehigh Avenue:

Monday, June 22.

11 a. m. Abdominal Operation. L. H. Mutschler.

12 m. General Surgery. Thomas R. Neilson.

1 p. m. Orthopedic Clinic. Astley P. C. Ashhurst.

Saturday, June 27.

9 a. m. Surgical Clinic. Astley P. C. Ashhurst.

11 a. m. General Surgery. Emory G. Alexander.

2 to 4 p. m. Inspection of Hospital. Astley P. C. Ashhurst.

PHILADELPHIA GENERAL HOSPITAL, Thirty-Fourth and Pine Streets:

Monday, June 22.

10 a. m. Tuberculosis. A. P. Francine.

11 a. m. The Anemias. J. H. Musser, Jr.

12 m. Neurologic Clinic. Charles S. Potts.

1 p. m. Cerebral Palsies. D. J. McCarthy.

2 p. m. Tuberculosis in the Home. Ward Brenton.

3 p. m. Operations on the Eye. J. W. Croskey.

3 p. m. Vulvovaginitis in Children. H. C. Carpenter.

Saturday, June 27.

11 a. m. Gynecologic Clinic. Ella B. Everitt.

JEFFERSON MEDICAL COLLEGE HOSPITAL, Tenth and Sansom Streets:

Monday, June 22.

11 a. m. Obstetric Clinic. E. P. Davis.

11 a. m. Neurologic Clinic. F. X. Dercum.

12 m. Dermatologic Clinic. H. W. Stelwagon.

12 m. Cardiovascular Disease. H. A. Hare.

12 m. Nose and Throat Cases. D. Braden Kyle.

1 p. m. Medical Clinic. S. Solis-Cohen.

2 p. m. Ophthalmologic Clinic. W. M. Sweet.

3 p. m. Surgical Clinic. F. T. Stewart.

Friday, June 26, a Special Clinic for the Class of 1874 of the Jefferson Medical College, in the Clinical Amphitheater from 10 a. m. to 2 p. m. E. E. Montgomery. All physicians are welcome.

Saturday, June 27.

9 a. m. Medical Clinic. Thomas McCrae.

9 a. m. Gynecologic Clinic. E. E. Montgomery and J. M. Fisher.

10 a. m. Orthopedic Surgery. H. A. Wilson.

11 a. m. Surgical Clinic. John H. Gibbon.

11:30 a. m. to 1 p. m. Renal Surgery. H. R. Loux.

1 p. m. Pediatric Clinic. E. E. Graham.

3 p. m. Surgical Clinic. F. T. Stewart.

¹ Facts About Heroin, Current Comment, THE JOURNAL A. M. A., 21, 1912, p. 2262.

HOWARD HOSPITAL, 801 South Broad Street:

Monday, June 22.
12:30 p. m. Surgical Clinic. Barton Cooke Hirst.

ST. JOSEPH'S HOSPITAL, Sixteenth Street and Girard Avenue:

Monday, June 22. In the East operating-room:
8:30-10 a. m. Uterine Prolapse. P. B. Bland.
10 a. m. Retrodisplacements of the Uterus. F. Hurst Maier.
11 a. m. Abdominal Surgery. Melvin M. Franklin.
12 m. General Surgery. Charles F. Nassau.
2 p. m. End-Results of Gastro-Enterostomies. J. A. Kelly.
3 p. m. General Surgery. J. F. X. Jones.
4 p. m. General Surgery. W. T. Ellis.
In the West operating-room:
8:30-10 a. m. Ear, Nose and Throat. G. M. Marshall.
11 a. m. Intestinal Disorders of Infancy. W. C. Holloper.
12 m. Neurologic Clinic. M. H. Bochrock.
4 p. m. Medical Clinic. J. C. Flynn.
In the Outpatient Department:
3 p. m. Eye Clinic. Paul J. Pontius.
4 p. m. Eye Clinic. Charles J. Jones.

Saturday, June 27.
In the East operating-room:
8:30-10 a. m. Orthopedic Surgery. J. M. Spellissy.
10-11 a. m. Pelvic Peritonitis. P. B. Bland.
11-12 m. Uterine Prolapse. F. Hurst Maier.
12 m. Gynecologic Surgery. E. E. Montgomery.
2 p. m. General Surgery. Charles F. Nassau.
3 p. m. General Surgery. J. F. X. Jones.
4 p. m. General Surgery. J. A. Kelly.
In the West operating-room:
8:30-10 a. m. Ear, Nose and Throat. G. M. Marshall.
11 a. m. Carotid Body. P. N. Bergeron.
12 m. Neurologic Clinic. M. H. Bochrock.
In the Outpatient Department:
3 p. m. Eye Clinic. Paul J. Pontius.
4 p. m. Ear, Nose and Throat Clinic. W. E. Quicksall.

KENSINGTON HOSPITAL, 136 Diamond Street:

Monday, June 22.
11 a. m. Clinic. H. C. Deaver.

WILLS HOSPITAL, 1810 Race Street:

Monday, June 22, there will be an operative clinic on reserved cases by W. M. Sweet, Paul Pontius, S. Lewis Ziegler, McCluney Radcliffe and Samuel D. Risley. Also a special arranged clinic on the Saturday following the meeting at Atlantic City by the same men.

PRESBYTERIAN HOSPITAL, 51 North Thirty-Ninth Street:

Monday, June 22.
10 a. m. Clinic. Edward N. Hodge.
12 m. Clinic. Richard Woods.
12 m. Clinic. George E. Shoemaker.
Saturday, June 27.
10:30 a. m. Clinic. Henry R. Wharton.
11 a. m. Clinic. John H. Girvin.

NORTHWESTERN GENERAL HOSPITAL, 2017-2019 North Twenty-Second Street:

Monday, June 22.
10:30 a. m. Clinic on Nervous and Mental Diseases. Alfred Gordon.
11:30 a. m. Surgical Clinic. J. Thompson Schell.
1:30 p. m. Genito-Urinary Clinic. Robert Boyer.
Saturday, June 27.
10:30 a. m. Medical Clinic. H. A. Smith.
11:30 a. m. Surgical Clinic. J. Thompson Schell.
1:30 p. m. Ear, Nose and Throat. Ellwood Matlack.

PHILADELPHIA LYING-IN CHARITY HOSPITAL, 126 North Eleventh Street:

Monday, June 22.
12 m. Hemorrhages of Pregnancy. Strickler Colcs.
Saturday, June 27.
12 m. Lying-In Charity Methods. George M. Boyd.

GERMAN HOSPITAL, Girard and Corinthian Avenues:

Monday, June 22.
Afternoon. Surgical Clinic. John B. Deaver.
Saturday, June 27.
Afternoon. Surgical Clinic. John B. Deaver.

MEDICO-CHIRURGICAL COLLEGE, Eighteenth and Cherry Streets:

Monday, June 22.
10 a. m. Surgical Clinic. William L. Rodman.
12 m. Cardiac Cases. James M. Anders.
1 p. m. Obstetric Cases. George M. Boyd.
2 p. m. Orthopedic Clinic. James P. Mann.
3 p. m. Bronchoscopy. Ross H. Skillern.
Saturday, June 27.
11 a. m. Syphilis of Nervous System. Theodore H. Weisenburg.
12 m. Surgical Clinic. Ernest Laplace.
1 p. m. Eye Clinic. L. Webster Fox.
2 p. m. Deep Roentgenotherapy. George E. Pfahler.

UNIVERSITY OF PENNSYLVANIA HOSPITAL, 3400 Spruce Street:

Monday, June 22.
Surgical Clinic. Edward Martin, J. B. Carnett, E. L. Eliason and G. M. Laws. Exact hour announced later.
9 a. m.-12 m. Gynecologic Clinic. John G. Clark, B. M. Anspach, C. C. Norris and F. E. Keene.
9 a. m.-12 m. Clinical Medical Demonstrations. Alfred Stengel, O. H. P. Pepper, J. H. Austin, J. Herbert Fox, A. H. Hopkins and P. G. Miller.
10 a. m.-1 p. m. Surgical Clinic. Charles H. Frazier, George P. Muller and L. H. Landon.
11 a. m.-1 p. m. Orthopedic Clinic. G. G. Davis, William J. Merrill, Frank Dickson, Walter Elner and DeF. Willard.
12-3 p. m. Genito-Urinary Diagnostic Methods. E. H. Siter, U. A. Uble, W. H. MacKinney, J. H. Laird, J. L. Herman and A. Randall.

2:30-3:30 p. m. Nose and Throat Work. Charles P. Grayson, W. S. Hargett and D. W. Husick.
3 p. m. Surgical Clinic. A. C. Wood and T. T. Thomas.
3 p. m. Eye Clinic. G. D. de Schweinitz, J. F. Carpenter, E. A. Shumway, T. B. Holloway, Carl Williams and H. M. Langdon.

Saturday, June 27.
Surgical Clinic. Edward Martin, J. B. Carnett, E. L. Eliason and G. M. Laws. Exact hour announced later.
Surgical Clinic. John B. Deaver, D. B. Pfeifer, G. G. Ross, and A. D. Whiting. Exact hour announced later.
9 a. m.-12 m. Gynecologic Clinic. John G. Clark, B. M. Anspach, C. C. Norris and F. E. Keene.
9 a. m.-12 m. Clinical Medical Demonstrations. Alfred Stengel, O. H. P. Pepper, J. H. Austin, J. Herbert Fox, A. H. Hopkins and P. G. Miller.
12 m. Pediatric Clinic. P. Crozier Griffith, M. Ostheimer, C. A. Fife, H. C. Carpenter and J. C. Gittings.
12:30 p. m. Cesarean Section. Barton C. Hirst.
1-2 p. m. Neurologic Clinic. William G. Spiller.
2-3 p. m. Social Service Work. Fred H. Klaer.
3-4 p. m. Ear Clinic. B. Alexander Randall and Ralph Butler.
3-4 p. m. Dermatologic Clinic. M. B. Hartzell.

MOUNT SINAI HOSPITAL, Fifth and Reed Streets:

Monday, June 22.
11 a. m. Surgical Clinic. Edward Martin, Max Staller and Nathaniel Ginsberg.
11 a. m. Nose and Throat Clinic. Lewis Fisher.
1 p. m. Hysterectomy. Leon Brinkmann.
Saturday, June 27.
11 a. m. Nose and Throat Clinic. Lewis Fisher.
2 p. m. Roentgen Therapy. George Rosenbaum.

METHODIST EPISCOPAL HOSPITAL, South Broad and Wolf Streets:

Monday, June 22.
10:30 a. m. Spinal Cases. J. Torrance Rugh.
12 m. Surgical Clinic. Levi J. Hammond.
1:30 p. m. Abdominal Cases. Richard C. Norris.
3 p. m. Throat and Ear Clinic. Walter Roberts.
Saturday, June 27.
10 a. m. Abdominal Cases. William R. Nicholson.
1 p. m. Herniotomy. Levi J. Hammond.
3 p. m. Ophthalmic Cases. Philip H. Moore.

WOMAN'S HOSPITAL, 2137 North College Avenue:

Monday, June 22.
9 a. m. Abdominal Operation. Marie K. Formad.
11 a. m. Pediatric Clinic. Eleanor Jones.
2 p. m. Violet Rays in Surgical Work. Kate W. Baldwin.
3 p. m. Adenoids and Tonsils. Laura Hunt.
Saturday, June 27.
9 a. m. Gynecologic Operations. Caroline M. Purnell.
10 a. m. Cystoscopy. Catherine MacFarlane.
2 p. m. Ophthalmologic Clinic. Mary Buchanan.
3 p. m. Throat Clinic. Margaret Butler.

MEDICAL MISSIONS AT THE ATLANTIC CITY SESSION

The Catholic members of the American Medical Association who are interested in medical missions are invited to apply for further information to, P. J. Flagg, M.D., the Marlborough Blenheim, Atlantic City, or Maryknoll, Ossining, N. Y.

Correspondence**A Caffeine Addict with Asthenopic Symptoms**

To the Editor:—Miss Y. A., aged 18, office clerk, of slight stature, frail physique and attentive and refined disposition for four years had had the ordinary symptoms of asthenopia which had been worse for several months. Refraction under complete cycloplegia showed hyperopic astigmatism, axes oblique. A full correction was provided, which, to my surprise, gave but little relief. The correction was verified by repeated examinations and the most careful attention paid to the adjustment of the frames, but the symptoms continued. The patient became eccentric and stubborn, at times exhilarated then depressed, and would exhibit lapses of memory and deportment with an indifference to the usual conventionalities and proprieties. The headaches were intermittent and not caused by near work, but were always increased by it. An attempt at reading, etc., during an attack. Insomnia was present at night, yet she would fall asleep at her work during the day.

Affairs were becoming serious and I was at my wits' end when one day the patient asked if there could be any danger in an overindulgence in Coca-Cola, stating that she drank from three to six glasses a day. In addition, she had two or three cups of strong coffee at mealtime, sometimes taking b

little other nourishment. Curtailing the amount of daily ingestion of caffeine caused a prompt improvement in all symptoms, but unfortunately there is a possibility that the patient has acquired some rather detrimental incidental habits which will require a longer time for elimination.

I feel that such a case is of interest from an ophthalmologic point of view and also that it indicates that the profession should be more alive to the pernicious influence in habit formation of some of the popular beverages served to young persons at public "slop" fountains.

OTIS ORENDORFF, M.D., Canon City, Colo.

A Simple Method of Vaccination

To the Editor:—After reading Dr. Force's article on "An Investigation of the Causes of Failure in Cow-Pox Vaccination" (*THE JOURNAL*, May 9, 1914, p. 1466), in which he mentions the successful use of the von Pirquet borer in vaccinating against small-pox, I would call attention to my article on "A Simple Method of Applying the von Pirquet Test" (*THE JOURNAL*, July 5, 1913, p. 27), which has been used successfully in hundreds of cases. I use the flat end (2 mm. wide) of sterile wooden toothpicks instead of the metal von Pirquet borer. It seems to me that this would be ideal, because the simplest technic of any, for cow-pox vaccination. After the arm is cleansed, the flat end of the sterile wooden toothpick would be dipped in the vaccine and gently pressed on the desired spot on the skin. While the toothpick is held in the middle by the thumb and index-finger, a few turns made by rolling the toothpick to and fro on its own axis between the fingers would result in a neat round abrasion of the epithelium without the appearance of blood. The use of a separate toothpick for each vaccination would insure all the advantages that go with absolute cleanliness and utmost simplicity.

LOUIS SHALET, M.D., New York.

Phonograph in Operating-Room

To the Editor:—For some time I have been employing a phonograph in my operating-room as a means of calming and distracting my patients from the horror of the situation when going under the anesthetic and during operations performed partially or entirely with local anesthesia. The phonograph talks, sings or plays on, no matter how anxious, busy or abstracted the surgeon, anesthetist and assistants may be, and fills the ears of the perturbed patient with agreeable sounds and his mind with other thoughts than that of his present danger. Too often when told to keep up an agreeable conversation with our patients operated on under local, the assistants merely ask again and again if the sufferer is being hurt or if he feels any pain, thus only adding to the self-consciousness of the patient, and, after weather commonplaces are exhausted, it seems impossible to find a topic for conversation of any sort, and dead silence ensues. It is not uncommon for nervous patients to beg to have the phonograph continue, should it run down, and many of them converse animatedly with the anesthetist on the subject of the pieces being played throughout the entire operation.

I owe to Dr. Burdick, our anesthetist, thanks for his selection of records admirably adapted to the tastes and temperament of the subjects.

EVAN O'NEILL KANE, M.D., Kane, Pa.

Surgeon, Kane Summit Hospital.

Cholesterinized Antigens

To the Editor:—In *THE JOURNAL*, May 9, 1914, p. 1458, there is an article by Dr. Loyd Thompson on the use of cholesterinized antigens in the Wassermann reaction, in which he strongly disagrees with the findings reported by us in a previous article (*THE JOURNAL*, Jan. 31, 1914, p. 363), asserting that his series of 356 tests is a larger series than ours from which to draw conclusions. As a matter of fact, the number of cases in which Thompson employed the cholesterinized antigen controlled by the syphilitic liver

antigen was only 50, as compared with 133 cases in our series. The results given by Thompson, based on examination of 306 cases in which the cholesterinized extract alone was used, obviously furnish no basis of comparison between the merits of the two antigens, and we feel that we should have obtained practically the same results with syphilitic liver antigen. Arguing from Thompson's point of view, we might cite the results of 2,500 cases in favor of syphilitic liver antigen, uncontrolled by cholesterinized extract.

In regard to the suggestion that the discrepancy in the results of Thompson's work and ours may be accounted for in the titration of reagents, we may state that the technic for titration of complement, etc., recommended by Thompson is almost identical with one that has been used by us for over a year, which was presented before the Pathological Society of Philadelphia in January, 1914, and which is in press for publication in an early issue of the *American Journal of the Medical Sciences*.

B. A. THOMAS, M.D., and R. H. IVY, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OBSTETRIC ANESTHESIA BY SCOPOLAMIN AND MORPHIN

To the Editor:—Can you refer me to any recent article on scopolamin-morphin anesthesia as practiced by Bernhardt Krönig and Karl Gauss at the Freiburg clinic, Baden?

J. P. McMAHON, M.D., Milwaukee, Wis.

To the Editor:—Is the twilight sleep method of anesthesia in obstetrics by scopolamin and morphin known in the United States as to formula, and does any pharmaceutical house put out the preparation used in the Freiburg clinic in Germany referred to in the June number of *McClure's Magazine*?

What is considered the most up-to-date obstetric anesthesia aside from the use of chloroform and ether?

E. E. SWEENEY, M.D., Grafton, Neb.

To the Editor:—What is the present status of morphin-scopolamin anesthesia among obstetric authorities?

W. O. WILKES, M.D., Waco, Tex.

ANSWER.—Aside from the foregoing, we have received many letters regarding the article referred to. It is extremely unfortunate that a popular magazine such as *McClure's*, the efforts of which in the past in behalf of true medical science have been so influential for good, should have published such a sensational and misleading article without due consideration of its effect on the public. It would seem that the editor of a magazine publishing an article on a scientific subject, especially one discussing such an important subject as this, would consult some competent medical authority as to the underlying facts. The public on reading this article would naturally infer that this method of analgesia was something new. As a matter of fact, our readers of course know that the suggestion for the use of a combination of scopolamin (hyoscin) and morphin was made over 12 years ago, and was put to a pretty thorough test, especially in Germany. While it is not altogether obsolete, it has been practically discarded.

Another natural inference would be that an obstetrician would be negligent of his patients' rights if he withheld the scopolamin-morphin method in his labor cases. The facts are that this method has been thoroughly investigated, tried and found wanting, because of the danger connected with it. Even the most enthusiastic among its German advocates have emphasized its danger, and have stated that it should not be used except in hospitals, where constant, careful watching is possible.

The *McClure's* article seems to have been written, however, especially to emphasize the remarkable results obtained in Freiburg by Krönig and Gauss. As a matter of fact, the Freiburg method differs but slightly from that originally suggested. By the Freiburg method one dose of morphin is given, whereas the scopolamin is repeated as indicated—the indication being, not pain, but memory.

The history of the method is of interest in showing its development. Steinbüchel of Graz began with small doses of

morphin and scopolamin and had no unfavorable results, that is, no dangerous results. Those who followed him used repeated doses of morphin as well as scopolamin—sometimes excessively large doses, with the result that there were serious consequences, particularly the death of the infant. In 1907 a special technic was elaborated by Gauss in the clinic of Krönig at Freiburg in Baden. The technic of Gauss is substantially as follows: The object aimed at is to make the parturient woman forget her pains, although she may be conscious of them at the time; the condition known as "twilight slumber" (*Dämmerschlaf*) is produced. In order to test the mental condition of the patient, she is shown some object and after an interval of about half an hour, this object is again called to her attention. If she remembers having seen it before, she is not sufficiently amnesic, and an additional dose of scopolamin is given. It should be remembered that the method of Gauss is not correctly represented by the frequent recommendations to use scopolamin-morphin for the relief of pain in labor. Let it be emphasized that but a single dose of morphin is used. In this way the frightful mortality that occurs in infants from morphin injections is largely eliminated.

Scopolamin also has its own dangers. Small doses sometimes produce very serious results. There may be great disturbances of the nervous system, or of the heart and lungs. It is impossible to predict when these results may follow its administration and they cannot be guarded against. Proprietary preparations containing fixed quantities of the two alkaloids cannot be successfully used to secure the results desired.

The impression gained from a review of the literature is that the present method of obstetric anesthesia by scopolamin and morphin is not safe for the child and not always safe or successful for the mother. The time may come when the hope expressed in 1911 by Lequeux may be fulfilled, that further clinical investigations cautiously conducted will secure a harmless agent with which to lessen or abolish altogether the pains of labor; but that time has not yet arrived.

The following are references to some of the more important studies of this subject:

- Flatau, S.: Ueber die Anwendung der Morphin-Scopolamin Narkose in der Gynäkologie, *München. med. Wchnschr.*, 1903, No. 28, abstr., *THE JOURNAL*, Aug. 22, 1903, p. 528.
- Steinbüchel, von: Scopolamin-Morphin in Obstetrics, *Centralbl. f. Gynäk.*, 1902, No. 48; abstr., *THE JOURNAL*, Jan. 10, 1903, p. 133.
- Gauss, C. J.: Scopolamin-Morphin Anesthesia in Labor, *Arch. f. Gynäk.*, 1906, lxxviii, No. 3; abstr., *THE JOURNAL*, July 7, 1906, p. 77.
- Wood, H. C., Jr.: Comparative Danger of Scopolamin-Morphin Anesthesia, *Am. Med.*, December, 1906; abstr., *THE JOURNAL*, Feb. 2, 1907, p. 454.
- Hochstein: Geburten mit Scopolamin-Morphium (Childbirths), *München. med. Wchnschr.*, 1906, liii, No. 37; abstr., *THE JOURNAL*, Dec. 1, 1906, p. 1862.
- Gauss, C. J.: Technic of Scopolamin-Morphin Anesthesia in Obstetrics, *Centralbl. f. Gynäk.*, 1907, xxxi, No. 2; abstr., *THE JOURNAL*, March 9, 1907, p. 912.
- Gauss, C. J.: First Thousand Childbirths Under Scopolamin-Morphin, *München. med. Wchnschr.*, 1907, liv, No. 5; abstr., *THE JOURNAL*, March 16, 1907, p. 983.
- Steffens, W.: Deliveries Under Scopolamin-Morphin, *Arch. f. Gynäk.*, 1907, lxxxi, No. 2; abstr., *THE JOURNAL*, May 25, 1907, p. 1821.
- Krönig, B.: Painless Delivery Under Scopolamin-Morphin, *Deutsch. med. Wchnschr.*, 1908, xxxiv, No. 23, abstr., *THE JOURNAL*, July 11, 1908, p. 175.
- Kleinertz, F.: Delivery Under Scopolamin-Morphin, *Ztschr. f. Gynäk.*, 1908, xxxii, No. 42; abstr., *THE JOURNAL*, Nov. 21, 1908, p. 1827.
- Hatcher, R. A.: Scopolamin-Morphin in Narcosis and in Childbirth, *THE JOURNAL*, Feb. 12, 1910, p. 516. Feb. 5, 1910, p. 446 and
- Lequeux, P.: Résumé of Recent Literature on Scopolamin-Morphin Anesthesia in Obstetrics, *l'Obstétrique*, February, 1911.

STEROLS AND THE BIOCHEMISTRY OF BACTERIA

To the Editor:—In your Current Comment last week on "The Biochemistry of Bacteria" (*THE JOURNAL*, May 30, 1914, p. 1730, you speak of "sterols." Can you give a clearer definition of this term? You speak of cholesterol as being a familiar example of sterols. What relation does cholesterol bear to sterols? Are they chemical derivatives or are they related by their physical properties? I am trying to keep up with the progress medicine is making, but find it difficult to do so when words like this are used that do not appear in the dictionaries.

J. H. S.

ANSWER.—When animal tissues are extracted with ether they yield to this solvent a mixture of true fats along with that heterogeneous group of substances at present familiarly known as "lipoids." If the ether extract is saponified with an alkali there remains, admixed with the soaps and other products formed in the reaction, an unchanged substance at one time called a "non-saponifiable" fat, and better known as cholesterin. This is a monohydric alcohol of the formula

$C_{27}H_{45}OH$; its exact constitution is still unknown, although a great deal of research has been devoted to it. In conformity with modern nomenclature in organic chemistry, whereby the alcohols receive the ending "ol," the compound just referred to is now as a rule spoken of as cholesterol, precisely as one alludes to the alcohol phenol or cresol.

While cholesterol has been isolated uniformly from the tissues of mammals and birds, whenever the lipid bodies contained in them have been investigated, with one or two exceptions no other substance similar to it had, until quite recently, been discovered in animal protoplasm. From the vegetable kingdom, on the other hand, a large number of bodies, isomeric with and no doubt closely related to, cholesterol, have been obtained—the phytosterols. Although recent observations show that the number of these is perhaps not so great as was at one time supposed, owing to the fact that many of the products described under different names are mixtures of phytosterols, nevertheless not only do many substances of this general type exist, but frequently, different forms occur in the same plant, each associated with one or other of the plant structures.

More recently the study of the distribution of these non-saponifiable ether-soluble products has been extended to include all orders of animals from the chordates to the coelenterates. The results indicate that the protoplasm of all animals examined, and, therefore, probably of all animals, contains at least one member of the cholesterol family. The individual products isolated, differing in certain undeniable physical and chemical properties such as crystalline form, melting points, etc., have been variously named, usually to indicate their origin in nature. Thus we have sitosterol, bombicsterol, clionasterol and coprosterol, among others. To give some inclusive or generic name to cover all of these varied evidently related substances derived from animals and plants, the word "sterin," or better, "sterol," has been adopted of late. The sterols have, in turn, been classified by Dorée (*Biochem. Jour.*, 1913, vii, 618) into zoosterols (from animals), phytosterols (from plants) and matasterols (the latter common to animals and plants). For a recent review of the subject the reader is referred to Windaus: *Die Sterine*, in Abderhalden's *Biochemisches Handlexikon*, iii, 268, and to the paper of Dorée mentioned above.

STATES RECIPROCATING WITH NEW YORK

To the Editor:—Please inform me with what states New York has reciprocal relations.

C. J. B.

ANSWER.—New York has established reciprocal relations with Delaware, Indiana, Michigan, New Jersey, Ohio, Utah and Wisconsin.

BAELZ' DISEASE

To the Editor:—A patient came to me with what I diagnosed as eczema of the lip. There is no history of syphilis. He had been told by a physician that it was Baal's disease and that it was very rare. As I can find nothing in regard to this rare disease in my text-books, will you please inform me?

M. F.

ANSWER.—"Baal" is probably a misspelling of "Baelz." Baelz' disease is a form of cheilitis glandularis or myxadenitis labialis. It is described by Unna in an article "Ueber Erkrankungen der Schleimdrüsen des Mundes" (*Monatsh. prakt. Dermatol.*, 1890, xi, 317).

It is an inflammation of the mucous glands of the lip and the periglandular tissue, affecting chiefly the lower lip. In Unna's cases the mucous glandular swelling went on to pronounced suppuration, crusting and ulceration and then cicatrization. Unna found that local treatment with tincture of iodine acted as a specific, improvement ensuing immediately.

CRITICISM OF PRESCRIPTION

To the Editor:—Please explain to me what should be the result of the following combinations:

| | |
|---------------------|--------|
| Phenacetin | gr. ix |
| Codein sulph. | gr. ½ |
| Aspirin | gr. vi |
| Sugar of milk | gr. vi |

Take with glass of water three times a day.

P. J. B. LeBLANC, M.D., Fairbanks, Alaska.

ANSWER.—There is no chemical or physiologic incompatibility in this prescription. The remedies are synergistic and the doses, though rather large, are not above what might be given in some cases.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

A LAYMAN'S VIEW OF OSTEOPATHY

A bill giving osteopaths all the rights of regularly qualified physicians recently passed the New York legislature and was sent to Governor Glynn for signature. He held a hearing on the bill, April 13, at which Mr. Abraham Flexner, one of the secretaries of the General Education Board, presented a statement of the present condition of osteopathic schools, as found by a personal inspection of them. Mr. Flexner's statement is of value as showing the fallacy of the educational and scientific claims of osteopathy. Mr. Flexner said:

"Your Excellency, as you doubtless know, I am not a physician. I have no practice to protect, and no particular school of medicine to defend or apologize for. I am in the exceptionally advantageous position of having freely criticized medical schools of all denominations. This criticism was based on a study of medical education in the course of which I visited every medical school in the United States and Canada, and saw every nook and corner of them. Subsequently I visited not all, but most of the medical schools in Europe.

"The general difference between the osteopathic schools, as I found them in 1909 and 1910, and the other medical schools is this: Among regular and homeopathic medical schools there were some good and some bad. The osteopathic schools were all bad.

"The gentlemen who will be privileged to practice medicine in the state of New York, if your Excellency signs this bill, were graduates of the eight osteopathic schools which I visited in 1909 and 1910, having all graduated previously to my visit and under conditions that were probably worse than those which I saw during that time.

"I wish now to describe to you, school by school, exactly what I observed at that time. We will assume that the schools as they passed through them were as good as they were when I visited them.

"In the first place, I have here the catalogues of all those schools of the years 1909 and 1910, just about the time when I visited them, and a little subsequently to the time during which these gentlemen passed through them.

"The most striking general characteristic of the schools at that time was their outspoken and purely mercenary character. Without a single exception they were conducted, and very efficiently and energetically conducted, as business enterprises for the making of money.

"You will see in a moment, when I come to speak of the entrance requirements, that the entrance requirements were so low that practically anybody might enter them on application. In order to get large numbers of students of this low academic grade, the schools indulged not only in all kinds of undignified advertising, but circulated the catalogues, which I have here, and which were intended to be simply an appeal to crude commercial interest. I am going to quote you something from each of these catalogues.

"The following is from the catalogue of one of the Los Angeles schools:

"People are ready to pay for relief from distress and sickness. Many of our graduates are earning as much in a single month as they were formerly able to earn by a full year's work. Ninety-seven per cent. of all our graduates of the past are to-day earning their living in the practice of osteopathy. We mention these facts because the initiated young man or woman is entitled to know."

"Again, later:

"Prospective students may be sure of employment during their spare hours.' (You can imagine how much of leisure a two-year course would allow!) 'Any young man or woman who is able to arrange for a tuition can master the course. Osteopathic treatments are given to patients without expense. The saving in bills for treatment has in many cases more than covered the cost of tuition.'

"There is a second Los Angeles school called the Pacific College, from the catalogue of which the following is taken:

"It is safe to say that in no case has a competent osteopath made a lure in his attempt to build up a paying practice. His remuneration, stated in dollars, would be greatly in excess of what he could expect to receive in most other lines of professional work."

"From the Des Moines school catalogue is taken the following:

"The profession will yield better returns than any other profession."

"This, from the Philadelphia school catalogue:

"A lucrative practice is assured to every conscientious and capable practitioner."

"From the Massachusetts school is the following:

"Osteopathic students can step at once into a paying practice. Seventy per cent. of the graduates of osteopathic colleges succeed financially, while only 7 per cent. of those from other medical colleges are thus successful. Osteopathy is one of the best-paid professions in the world to-day. Any one who is dissatisfied with his or her calling in life might well consider osteopathy. The rewards are many and adequate. Financially, a three years' course in osteopathy is an exceedingly good investment. The Massachusetts College of Osteopathy graduate who does not make as much as the total cost of his osteopathic education in his first year of practice is in exception. What other investment can possibly be made that will yield 100 per cent. or more first year out, and at least as much as that each year thereafter?"

"From the Central College in Kansas City:

"The average osteopath has a better practice than ninety out of every hundred practitioners. The young osteopath builds up a practice in less time than the regular practitioner."

"This, then, is the nature of the appeal, your Excellency, addressed to the kind of candidate that I am now going to describe to you.

"Medical schools offer, including osteopathic schools, instruction in anatomy, chemistry, physiology, pathology, surgery, obstetrics, and so on. In order to be sure that students will be able to grasp such difficult and exacting subjects, it is necessary, and has been found necessary in all states, to insist on a minimum academic preparation.

"The preparation in the state of New York now is, at the very least, a four-year high-school course, which shall include a year each in chemistry, physics and biology.

"Now I am going to read you the entrance requirements in the various osteopathic schools as I found them in 1909 and 1910, about the time when the gentlemen who will be beneficiaries of this law if signed were graduated. The following is from the catalogue of the Los Angeles school:

"In order to be admitted to this school, a student must show evidence of proper training' (I call your attention to the fact that it does not provide submission to an examination) 'in English, mathematics, history, geography'—that is to say, less than a common-school education.

"Moreover' (and this is a verbatim quotation), 'candidates found deficient in one or more of these four subjects may be admitted on condition.'

"That is, there was no academic requirement whatsoever for admission to the Los Angeles school at the time of my visit. Anybody who could pay the fees went in.

"The following is from the Des Moines school:

"Evidence of proper training in English grammar, arithmetic, U. S. history, geography and elementary physics."

"Evidently, very elementary physics, since it was only such physics as might be taught to a student whose mathematical knowledge consisted in knowing simple arithmetic.

"The following is from the Philadelphia school:

"Candidates for admission must have good moral character, good health, and student qualities."

"Any kind of a credential was at that time accepted there, and no examination was required. The specifications in the catalogue were as vague as those I have quoted.

"The following is from the Massachusetts school:

"Evidence of proficiency, but no examination, in spelling, punctuation, arithmetic, history, geography and the elements of physical science."

"The following is from the Kirksville school, which is the parent school. By the way, Kirksville

"... is commended to the prospective student on the ground that Kirksville is the home of osteopathy, with a good business college, three newspapers, two first-class hotels, scores of boarding-houses, five livery and feed stables, a steam laundry, three planing-mills, a shoe factory 700 by 300 feet in dimensions, many residences heated by hot water, and last and by no means least local option adopted by a two-thirds majority. . . . In order to enter this school the student must know English grammar and composition, rhetoric, arithmetic (including compound numbers and percentage) history and geography."

"But if he fail to satisfy these exacting requirements, the student may be admitted without them.

"The following is from the Central College at Kansas City:

"Students must furnish creditable evidence of a good moral character and of practical training in the common branches."

"In other words, there was not a single osteopathic school in the country that had any definite entrance requirements whatsoever. How can this state, having set up a standard and forced compliance therewith, open the doors to low-grade osteopathic graduates from other states less intelligently governed?

"Again, in respect to their facilities for teaching: If you will consult the catalogues, you will see that all these schools make a pretense of teaching all the laboratory branches required in the most exacting schools. And of course it is obviously necessary, in order to make a diagnosis, that the physician, to be a good osteopath, should understand chemistry, physiology, pathology, and anatomy especially, as it is the backbone of their science. At the time I visited these schools, not a single osteopathic school in the country possessed a decent laboratory in any subject, not even in anatomy.

"I will read to you, taken from my note-book which I have here, and which I shall be glad to leave with you, my description of the laboratory equipment of these schools, notes made as I passed from room to room under the chaperonage and guidance of one of the instructors, or the dean.

"The first one is the Des Moines school, and is as follows:

"The laboratory outfit is almost altogether made up of signs. There was a room with 'anatomy' painted on the door which proved to be an empty amphitheater. There was a room with the word 'physiology' painted on the glass door, which turned out to be a practically empty class-room with a few chairs and a few things in a book-case and no laboratory equipment whatsoever. A room marked 'chemistry' was a disorderly and disarranged room with less equipment than would be needed in an elementary high school to teach chemistry. There were two or three incubators in the same room. There was another room marked 'histology,' which was locked, and nobody on the premises had a key to it. It was claimed that there were forty microscopes on the inside. There was also an 'anatomy' room, which was a dirty and disorderly dissecting-room, in which there was an uncovered vat containing a single soaking body, partly dissected and decaying. One or two tables apparently were in use in that room. On the floor back of the office there was also a room marked 'Physics,' the sole outfit of which was a friction electric machine. This room was not a class-room. This, then, was the laboratory equipment used in teaching 115 students.'

"The Littlejohn College of Osteopathy, which I think now is called the Chicago College, was visited. There were a number of absolutely bare class-rooms. No laboratories were in use at the time of my visit, because the college was undergoing expansion, and all the laboratories had been dismantled except the chemical laboratory, which had a simple equipment. When I suggested that perhaps all laboratory instruction had been temporarily suspended owing to the necessities of reconstruction, I was assured that that was not the case.

"In the Philadelphia school I found that each class has a separate room, all subjects taken by the class being apparently taught in that room. Instead of having rooms for anatomy, physiology, and so on, there was a room for seniors, sophomores, juniors, etc. This arrangement stamped it at once as simply a didactic school. The freshman room was bare, except for a few crude drawings, a case of bones, a model and a skeleton. There was another room in this school called the junior room, which was practically the same, with the exception that there were no bones in it.

"Then there was another room not designated as belonging to any special class, in which there was a stereopticon. There was also a histological laboratory with a small centrifuge and an invisible microscope. A small chemical laboratory was found in a dark and dingy cellar. There was absolutely no provision whatsoever for pathology, physiology or bacteriology, no museum and no books. There was a dissecting room, however, in a dark old stable in a horrible condition.

"The Kansas City school was called the Central College. At this school I found a small and very meager laboratory in chemistry. There was no other laboratory equipment worthy the name, not even in anatomy. The teacher of anatomy told me that students ought to know anatomy before dissecting. One body had been obtained in September and had been used up. Another was expected in February. When I asked the teacher in anatomy how he taught anatomy without a body, he said it was a simple matter; that if they taught a student anatomy before he began to dissect, his progress was quicker, and that therefore they had no use for a body at that time.

"I now come to the Kirksville school, which is the most pretentious and largest of them all, having almost six hundred pupils. There I found one room which was used for short six-week courses in bacteriology and physiology, in which thirty-two persons could be accommodated. There

was one preparation room which was used for all laboratory subjects. The school was owned by two doctors who were more interested in fine cattle than in good school equipment. It had proved a very profitable investment, and the profits are invested, so I was informed by the people there, in a splendid stock farm. In the school there were four lecture-halls absolutely bare except for chairs; one small but fairly well-equipped chemical laboratory; a simple dissecting-room; a laboratory for histology and pathology, but no museum, and no gross pathological material.

"The Cambridge, or Massachusetts, School of Osteopathy had one small laboratory for pathology, bacteriology and histology, and one for chemistry. It had no laboratory for physiology, no museum, no books, and anatomy had been postponed one month on account of lack of available material.

"I think it is perfectly safe to say that on the laboratory side, the very worst regular homeopathic medical schools in the United States were at least as good as the best osteopathic schools at that time, and that regular and homeopathic schools of that type would have absolutely no standing before the Board of Regents of New York.

"As to clinical conditions: The backbone of the medical school is its clinical opportunities. Let me describe to you what existed at that time in this direction:

"*Kansas City.*—The school had absolutely no hospital facilities of its own, and no clinical connection where students could be taught. By paying a five-dollar fee its students were able to attend city hospital clinics given by the regular medical college. There was a small dispensary operated at the college, at which patients paid for the treatment they received. Practically, therefore, there were no clinical facilities whatsoever.

"*Kirksville.*—The parent school, with practically six hundred students at the time I visited it, had a hospital with fifty-four beds, most of them containing the surgical cases operated on in the good old way, with the knife, despite the fact that osteopathy is 'drugless and knifeless healing.' There were very few obstetrical cases, but a large dispensary where most of the treatments were paid for by the patients.

"*Philadelphia College.*—Here the clinical facilities consisted of a small hospital several blocks away from the school building, containing three beds. The catalogue states that the students have the privilege of witnessing operations at the University and Jefferson hospitals, performed by regular surgeons, the former belonging to the University of Pennsylvania and the latter belonging to the Jefferson Medical College. I made inquiries at both these institutions, and was told that the statement printed in the catalogue is untrue, and that any student of the Philadelphia College of Osteopathy who penetrated into these clinics was an intruder and a trespasser without rights or privileges of any kind.

"*Massachusetts.*—This school had clinical facilities at the Chelsea Hospital, a pay institution of less than fifteen beds and over an hour's journey from the college building.

"*Des Moines.*—This institution at the time of my visit to it had no hospital of any kind whatsoever, but I was told there was a pay hospital to be opened there shortly.

"*The Los Angeles College.*—This school also had a small pay dispensary, and a pay hospital under construction, which I presume has since been opened.

"The second Los Angeles college, the so-called Pacific College, had a hospital which it claimed as its own, and which is made much of in the catalogue. But I found, on close inquiry, that students had no access to it.

"So that, on the clinical side, as on the laboratory side, these gentlemen have had practically a didactic training on an educational basis amounting to less than a common school education.

"Now, if this bill is signed, these gentlemen will have the privilege of practicing in the state of New York precisely as though they had been graduated from institutions which maintain under the strict scrutiny of the State Department of Education a high entrance basis, and which are required by the State Department of Education to maintain expensive laboratories and elaborate clinics.

"Aside from the specific question here involved and aside from the discussion we heard up-stairs on Christian Science, there is a much wider question involved, namely, What is the duty of a modern state in respect to medical education?

"We have, with great difficulty, in the face of great opposition, and with an enormous expenditure of money and effort built up in the state of New York a structure which makes

New York perhaps at this moment the best protected state in the Union in respect to sanitation and public health.

"The state of Illinois, the virtues of which were commended to us by an eloquent orator a few moments ago, is one of the least enviable in the Union, in this regard. There is more quackery rampant in the city of Chicago than in any other city in the Union.

"This is not a question of personal liberty. A modern state does not regulate its technical affairs by means of universal suffrage. In regard to the conservation of life and health, it is the function of the modern state to inquire into and to ascertain what is the best thing that can possibly be done. Having ascertained that, the state, for the benefit of those directly and indirectly affected, insists that we must all drink pure water, must notify the authorities of infectious diseases, and have well-ventilated and wholesome factories; these things are best for those immediately concerned and best in the long run for the entire community.

"That is the real question at issue in all this legislation. It is not a question of individual liberty. It is a question of the state using its statutory powers for the benefit of those who are in no position to protect themselves. The state must forbid the practice right to healers and untrained osteopaths for fear that the ignorant and misguided may injure themselves and others."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 14. Chairman, Dr. W. H. Sanders, Montgomery.

ARIZONA: Phoenix, July 7-8. Sec., Dr. John Wix Thomas, Phoenix.

CALIFORNIA: Los Angeles, June 16. Sec., Dr. C. B. Pinkham, 135 Stockton St., San Francisco.

COLORADO: Denver, July 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven, July 14-15. Sec., Dr. Chas. A. Tuttle, New Haven. Homeopathic: New Haven, July 14. Sec., Dr. Edwin C. M. Hall, New Haven. Eclectic: New Haven, July 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

DELAWARE: Dover and Wilmington, June 16-18. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Palatka, June 17-18. Sec., Dr. E. W. Warren, Palatka.

INDIANA: Indianapolis, July 14-16. Sec., Dr. W. T. Gott, State House, Indianapolis.

IOWA: Iowa City, June 11-13. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

KANSAS: Kansas City, June 9-12. Sec., Dr. H. A. Dykes, Lebanon.

KENTUCKY: Louisville, June 15-17. Sec., Dr. A. T. McCormack, Bowling Green.

MAINE: Augusta, July 7-8. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MARYLAND: Baltimore, June 15. Regular Board: Sec., Dr. J. McP. Scott, Hagerstown. Homeopathic: Baltimore, June 15. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.

MICHIGAN: Ann Arbor, June 9. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MISSISSIPPI: Jackson, June 16-17. Sec., Dr. E. H. Galloway, Jackson.

MISSOURI: St. Louis, June 15-17. Sec., Dr. J. A. B. Adcock, Jefferson City.

MONTANA: Helena, June 30-July 2. Sec., Dr. Wm. C. Riddell, Helena.

NEW HAMPSHIRE: Concord, July 1-2. Regent, Mr. H. C. Morrison, Concord.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.

NEW MEXICO: Santa Fe, July 13. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: June 23-26. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

NORTH CAROLINA: Raleigh, June 9. Sec., Dr. Benj. K. Hays, Oxford.

NORTH DAKOTA: Grand Forks, July 7. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 14. Sec., Dr. John W. Duke, Guthrie.

OREGON: Portland, July 7-9. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

RHODE ISLAND: Providence, July 2-3. Sec., Dr. Gardner T. Swarts, State House, Providence.

SOUTH CAROLINA: Columbia, June 9. Sec., Dr. A. Earle Boozer, 1802 Hampton Ave., Columbia.

SOUTH DAKOTA: Deadwood, July 14. Sec., Dr. Park B. Jenkins, Waubay.

TEXAS: Austin, June 23-25. Sec., Dr. W. L. Crosthwait, Waco.

UTAH: Salt Lake City, July 6-7. Sec., G. F. Harding, 405 Templeton Bldg., Salt Lake City.

VIRGINIA: Richmond, June 23-26. Sec., Dr. Herbert Old, Norfolk.

VERMONT: Burlington, July 14-17. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Seattle, July 7. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

WEST VIRGINIA: Elkins, July 1. Sec., Dr. S. L. Jepson, Wheeling.

WISCONSIN: Milwaukee, June 29. Sec., Dr. John M. Beffel, 3200 Clybourn St., Milwaukee.

WYOMING: Laramie, July 9-11. Sec., Dr. H. E. McCollum, Laramie.

The Eighth Report of the Carnegie Foundation for the Advancement of Teaching

The eighth annual report of the president of the Carnegie Foundation for the Advancement of Teaching, recently made public, shows a total endowment of \$15,325,000, and an expenditure for the year ending Sept. 30, 1913, of \$658,431. Of this \$519,440 were distributed in retiring allowances to professors, and \$80,949 in pensions to their widows, a total of \$600,390. Thirty-three allowances were granted during the year, making the total in force 403, the average annual payment to an individual being \$1,703. The total distribution from the beginning has been \$2,936,927. The educational work of the foundation was separately endowed in January, 1913, by a gift of \$1,250,000 from Mr. Carnegie through the Carnegie Corporation of New York. This body, which is endowed with one hundred and twenty-five million dollars for "the advancement and diffusion of knowledge and understanding," has five ex-officio trustees, of whom one must always be the president of the Carnegie Foundation for the Advancement of Teaching.

The study of legal education has been begun by a first-hand inquiry into the bar examinations of every state, a special study of legal teaching by Josef Redlich, who came from Vienna for the purpose, and by a personal examination of each of the 160 law schools in the country. Plans for the study of engineering education are now being completed. The earlier educational work of the foundation is continued in the report by commendation of the present tendency of college entrance requirements toward both elevation and flexibility. The need for further improvement is shown by the fact that only 55 per cent. of the students now in our colleges are high-school graduates. The decrease in the number of medical schools in the country and the rapid improvement of the better schools are commented on with appreciation. A general study of the problems of the state regulation of higher education is illustrated by a detailed account of the recent crisis in educational affairs in Iowa.

Tennessee Reciprocity Report

Dr. A. B. DeLoach, secretary of the Tennessee State Board of Medical Examiners, reports that 17 candidates were licensed through reciprocity from Jan. 15 to Dec. 23, 1913. The following colleges were represented:

| College | Year Grad. | Reciprocity with |
|--|-------------------------------|------------------|
| Columbian College, Washington, D. C. | (1903) | Kentucky |
| Atlanta School of Medicine | (1911) | Georgia |
| Georgia College of Eclectic Med. & Surg. | (1912) | Georgia |
| Northwestern University | (1908) Minnesota; (1911) | Georgia |
| Kentucky School of Medicine | (1896) | W. Virginia |
| Louisville and Hospital Medical College | (1908) | Oklahoma |
| University of Louisville | (1911) Kentucky; (1911) | Kentucky |
| University of Maryland | (1909) | Maryland |
| University of Michigan, Dept. of M. & S. | (1894) Michigan; (1897) | Michigan |
| University of Pennsylvania | (1907) North Carolina; (1908) | Virginia; |
| | (1911) Maine. | |
| Chattanooga Medical College | (1907) | Virginia |
| University of Nashville | (1900) | Mississippi |

District of Columbia January Report

Dr. George C. Ober, secretary of the Board of Medical Supervisors of the District of Columbia, report the oral and written examination held Jan. 13-15, 1914. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 10, of whom 7 passed and 3 failed. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|--|--------|------------|-----------|
| Georgetown University | (1913) | 85.3, | 91.4 |
| Howard University | (1913) | | 75.8 |
| American Medical Missionary College | (1904) | | 78.4 |
| University of Illinois | (1913) | | 83.4 |
| Baltimore Medical College | (1913) | | 80.9 |
| Jefferson Medical College | (1905) | | 76.8 |
| FAILED | | | |
| Maryland Medical College | (1913) | | 70.8 |
| College of Physicians and Surgeons, Boston | (1911) | | 68.7 |
| Leonard Medical School | (1913) | | 62.2 |

Book Notices

DEFECTIVE OCULAR MOVEMENTS AND THEIR DIAGNOSIS. By E. and M. Landolt. Translated by Alfred Roemmele, M.B., Ch.B., and Elmore W. Brewerton, F.R.C.S. Cloth. Price, \$2. Pp. 99, with 27 illustrations. New York: Oxford University Press, 1913.

In this small volume the authors have succeeded in presenting the essential known facts of this important, and at the same time difficult, branch of ophthalmology. A great deal has been written on this subject, and in this book the authors have not presented any new facts or proposed any new theories, but have endeavored to group the facts which are absolutely necessary for the correct understanding of oculomotor affections, particularly those which are apt to be overlooked by the general practitioner, as a correct analysis of the various forms of oculomotor disturbances is of the highest importance in diagnosing the different diseases of the brain and nervous system. Not the eyes alone but the entire nervous system must always be taken into account in oculomotor affections. After a brief summary on the fundamental laws governing the normal eye movements, with the anatomy and physiology of the ocular muscles, a few pages are given to the practical application of prisms, and the remainder of the book is devoted to the pathology of the different forms of oculomotor disturbances with their symptoms and diagnosis. Contrary to the method usually adopted in text-books, of enumerating the various diseases and then describing their symptoms, the authors have done just the reverse, beginning with the symptoms and then leading up to the disease which causes them. It is really thus, as the authors state, that the problem presents itself to us in practice. The patient does not come with the name of his disease; asking for the symptoms; he relates his symptoms and we should from them diagnose the disease and deduce the nature and seat of the lesion. The section on the differential diagnosis of paralysis of individual ocular muscles is admirably stated. The classification of the different rotations of the eye as brought out by the double images is easily comprehended, especially if one has familiarized himself with Duane's table. The latter part of the book, which deals with the seat and etiology of the oculomotor affections, gives the essential facts of each case, so far as they are known, clearly and briefly. The authors are to be congratulated on having given to the busy ophthalmic surgeon this *multum in parvo*, which will serve him, as they say, not as a hand-book, but rather as a handy book.

PRINCIPLES OF SURGERY. By W. A. Bryan, A.M., M.D., Professor of Surgery, Vanderbilt University. Cloth. Price, \$4 net. Pp. 677, with 224 illustrations. Philadelphia: W. B. Saunders Company, 1913.

This book, dedicated "to the men I have taught," presents to the student, or practitioner in need of "brushing up," the fundamentals of surgery and especially surgical pathology in a simple, logical manner. The individuality of the teacher is reflected in his writings, at the same time he is fair in his dogmatism. While objecting to the so-called non-absorbable sutures, he admits their harmlessness in intra-abdominal work and also concedes the fact that catgut becomes an excellent culture-medium for bacteria. The chapter on inflammation is particularly complete. Its explanations really explain, and should be of great help to the busy practitioner. The dictum, "no anodynes until the diagnosis is clear and the patient has agreed to the employment of safe means for his relief," cannot fail to impress the student. In the chapter, in which the treatment of sepsis is discussed, the author warns that "purgation of an exhausted patient can prove quickly fatal. The only safe route of elimination should be by the kidneys, and the remedy is water." In the chapter on tetanus he omits to mention the use of magnesium sulphate injections, apparently favoring Bacelli's intravenous injections of phenol (carbolic acid). Absolute non-interference of anthrax lesions and reliance on serum treatment are plainly urged. In the chapter on wounds, the author teaches that infection develops more readily in contused wounds than in any other type, on account of extensive devitalization. One must object

to his advising a thorough scrubbing of a second degree burn with brush, soap and water; such statements are not modern. He also fails to mention the "open-air" treatment of burns. The classification of tumors and the surgical pathology are an admirable summary of the entire subject as at present understood. Regarding uterine myomas the author correctly states that "the old belief that they disappear at the menopause is untrue and dangerous. The danger of malignancy, though small, must not escape us." Writing on sarcoma, he warns us that "many of the notions held by some of the profession are due to ancient teachings that have been handed down from generation to generation, without an attempt to correct them in accordance with the advances made by pathologic study and clinical observation of patients before and after treatment, and by our ability to make accurate diagnoses, microscopically, long before a clinical diagnosis could be vouchsafed. Hence much that is untrue is still accepted and occasionally acted on as true.

THE BIOLOGY OF THE BLOOD-CELLS WITH A GLOSSARY OF HEMATOLOGICAL TERMS. For the Use of Practitioners of Medicine. By O. C. Gruner, M.D., Pathologist to the Royal Victoria Hospital. Cloth. Price, \$6 net. Pp. 392, with 75 illustrations. New York: William Wood & Co., 1914.

"This work is intended to serve as a companion to any of the larger text-books on hematology. Special stress has been laid on the close relationship between changes in the blood-forming organs and the blood-picture as the clinician sees it, and also on the minute morphology of the various blood-cells, whether sessile or free-floating."

In these days the study of the development of the various types of cell seen in the circulating blood is assuming increased importance, owing largely to the epoch-making studies of Pappenheim and his followers. The proper interpretation of the presence of unusual cells or of variations in the number and kinds of normal blood-cells in the blood-picture of any disease may be made only when a thorough knowledge of the origin and developmental cycle of such cells is at hand. Gruner has attempted to present his material in such a way that the reader is led by gradual steps to a complete familiarity not only with the origin and development of the various cells, but also with the hematopoietic mechanism which leads to the appearance of abnormal cells in the peripheral blood. That he has accomplished his object in a thoroughly convincing manner is evident from a perusal of the work. The subject-matter of the book is divided into seven chapters, on the primordial blood-cell, the red blood-cell, the lymphocyte, the large mononuclear leukocyte, the neutrophil leukocyte, phlogocytes, and the cystoplasmic phenomena of blood-forming tissues. Each of these chapters is written in such a clear and concise manner that the reader has no difficulty in grasping the various points dealing with the developmental and morphologic characteristics of the cells discussed. The glossary of terms at the end of the book is very complete and deserves special mention and reference. This book is one which should be in the library of all who have an occasion to examine blood-smears, and should be carefully studied by those who wish to enlarge their knowledge regarding the interpretation of the blood-findings in various diseases. It gives a thorough and convincing exposition of the accepted biologic theories of the origin and development of the blood-cells.

LES TECHNIQUES ANATOMO-PATHOLOGIQUES DU SYSTÈME NERVEUX: ANATOMIE MACROSCOPIQUE ET HISTOLOGIQUE. Par Gustave Roussy, Chef des Travaux d'Anatomie Pathologique à la faculté de Paris, and Jean Lhermitte, Ancien Chef de Laboratoire à la Faculté de Médecine de Paris. Cloth. Price, 5 francs. Pp. 255. Paris: Masson et Cie, 1914.

This little book contains a selected list of methods, which have been personally tested by the authors, for the gross and microscopic study of the nervous system in both normal and pathologic conditions. The selection is in general judicious and the directions clear; there are some new methods described and some remarkable omissions (for instance, no mention whatever of the Golgi method). It is a practical working manual, adapted for the needs of the beginner. "It is not a book for the library; its place is on the laboratory table beside the fixing fluids and stains."

Miscellany

Proteoses and Fever

Experiments calculated to show a relationship (should any such relationship exist) between the injection of proteoses into the animal organism and the development of fever symptoms are reported by Gibson in the *Philippine Journal of Science*, viii, B, p. 475. These experiments were undertaken on account of the conflicting views and theories of previous workers and because of their bearing on "peptone intoxication" and anaphylactic shock and the relation of these to the development of fever symptoms.

Von Pirquet and especially Friedberger have developed the theory that the phenomena of anaphylaxis play an essential part in the production of the symptoms observed in the contagious diseases. The symptoms declare themselves when the antibodies, elaborated by the organism, begin to react with the microbes. Mita and Friedberger have shown a relationship of fever in infections to anaphylaxis. These authors assert that the injection of minute amounts of foreign protein into guinea-pigs sensitized to that protein produces a marked rise in temperature following the characteristic fall. Successive injections yield temperature curves very similar to those of infectious fevers. In anaphylactic shock the symptoms resemble those which obtain during the intoxication resulting from intravenous injection of proteoses. There seems to be evidence also that the formation of anaphylatoxin is associated with the cleavage products of the protein antigen. Pyrexial action is asserted for proteoses prepared in the laboratory as well as for those elaborated by bacteria, both intracellular and extracellular substances so elaborated. If the extracellular substances are precipitated by alcohol or ammonium sulphate and injected into guinea-pigs, they excite fever. Such injections are more pyrogenic for tuberculous animals than for normal ones. When the proteoses are prepared in the laboratory they are not so pyrogenic in their action as those of bacterial origin. Klemperer considers that the cause of fever in such cases is not the introduction of proteoses but rather impurities of bacterial origin. Recently, Bordet has questioned the identity of anaphylaxis and "peptone" intoxication. He concludes from his experiments that there is not just ground for the theory of the production of poison by digestion and disintegration of the antigen. Loewit also believes that there is insufficient evidence for believing that anaphylactic shock and the "peptone" shock are identical. Auer and Van Slyke also bring forward additional evidence that the anaphylactic shock is not due to proteoses. The question of importance at this point is, whether the symptoms of "peptone" intoxication are due to the proteoses injected or to some substance which is physiologically active. Piek and Spiro have concluded that these effects are due to some substance of animal origin. Underhill verified their experiments. With this situation before him, Gibson considers the possibility of a substance other than that injected being responsible for the pyrexial symptoms following an injection of proteoses and their relation to anaphylaxis. Great care was taken in the preparation of the proteoses. They were made from four times reprecipitated caseinogen, recrystallized edestin and thoroughly washed pig fibrin. Rabbits and guinea-pigs were used as experimental animals. They were handled as little as possible, fed well and injected subcutaneously with aseptic precautions. Records of all animals, as to weight, sex, date of injection, temperature at time of injection and range of variation for from five to ten days were kept. Only two out of twelve experiments on guinea-pigs gave a definite pyrogenic reaction. The preparations mentioned above do not seem to be consistently pyrogenic for guinea-pigs; but in the experiments on rabbits no evidence of fever resulted from the proteose injections. Since there was practically no pyrexial effect, no relationship between anaphylactic shock and "peptone" intoxication was discovered. "It would seem then, that the primary cleavage products of pepsin-hydrochloric digestion, when prepared without drastic treatment, from

purified and well-characterized proteins, never have more than a slight pyrogenic effect when injected subcutaneously into rabbits and guinea-pigs. Any temperature rise, if present, is insufficiently pronounced to permit a direct inciting rôle to be ascribed to such proteoses in the production of the severe naturally occurring fevers."

Drying Cultures of Lactic Bacilli

A press bulletin of the U. S. Department of Agriculture says that the general interest in fermented milks has stimulated the production of various kinds of tablets and capsules which are supposed to contain lactic-acid organisms in such quantities that the culture can be used to start fermentation in milk or to inoculate the digestive tract by direct consumption. These cultures, as well as those for butter- and cheese-making, are of value only when they contain the desired organism free from contamination and sufficiently active to start the fermentation before too great accidental contamination develops. The ideal form for such cultures is a dry state, sufficiently active to produce rapid growth when added to milk, and yet so dormant that the organism can be held a long time without losing its activity. This is difficult to attain and many dry cultures are practically inert. The most successful commercial cultures are sold in liquid form. The department has devised a method of preparing dry cultures which preserves to the greatest extent their activity. It consists in freezing the cultures and then drying them over sulphuric acid in a vacuum approximating 0.01 mm. The activity of the dried cultures diminishes more rapidly the higher the moisture content. The loss in activity is slow at 0 C. (32 F.) and is more rapid as the temperature rises. Cultures of lactic acid bacteria at 30 or 37 C. (86 or 98.6 F.) become inactive in a short time. The *Bacillus bulgaricus* made by the freezing-vacuum method is active and curdles milk in twenty hours at 37 C. in the ratio of 1:100,000. Yeasts do not survive the process, as the powders obtained were very feeble.

Value of Vital Statistics

As an argument against the value of vital statistics as ordinarily gathered, E. Goodman, in the *California State Journal of Medicine*, quotes again the statement frequently made that fully 50 per cent. of ante-mortem diagnoses are disproved by post-mortem findings. He says that even if violent and accidental deaths, deaths from occupational diseases, from specific infections and other obvious causes can be established beyond a doubt, yet the great number of doubtful causes vitiates all results. He asserts that necropsy is the only thing that stands between vital statistics as a guess and vital statistics as a science. While the desirability of establishing the exact causes of death in all cases by necropsy is obvious, yet it cannot be agreed that the value of the "bookkeeping of humanity" depends wholly on this. Most cases of infectious disease, including tuberculosis and typhoid fever, are correctly diagnosed, as is cancer in the fatal cases. In these diseases it is highly important that statistics be gathered in order that the large view of their causation and propagation may be obtained and preventive measures devised. Many of the obscure conditions subject to frequent errors in diagnosis do not occur in a large number of cases. Accurate figures in such conditions as gastric ulcer, gallstones, nephritis and some of the heart conditions are a valuable aid in arriving at a correct conception of their general determining causes, but in the conditions named above, in the occupational diseases and in the accidental causes of death, mortality and morbidity statistics are most valuable, and these are now determined, when collected at all, with sufficient accuracy. To determine merely the birth- and death-rate is of great importance, and justifies any efforts to obtain universal and accurate registration. The verification of the causes of death by necropsy in every instance is out of the question, but to say that lack of this vitiates the value of all vital statistics is not a tenable statement.

Medicolegal

Authority of Superintendents to Employ Physicians to Render Services to Injured Employees—Summoning of Aid for Third Persons

(*Ghio vs. Schaper Bros. Mercantile Co. (Mo.)*, 163 S. W. R. 551)

The St. Louis (Mo.) Court of Appeals says that the mere office of superintendent does not imply authority to contract for medical and surgical services rendered to third persons injured in its employ. But it is well settled that a superintendent may contract for medical and surgical services rendered to a third person, injured in the employ of the company, if it appears he possesses, and is accustomed to exercise, broad and comprehensive authority with respect to the conduct of the company's affairs in a general way.

Ordinarily, if one person requests another to perform beneficial services for him, and accepts and appropriates the benefits, the law implies a promise to pay the reasonable value. But this is because the services are of value to the person requesting the performance, and because, too, the law will presume that every person intends to pay for that which is wrought, at his instance and request, to his benefit. It is not the same, however, when one person merely calls a physician or a surgeon to attend a third person, for the dictates of humanity frequently induce one to do this, and, indeed, it may be the sick or afflicted person is at the time unable to speak for himself. Therefore it is the rule of decision that unless the relation of the person making the request is such as to raise the legal obligation on his part to call a physician and pay for his services, the law will not imply a contract to do so on a mere request.

Though such be true, however, it is not essential that there shall be an express promise to pay, even when one calls a physician to attend a third person with respect to whom no legal obligation obtains, if it sufficiently appears from the facts and circumstances in proof that the physician intended to charge for his services, and the person requesting him to perform the service intended to pay therefor. The distinction between an implied contract and an actual contract, though not an express one, which may be found by the jury from the facts and circumstances, as when it appears one party intended to charge and the other intended to pay, is recognized every day in the administration of the law. So, in this case, though no one in express words promised to pay the plaintiff for his services, rendered to an injured employee of the defendant, he might nevertheless recover on contract if the jury found as a fact that he rendered the services at the request of the defendant, with an intention on his part to charge, and that the defendant intended to pay therefor.

Physician's Willingness to Commit Crime Not Punishable—Nature of Rights—Inadmissible Evidence—Construction of Statute

(*State ex rel. Spriggs vs. Robinson et al (Mo.)*, 161 S. W. R. 1169)

The Supreme Court of Missouri, Division No. 2, reverses a judgment of the circuit court sustaining the State Board of Health in suspending the relator or appellant from the practice of medicine and surgery in that state for a period of one year. The charge on which he was suspended was that he was guilty of "unprofessional and dishonorable conduct," in that he was willing to commit a criminal abortion. He had advertised in a local newspaper: "Practice limited to diseases of women and surgery. Office and private hospital," etc. The state statute under which he was suspended provides that the board may revoke licenses for, among other things, producing a criminal abortion, but the specifications in the act were not intended to exclude all other acts for which licenses may be revoked.

The court says that the appellant through his license to practice medicine, and through his ability and industry, had become possessed of at least a valuable privilege—perhaps a property right—which had been suspended by the action of

the respondents for his alleged violations of the laws of the state; that it was not a mere shadowy privilege which might be revoked regardless of whether the possessor had violated the laws of the state, and the court found nothing in the brief of the attorney-general to intimate that the conviction and suspension of the appellant could be sustained on the advertisement which he published. Nor was hearsay evidence of another physician to the effect that the appellant bore the reputation of being a criminal abortionist sufficient.

The statute, in so far as it authorizes the revocation of licenses of physician, is highly penal and cannot be expanded or enlarged beyond its letter or spirit. Its general specification is directed solely against certain undesigned acts, not against evil thoughts or a willingness to perform wrongful acts. However reprehensible it may be for a physician to entertain a desire to commit abortion, his license cannot be revoked therefor unless by a written statute his desires are made the ground for subjecting him to that penalty.

Liability of Chartered Sewage Disposal Company for Maintaining a Nuisance

(*State vs. Collingswood Sewerage Co. (N. J.)*, 89 Atl. R. 525)

The Supreme Court of New Jersey affirms a conviction of the defendant of maintaining a nuisance. The court says that the nuisance complained of was that, in the conduct of its sewage disposal plant, it permitted the generation of unpleasant and offensive odors, to the injury and discomfort of the community. It was a corporation, chartered under the Act of 1898 to collect, treat and dispose of sewage. To meet the state's case, the defendant took the position that, because it had secured the approval of its plans for the building and location of its plant, and had in every respect complied with all the requirements of the State Sewage Commission and the State Board of Health in the construction and operation of its plant, therefore it was immune to an indictment, even though there was faulty construction and operation of the plant which gave rise to offensive smells. But the court thinks the position taken by the defendant untenable. The legislature, in conferring on the defendant the privilege to treat sewage, did not grant with it a license to maintain a nuisance. Nor did the fact that the defendant constructed part of its plant under plans approved by the State Sewage Commission absolve it from liability for maintaining a nuisance. When the defendant discovered that the nuisance arose from faulty construction, its plain duty to the public was to amend such faulty construction, and not to go on continuing the nuisance. As there was some evidence from which the jury might properly have found that the nuisance complained of was the result of both a faulty construction and careless operation of the plant, the court properly refused to direct a verdict for the defendant. Nor was there error in a refusal to permit the defendant to prove the cost of the plant and that it was not a profitable concern; that it did not meet fixed charges, etc. The element of cost did not enter into the inquiry in any aspect of the case. No matter how much the plant might have cost, or how unprofitable it might be, neither element was sufficient to absolve a defendant from maintaining a nuisance arising from faulty construction or negligent operation of the plant. Moreover, the theory that, because the plans were drawn by engineers in the employ of the State Board of Health (which board, under an act of 1908 amended in 1909, was vested with the powers and duties of the State Sewage Commission), recognized and approved by the board, therefore there could be no faulty construction, was palpably fallacious. When a plant is put into active operation and it is discovered that offensive odors are generated, which would not be the case if the plant were properly constructed, it is going to an unwarranted length to ask the court to assume that, because the plant was constructed under the approval of the State Board of Health, on plans of its engineers, therefore, as a matter of law and fact, there could be no faulty construction of the plant, and any nuisance generated thereby is a necessary incident of the business authorized by the legislature.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

American Academy of Medicine, Atlantic City, June 19-21.
American Climatological Association, Atlantic City, June 19-20.
American Gastro-Enterological Association, Atlantic City, June 22-23.
American Laryn., Rhin., and Otol. Society, Atlantic City, June 19-20.
American Orthopedic Association, Philadelphia, June 18-20.
American Proctologic Society, Atlantic City, June 22-23.
American Urological Association, Philadelphia, June 18-20.
Conf. of State and Prov. Boards of N. America, Washington, June 19-20.
Maine Medical Association, Portland, June 10-11.
Massachusetts Medical Society, Boston, June 9-10.
Montana State Medical Association, Lewistown, July 8-9.
New Jersey Medical Society, Spring Lake, June 29.
North Carolina Medical Society, Raleigh, June 16.

ASSOCIATION OF AMERICAN PHYSICIANS

Twenty-Ninth Annual Meeting, held at Atlantic City, N. J., May 12 and 13, 1914

(Continued from page 1748)

Splenectomy for Pernicious Anemia

DRS. WARREN COLEMAN and JOHN A. HARTWELL, New York: Splenectomy was performed as a last resort. Ten weeks later neosalvarsan was administered. The use of neosalvarsan makes it impossible to draw any conclusion as to the effects of the splenectomy except in the interval before its administration. In this interval there was no evidence of more than temporary improvement. At the present time, April 24, six months after the operation, the patient, while looking better and feeling better, is just beginning to sit up.

Studies in Pernicious Anemia

DR. HERBERT C. MOFFITT, San Francisco: The results from splenectomy have been variable. In eight cases death resulted either immediately or soon after operation. A number of other cases have not been improved. In still other cases reported in the literature, surprising improvement has taken place. In my case paresthesia, which was obstinate before operation, disappeared at once afterward. There are other striking changes in the blood regeneration which follow soon after operation in many cases.

Studies in Experimental Arteriosclerosis

DR. I. ADLER, New York: Dogs were injected, partly intravenously, partly subcutaneously, with various substances, such as epinephrin, nicotine, lead, diphtheria toxin and pure cultures of different species of bacteria, all with absolutely negative results. In a further set of experiments, dogs were fed with a number of substances, under varying conditions, and it is believed that some positive results were obtained, so that the aorta in some cases showed lesions which both macroscopically and histologically were closely analogous, if not absolutely identical with human arteriosclerosis.

Case of Recurrent Fever in Aortic Aneurysm

DR. ALEXANDER MCPHEDRAN, Toronto: A woman, aged 36, of irregular life and habits, complained of pain in the right chest. She had recurrent fever about every seven or eight days. The aortic arch was dilated and showed a pulsating aneurysm in the first left intercostal space. The temperature became normal and remained so and her general condition improved very much. She was treated with iodids, mercury and salvarsan.

Certain Tests of Renal Function

DR. W. S. THAYER, Baltimore: When I have been able to correlate the anatomic and clinical observations, they have tended to fortify my previous opinion that the phenolsulphonephthalein test is a reliable one of considerable diagnostic and prognostic value, especially in the study of chronic nephritis.

DISCUSSION

DR. CHARLES F. WITHINGTON, Boston: A man, brought into the hospital unconscious, showed unmistakable evidences of

acute nephritis. There was a history of convulsions and of coma. Twenty-four hours after the patient was brought in the phenolsulphonephthalein output was 70 per cent. His condition proceeded to clear up and he went out about two weeks after he was brought in, showing a surprising phenolsulphonephthalein output, although manifesting signs of nephritis.

DR. JOSEPH L. MILLER, Chicago: A man came to the hospital, not very ill, in whose case a definite diagnosis of chronic interstitial nephritis was made. He was passing 2,000 c.c. of urine a day. We could not get a trace of phenolsulphonephthalein through in two hours. In forty-eight hours and up to the time he went into coma, he passed a large amount of urine, and at the end of forty-eight hours he went into coma and died. Necropsy showed a high degree of interstitial nephritis.

Syphilitic Nephritis

DR. ALFRED STENGEL and DR. J. HAROLD AUSTIN, Philadelphia: We have examined the urine with the polarizing microscope 58 times from 46 cases. Of these 46 cases, 23 showed nephritis with an abundance of albumin and casts in the urine. Of these 23 patients, 6 had positive Wassermanns, 3 had strong presumptive evidence of syphilis, but no positive Wassermanns; 14 had not the slightest evidence of syphilis. The 6 cases with positive Wassermanns all showed lipoids in the urine. The rest of the 46 cases studied were made up in part of nephritis cases of the interstitial or arteriosclerotic types, with only traces of albumin in the urine, and a few hyaline and granular casts, some with syphilis and some without, any number of syphilitic cases with no nephritis, and any number of control cases with neither syphilis nor nephritis. None of these cases showed lipoids in the urine. One of the six syphilitic cases with nephritis showing lipoids in the urine had not received any mercury.

In order to determine whether or not the common experimental degenerative nephritides of animals would be associated with lipoids in the urine, three rabbits were given uranium nephritis and one dog a chromate nephritis. The four experiments were negative; no lipoids were found in the urine. Further experiments with mercurial nephritis, phosphorus and chloroform lesions and syphilitic inoculations are in progress.

The Pathologic Evidence of the Relationship Between Gastric Ulcer and Gastric Carcinoma

DR. LOUIS B. WILSON, Rochester, Minn.: Any existing disagreement as to the relationship between gastric ulcer and gastric carcinoma depends on (1) failure to understand the pathologic data, (2) inappreciation of the bearing on the clinical data, or (3) failure to appreciate the correlation existing between the two. Small gastric ulcers are usually simple, and large cauliflower-like cancers usually show little evidence of previous ulceration, but between these two lies a large group of ulcerated lesions of the stomach, some of which are ulcers only and others of which resemble ulcers in all respects, except that in addition they also show cancer. So far as the pathologist is concerned, he cannot positively distinguish, in many such specimens, between simple ulcer and ulcer plus cancer, except with a microscope. When, in such a specimen showing cancerous areas, no cancer-cells are found in the base of the ulcer, one is warranted in assuming that the ulcerative lesion preceded the cancer.

The Etiology of Some of the Infective Tropical Granulomas

DR. RICHARD P. STRONG, Boston: Among the infective granulomas which occur more commonly in certain tropical countries and which are perhaps of unusual interest from an etiologic point of view, are verruga peruviana, ulcerating granuloma of the pudenda, and frambesia. Verruga peruviana and Oroya fever have been considered to be merely different stages of the same disease, Oroya fever having been regarded as the initial stage of the granulomatous verruga stage. The two diseases, however, are quite distinct and have a very different etiology. Verruga peruviana is due

to a virus which may be transmitted to some of the lower animals, while Oroya fever owes its origin to a parasite of the red blood-corpuscles. The two diseases also have a very different pathology. The etiology of ulcerating granuloma does not seem to be definitely determined.

(To be continued)

AMERICAN DERMATOLOGICAL ASSOCIATION

Thirty-Eighth Annual Meeting, held in Chicago, May 14-16, 1914

(Continued from page 1749)

Epithelioma of the Hand Following Traumatism, Resembling a Granuloma

DR. HOWARD FOX, New York: The patient was a man of 48, whose previous history showed only an attack of measles when a child, and an attack of "blood-poisoning" in the left wrist, for which incision was made, and which healed at the end of sixteen weeks. Syphilis was denied. During the summer of 1911 he was bitten on the back of the right hand by a horse, which injury caused an open wound at the junction of the fifth metacarpal bone with the carpus, which healed in the course of two weeks. Five or six weeks later an open sore again appeared on the back of the right hand, which gradually extended in area and became red and swollen, with discharge and crust formation. When first seen, the right hand showed the characteristics of ordinary senile skin. The entire dorsal surface was swollen, edematous and tender, the swelling extending to the wrist and first phalanges. On this area were serpiginous, rather sharply bordered ulcerating and crusted lesions, extending from the knuckles to the proximal ends of the metacarpal bones. The central portion was covered with epidermis. By pressing on almost any portion of the back of the hand a considerable amount of thick, yellowish pus could be expressed. The clinical picture was that of a granuloma due to tuberculosis, blastomycosis, actinomycosis or possibly syphilis, complicated by an extensive suppurating cellulitis. Wassermann reaction was negative. A biopsy was then made, which showed the presence of a most typical squamous-celled epithelioma. Patient refused operation, and six Roentgen-ray exposures were given. He was also treated by wet dressings of potassium permanganate. Examination of the chest showed some coarse râles, slight dulness and diminished breathing. A roentgenogram of the chest indicated involvement from the level of the fifth dorsal down to the lower border of the ninth rib, the irregularity of the shadow indicating carcinoma. The patient lost weight and became cachectic. Dysphagia steadily increased, and after gastro-enterostomy for its relief the patient died.

Epithelioma of the hand is a comparatively rare condition, and in the vast majority of the cases occurs on the dorsal surface. In spite of being histologically, as a rule, a malignant type of cancer, it runs a slow and relatively benign course, seldom invading the lymphatic glands. The majority of cases develop on a basis of chronic inflammatory tissue; few arise after a single traumatism.

DISCUSSION

DR. ALFRED SCHALEK, Omaha: I had a case much like the one reported, but in my case the growth occupied the whole dorsum of the hand. I suspected malignant disease at first. I did not think of epithelioma because I had never seen a case of epithelioma in the hand. There was extreme pain. The growth was excised, and later a skin graft used, which was followed by recurrence. The patient was referred to a surgeon, who amputated the arm. After that I heard nothing more from him. In my case the process certainly was not benign. It looked to me to be very malignant.

DR. W. A. PUSEY, Chicago: I have seen a considerable number of epitheliomas on the back of the hand. My experience in general corresponds with Dr. Fox's, that such epitheliomas are relatively not very dangerous; but this has set me to thinking of one thing during the last few years,

namely, why epitheliomas on the back of the hand occurring in Roentgen-ray skins are so excessively dangerous. I think it is a general fact that they are very liable to metastasis, and I would like to know why these lesions are dangerous, while ordinary ones are not. I have seen only one epithelioma on the palm, and that was an exceedingly interesting case.

DR. M. B. HARTZELL, Philadelphia: I have seen three or four patients in whom epithelioma has followed immediately on a slight injury. One occurred on the end of the nose of a woman between 50 and 60 years of age; a scratch, which never healed, was followed within a few weeks by a typical epithelioma. In another case the epithelioma occurred on the inner surface of the lip, following a traumatism inflicted by a dentist. I can also recall two cases of carbuncles on the back of the neck which were followed immediately by epitheliomas; that is, the wound left by the carbuncle never healed, and epithelioma developed on that site. Perhaps my experience has been unusual.

DR. MARTIN F. ENGMAN, St. Louis: The case of Dr. Fox seems to illustrate the theory of Ribbert uniquely, in which the normal epithelium through an ulcerating surface is misplaced and separated from its kindred, and thus undergoes atypical physiologic functioning, and rather quickly develops into an epithelioma. We see quite a number of cases of epithelioma of the back of the hand, but they usually originate from keratoses. I have seen several cases following Roentgen rays, and one case, I think, was fatal. This seems to be due to the poor regenerative qualities of the connective tissue, possibly, and the poor condition of the vessels. In a large proportion of these cases the epithelioma is preceded by secondary degeneration of the connective tissue, as found by White.

DR. G. W. WENDE, Buffalo: I have had a case of epithelioma on the palmar surface of the hand, following an injury. It developed soon after the traumatism, and grew rapidly. The course, from beginning to end, was less than a year and a half in length.

DR. UDO J. WILE, Ann Arbor, Mich.: I think that attention might be drawn to the one notable exception, at least, to the relatively benign nature of epithelioma of the extremities. A number of cases following the ingestion of arsenic preparations have been reported. A few years ago, in looking up the literature, I was struck by the large number of arsenical growths, all of which were fatal.

DR. SIGMUND POLLITZER, New York: I think that the class of cases which forms the subject of Dr. Fox's paper may well be brought under that group of epitheliomas which are the result of misplacement of the epithelial cells, caused by the trauma. In this respect this class of cases does not differ materially from another class of epitheliomas that occur commonly as the result of a nevus, with cellular proliferation. I have seen several cases of nevi which depend on cellular inclusions, as moles and pigmented moles that have been treated by cauterization by one method or another and I think that it is a bad practice. A cellular inclusion nevus should be treated like an epithelioma, or let alone. I should like to emphasize that point. Ninety-nine times out of a hundred nothing happens, but in the last case, if a few cells are left behind, they are subjected to terrific irritation from the treatment, and are apt to degenerate into a malignant process.

DR. HENRY H. HAZEN, Washington, D. C.: I have had the opportunity of going over one thousand cases of epithelioma of the skin with Dr. Bloodgood, at Johns Hopkins Hospital. In that series forty or fifty originated in the limbs. In from two to ten years absolutely every case of prickle-cell epithelioma in which the glands were not taken out developed metastases, one or two as late as ten years. These cases were all proved malignant by microscopic examination. When we have a prickle-cell epithelioma, we always should excise the draining glands, in addition to taking out the epithelioma itself. We ought also to be careful about our method of doing biopsies on prickle-cell tissues. We leave both the lymphatics and blood-vessels open, and there is

good chance for any cancer-cells to escape into those vessels. We should use a dull knife, and if we cannot do that the wound should be immediately cauterized.

DR. W. T. CORLETT, Cleveland: My experience may have been unique, but next to the epithelioma of the face, I have encountered epithelioma of the back of the hand most frequently, and in the latter cases I have been impressed with the frequency with which metastases have occurred. I have attributed that to the fact that epithelioma on the face is usually a conspicuous lesion and relief is sought at an early time, whereas an epithelioma occurring on the hand is usually less conspicuous, and therefore is liable to be neglected.

DR. W. A. PUSEY, Chicago: I should like to question the accuracy of any statistics to the effect that every case of epithelioma of the back of the hand had metastases. I think from my experience it is certainly extraordinary and not usual. I should also challenge the statement that every epithelioma of the back of the hand should be followed by extirpation of the lymphatics. I do not think it is common sense or good or necessary surgery.

DR. HENRY H. HAZEN, Washington, D. C.: I said prickle-cell epitheliomas, and about 80 per cent. are prickle-cell.

DR. HOWARD FOX, New York: Dr. Engman referred to the short time between the traumatism and the development of the epithelioma. I do not think that six months is a very short time, but I just mentioned the traumatism as a suggestion; I think it would be impossible to prove that that traumatism with the resulting scar was the actual cause of the epithelioma. In one of the cases reported in the discussion the epithelioma appeared ten years afterward in the scar resulting from the bite of an animal. From the literature I have found that epithelioma occurs on the sole of the foot a good deal more often than on the palm of the hand, and I think that some of these cases have started in perforating ulcers. Certainly, the majority of cases of epithelioma of the extremities arise on a basis of some chronic inflammatory process, a lupus or a fistula, in connection with osteomyelitis or a chronic dermatitis or a chronic ulcer of some sort, and a relatively small number arise on apparently normal skin. In regard to the malignancy of the cases occurring after Roentgen-ray work, according to the statistics of Brunn and Volkmann the most malignant type of epithelioma is that which develops on wheals and moles, congenital or those which appear later in life.

(To be continued)

MEDICAL SOCIETY OF THE STATE OF NEW YORK

The Hundred and Eighth Annual Meeting, held in New York City, April 28-30, 1914

(Concluded from page 1751)

Cystitis Colli or Trigonitis

DR. HENRY D. FURNISS, New York: Before the use of the cystoscope, these patients were all considered neurotics. Authorities have attempted to separate these cases of cystitis colli, referring to them as the non-inflammatory and to the inflammatory type. In the non-inflammatory type the trouble at the neck of the bladder may be due to pressure from a retroverted uterus, a pelvic growth, cystocele or any other cause of pelvic congestion. I am of the opinion that these are coincident infections, and very seldom is there any other form of cystitis colli than that due to infection. The two principal infections are gonorrhea and colon bacillus. The best results are obtained by local treatment to the urethra with from 3 to 8 per cent. silver nitrate. The silver nitrate is neutralized by the urine.

DISCUSSION

DR. JOHN O. POLAK, Brooklyn: I have found these infections more frequent than previous writers have been inclined to consider them. For several years I have discarded vulvar pads on these patients and have found a direct relation between the number of infections, sufficient to convince me

that the vulvar pads should be discontinued. The intestinal tract is very apt to soil the vulvar pads and the wound is infected frequently from the vulva and thus infection of the genital tract results. I have found post partum a large number of cases of cholecystitis, the majority of them having subsided under the expectant plan of treatment to fall later into the surgeon's hands for operation for chronic gall-bladder inflammation. I have seen many cases of appendicitis during pregnancy associated with colon bacillus infection of the kidney; I have seen a number of cases of appendicitis in the puerperium. I have yet to see a case, however, of colon bacillus infection of the kidney that has necessitated the interruption of pregnancy.

DR. REGINALD M. RAWLS, New York: I have gone over the reports of about four hundred cases in the literature and I find that in the great majority of colon bacillus infection cases recovery occurs spontaneously under conservative treatment. I would not be so radical as Dr. Davis in recommending operation in so many of these cases.

DR. PAUL PILCHER, Brooklyn: One of the most dangerous things we can do is to resort to surgery on a kidney whose pelvis is infected, and if we are going to cut a kidney in the presence of infection we should end in the majority of cases by taking the kidney out. Our results in the cases of pyelitis in pregnancy have been very good and in none have we operated on the kidney. We have drained many of them. As to infection of the intestinal tract from colon bacillus, Dr. Davis said appendectomy had been done in a number of these cases. I have found the greatest advantage of a permanent nature to come from appendicostomy rather than from appendectomy. As to infections at the neck of the bladder, I am not quite willing to call them cystitis colli. We seldom see the bladder infected in these cases. It is more a disease of the urethra than of the bladder. The treatment is applied to the neck of the bladder and the urethra rather than to the bladder itself.

DR. ROSALIE S. MORTON, New York: I believe that this condition is one which is frequently overlooked. I have had under my care a young woman who has suffered for four years with this infection as a result of tears at the time of an instrumental delivery four years ago. If the attention of the profession were called to the frequency of this infection, I am sure that many of these patients would be saved from years of invalidism.

Methods of Treatment of Puerperal Infections Which Have Given Improved Results

DR. RALEIGH R. HUGGINS, Pittsburgh, Pa.: One hundred and twenty-five cases of infection following abortion after the second month of delivery have been treated in a conservative manner as far as the inside of the uterus is concerned, except when firm contraction of the uterus was not present, or when it could not be secured by the use of strychnin or ergot, or when the uterine cavity was firmly packed with iodoform gauze. This was done for the purpose of securing firm contraction if the uterus had not been emptied to facilitate the expulsion of its contents. The satisfactory use of magnesium sulphate locally in erysipelas led me to try it in the treatment of puerperal infection. At first it was given in a 1 per cent. solution of saline, about 30 grains at a time. Later it was learned that much greater quantities could be given safely if given slowly. Dr. Harrar of New York has used 250 grains without any alarming effects. Distilled water has been used instead of saline, and there have been fewer chills following its administration. There have been no accidents from its use, and I have given it more than 150 times. It is not bactericidal, but the tissues are stimulated to greater resistance.

The most rational treatment in the beginning of every case of sepsis starting within the uterus is based on a keen appreciation of the pathology. The most important indication is to secure firm contraction of the uterus. The second factor is a healthy respect for Nature's protected zone, in this way limiting the spread of the infection. Good drainage is also an important factor and is secured by placing the patient in a sitting position. Active general measures, such as

attention to diet, elimination and fresh air are the important factors in the treatment of puerperal infection.

DISCUSSION

DR. JAMES A. HARRAR, New York: I have used the intravenous infusions of 2 per cent. solution of magnesium sulphate in freshly distilled water in a number of cases of streptococcic toxemia, and in twelve cases of streptococcic bacteriemia proved such by repeated positive blood-cultures. Dr. Huggins has been extremely fortunate in securing such a large number of bacteriemias on which to test out the blood, and his results have certainly been extraordinary. In a large service, such as that at the Lying-In Hospital, of over 5,000 puerperal women a year including infected post-partum cases sent in by doctors and midwives, we have had in three years but 12 cases of bacteriemia in which to use the injections. That bacteriemia is more often suspected clinically than is proved by blood-cultures was demonstrated by our former pathologist, Dr. J. E. Welch. In 176 cases referred for blood-cultures prior to 1908, he secured positive cultures in but 46. Of these 46, 43 died under ordinary methods of treatment. Dr. Meltzer warns against the depression of the respiratory centers by magnesium sulphate, but in considerably over a hundred intravenous injections of from 200 to 400 c.c. of a 2 per cent. solution of the salt I have seen no toxic effects of any kind.

DR. SAMUEL J. DRUSKIN, New York: In the cases under discussion the blood-vessels extending to the mucous lining are filled with clots, but the middle and outer layers are not. We also find the same reaction in the normal uterus. These clots are soft and have a tendency to break down. It has been demonstrated that the chorionic villi penetrate the mucous membrane, split the inner-muscle fibers and bundles, and there is penetration of the blood-vessels near the inner surface of the uterus. The blood-vessels react by hyaline degeneration, and there is a tendency toward splitting of the coat of the blood-vessel. The effect of this is that when the uterus contracts after parturition, the inner muscular layer does not close up and press the blood out of the blood-vessels. The blood-vessels themselves, and even arteries do not react as they normally do, and they have a tendency to become thrombosed. It would appear that the condition is not primarily an infection due to micro-organisms, but that we have first closure of the blood-vessels due to thrombi which later on become infected.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Boston

May, XXXIV, No. 11, pp. 127-261

- 1 *Anterior Lobe of Pituitary Body in Its Relationship to Early Growth Period of Birds. R. Wulzen.
- 2 *Rôle of Nascent Oxygen in Regulating Activities of Enzymes in Animals and Plants. W. E. and E. L. Burge, Chicago.
- 3 *Physiology of Stomach. Influence of Smoking and of Pressure on Abdomen and on Gastric Hunger Contractions. A. J. Carlson and J. H. Lewis, Chicago.
- 4 *Id. Nervous Control of Gastric Hunger Mechanism. A. J. Carlson, Chicago.
- 5 *Adrenal Deficiency and Sympathetic Nervous System. R. G. Hoskins and H. Wheelon, Chicago.
- 6 Relation of Pulsation to Filtration. G. A. Gesell.
- 7 *Concerning Periodic Cardiovascular and Temperature Variations in Women. J. L. King, Baltimore.
- 8 *Influence of Curare on Vasomotor Reflex Thresholds. E. G. Martin and P. G. Stiles, Boston.
- 9 Factors Affecting Coagulation Time of Blood. W. B. Cannon and W. L. Mendenhall, Boston.
- 10 *Id. II. Epinephrin Injections. W. B. Cannon and H. Gray, Boston.
- 11 *Id. III. Stimulating Splanchnic Nerves. W. B. Cannon and W. L. Mendenhall, Boston.
- 12 *Id. IV. Pain and Emotional Excitement. W. B. Cannon and W. L. Mendenhall, Boston.

1. Relation of Pituitary Body to Growth.—Wulzen found that the growth of young fowl is retarded by the addition

to the diet of fresh, unmodified anterior lobe of ox pituitary. This is shown both in body-weight and in length of the long bones. Involution of the thymus accompanies this retardation and may bear a causal relation to it. These effects are more marked in the males than in the females.

2. Protective Rôle of Nascent Oxygen.—The fact that pepsin and trypsin are oxidized by nascent oxygen and that the mucosa of the stomach and intestine possesses intense oxidative properties the Burges claim may be used to explain the protection of these organs from self-digestion during life; and the fact that diastase is destroyed by nascent oxygen offers an explanation of the observation that the amount of this enzyme is decreased during the day and increased during the night in plants. The fact that the autolytic enzymes are destroyed by nascent oxygen and that the tissues possess oxidative properties would seem to justify the assumption that normally there is a balance between the oxidative and autolytic processes in the living tissues. The fact that in certain pathologic conditions where autolysis is increased the oxidative processes are decreased is in accord with this assumption.

3. Factors Influencing Gastric Hunger Contractions.—The effects of smoking on the gastric hunger contractions were first studied by Carlson and Lewis in the case of a young man with a permanent gastric fistula. In his case smoking (cigars) invariably led to inhibition of the hunger contractions. But the man was not an habitual smoker, and the authors suggest that it is therefore possible that the results obtained on him were simply due to the condition of nausea or disgust that smoking usually produces in the novice and hence not applicable to persons used to smoking. The tests have been repeated on several habitual smokers.

In so far as smoking influences the gastric hunger contractions, this influence is in the direction of inhibition. This inhibition appears to depend on the intensity of stimulation of the nerve endings in the mouth, a cigarette or "mild" cigar causing only slight inhibition, while a "strong" cigar or pipe causes complete and prolonged inhibition even when the gastric hunger contractions are at their maximum. If the cigar or pipe causes very strong stimulation of the nerve endings in the mouth, the inhibition of the hunger contractions may continue from five to fifteen minutes after the cessation of the stimulation. Thus even a brief period of smoking may suppress an entire hunger period.

The subjective sensation of hunger is diminished or abolished parallel with the gastric hunger contractions. But it seems to the authors that even a "mild" smoke diminishes the sensation of hunger rather more than one might infer from the slight depression of the contractions. This they believe, is probably due to the deviation of attention, the smoking acting partly as a "counter irritant." Smoking inhibits the gastric hunger contractions. It is practically certain even in the absence of direct experiments that moderate smoking does not inhibit the gastric movement of digestion. The reason for the difference in the action of the same condition on the empty and on the filled stomach is not clear from present data.

Experiments with constriction of the belt were made on three normal men. The tests were made with the subject standing up, sitting and lying on the back, and at all stages of the gastric hunger contractions. Strong contraction of the abdominal belt leads nearly always to inhibition of the gastric hunger contractions of weak or moderate strength, lasting from five to fifteen minutes. When the gastric hunger contractions are strong (the middle of a hunger period) constriction of the belt never causes complete inhibition. When the gastric hunger contractions are at their maximum in rate and amplitude, as is ordinarily the case near the end of a hunger period, no amount of belt constriction seems to influence the contractions. All three subjects agreed that the belt constriction appeared to diminish or interfere with the hunger sensation to a greater extent than seemed warranted from its effect on the hunger contractions. The authors state that belt constriction causes gastric inhibition not by direct pressure on the stomach, but by direct stimulation.

tion of inhibitory nerves, or by mechanic (or sympathetic) stimulation of the adrenal glands, but through long reflexes.

4. Nervous Control of Gastric Hunger Mechanism.—According to Carlson moderate muscular activity (walking) has no direct influence on the gastric hunger mechanism. Intense muscular activity (running) inhibits the hunger mechanism in direct proportion to the intensity and duration of the exercise. Feeble hunger contractions may continue during moderate running. There appears to be some increase in the gastric tonus and hunger contractions as an after-effect of moderate exercise. Stimulation of the cold nerve-endings of the skin does not affect the vagogastric tonus apparatus. If the stimulation is of sufficient intensity it succeeds (especially in man) a temporary inhibition of the gastric-hunger contractions via the splanchnic nerves. A similar inhibition is induced by strong stimulation of the cutaneous nerve-endings for warmth. There is a distinct increase in the gastric tonus and hunger contractions as an after-effect of prolonged and intense stimulation of the cold nerve-endings of the skin.

The vagogastric tonus mechanism is not influenced by the condition of sleep, except in the way of augmentation, owing to the elimination of all inhibitory processes via the splanchnic nerves. The vagogastric tonus mechanism is not affected by intellectual processes or emotional states, except in so far as these cause inhibition of the gastric tonus and hunger contractions via the splanchnic nerves. It is clear, then, Carlson says, that in normal individuals (man, dog) the vagogastric tonus apparatus, at least so far as it concerns the empty stomach, is physiologically isolated from the interoceptors and from many, if not all, central processes, while the splanchnic inhibitory apparatus is readily accessible to these processes. The biologic significance of this exceptional and unique isolation of the tonus apparatus of the hunger mechanism probably lies in the importance of the hunger mechanism being regulated on its positive side primarily by the state of nutrition; that is, through the blood, rather than by the fleeting changes in the nervous system.

Adrenal Deficiency and Sympathetic Nervous System.—Complete ligation of both adrenal glands of dogs at a single operation, Hoskins and Wheelon found, causes within two to six hours characteristic weakness of the skeletal muscles—including those of respiration. The weakness is limited to a marked degree by the cardiac muscle. At a time when cardiac weakness is strongly in evidence blood-pressure remains at or near its initial height. A compensatory activity of the vasomotor system therefore occurs. Vasomotor responses to faradic stimulation of the crural nerves persist. The vasomotor reactions to epinephrin also are undiminished. The reactions to nicotine are often somewhat exaggerated as compared with preliminary observations with the same dosages. The vasomotor system, therefore, as well as the vascular musculature are unimpaired at a time when marked asthenia of skeletal and cardiac muscle has developed. This asthenia is sufficient to account for the final fatal results of adrenal extirpation. The authors found no evidence, therefore, that the sympathetic system suffers primarily in any degree from adrenal extirpation.

Cardiovascular and Temperature Variations in Women.—In the study reported by King, observations made on the blood and temperature of women support the usually accepted theory of a rhythmic movement in the life processes; the highest point is reached three to four days before the menses, the lowest point about three days after their cessation. With the exception, blood-pressure records of the systolic, diastolic and pulse-pressure made on eleven women gave such irregular results that they cannot be regarded as supporting the theory. King's results, as far as they go, seem to indicate that there has been a tendency to overemphasize the inefficiency of women during the menstrual period.

Influence of Curare on Vasomotor Reflex Threshold.—The author's results may be summarized in the statements: The thresholds for vasomotor reflexes are not, as a rule,

markedly affected by curare. 2. The vasoconstrictor center shows signs of impairment of unity under the influence of the drug, causing it under certain circumstances to exhibit gradations of response not unusual in uncured animals.

10. Epinephrin and Coagulation Time of Blood.—Cannon and Gray found that epinephrin injected intravenously in small doses (0.001 mg. per kilo) and in larger doses subcutaneously, will shorten coagulation time to one-half or one-third the former duration. The prompt shortening of the process after small doses is changed after larger doses (about 0.03 mg. per kilo) to a lengthening and later a shortening, or to a lengthening alone. The effect of epinephrin on the clotting time is not associated with any corresponding effect on arterial pressure. If the blood is confined anterior to the diaphragm, or if the intestines and liver are removed, epinephrin in small doses does not cause rapid clotting. The addition of a small amount of epinephrin to drawn blood does not hasten clotting. Increase of dextrose in the blood to 0.3 or 0.4 per cent. does not cause the rapid clotting seen after epinephrin injection. The explanation is suggested that epinephrin accelerates the clotting process by stimulating the liver (and intestines?) to greater activity in discharging some factor or factors in coagulation.

11. Hastening Coagulation by Stimulating Splanchnic Nerves.—Stimulation of the splanchnic nerves, Cannon and Mendenhall found, results immediately, or after a brief delay, in shortening of the coagulation time of blood. The degree and the duration of the effect varies—clotting not uncommonly takes less than half the time it took before stimulation, and this period of rapid clotting may last from ten to thirty minutes. The stimulation usually produces less marked effects as it is repeated. If the adrenal is removed on one side, splanchnic stimulation on that side does not shorten the clotting time; whereas splanchnic stimulation on the other side is still effective. The faster clotting is therefore due to increased adrenal discharge. Since stimulation of nerves supplying the liver and intestines does not hasten clotting, and since increase of epinephrin has no effect in the absence of the liver and intestines, the shortened clotting after splanchnic stimulation is accounted for by the action of adrenal discharge on the liver (and intestines?). The variations in the effects in different animals can be accounted for by variations in the epinephrin content of the adrenal glands in confined animals.

12. Hastening Coagulation by Pain and Emotional Excitement.—Stimulation of afferent nerves (sciatic, crural), or major operations under light anesthesia, markedly shorten the coagulation time of blood. Emotional excitement is the occasion for very rapid clotting (sometimes in less than a half minute), which becomes slow (three to five minutes) when the splanchnic nerves are cut. Pain and strong emotions have been proved to evoke secretion of the adrenal glands; and epinephrin hastens clotting. Rapid coagulation may reasonably be considered, therefore, as another instance of adaptive reaction serviceable to the organism in the injury which may accompany pain or which may follow the struggle that fear or rage may occasion.

Annals of Ophthalmology, St. Louis

April, XXIII, No. 2, pp. 217-444

- 13 Psychic Disturbances Involving Eye. F. P. Lewis, Buffalo.
- 14 Study of Eye-Grounds in Psychoses. W. L. Benedict, Ann Arbor, Mich.
- 15 Sudden Bilateral Blindness Following Fit of Anger, with Resultant Permanent Bilateral Central (Paracentral) Scotomata. J. H. Claiborne, New York.
- 16 Eye-Strain and Ocular Discomfort from Faulty Illumination. W. B. Lancaster, Boston.
- 17 Ocular Symptoms Associated with Oxycephalus or Tour Skull. J. M. Patton, Omaha.

Archives of Internal Medicine, Chicago

May 15, XIII, No. 5, pp. 673-840

- 18 *Influence of Adrenals on Diabetic Metabolism. G. Lusk and J. A. Riche, New York.
- 19 *Experimental Studies on Blood-Serum of Cows Immunized against Tuberculosis. E. R. Baldwin, Saranac Lake, N. Y.
- 20 *Experimental Study of Intestinal Obstruction. J. A. Hartwell, J. P. Hoguet and F. Beekman, New York.

- 21 Classification of Amebas. C. F. Craig, Fort Leavenworth, Kan.
- 22 Physiologic Degeneration of Mesonephros. With Consideration of Antagonistic Action of Organs and Functional Mutation with Morphologic Persistence. H. Oertel, London.
- 23 *Method Developed for Obtaining Standard Wassermann Antigen. C. W. Field, New York.
- 24 *Study of Action of Atropin on Eosinophil Cells of Blood. W. W. Herrick, New York.
- 25 *Clinical Observations of Defective Conduction in Branches of Auriculoventricular Bundle. E. P. Carter, Cleveland.

18. **Influence of Adrenals on Diabetic Metabolism.**—The subcutaneous injection of epinephrin in a well-nourished dog twenty hours after the ingestion of a standard mixed diet sufficient for maintenance caused an increase of the respiratory quotient from 0.77 to 0.89. From the former quotient Lusk and Riche calculated that 16 per cent. of the heat production was at the expense of glucose, while from the latter it appears that 62 per cent. had that source. Before the injection of epinephrin, 0.8 gm. glucose was oxidized per hour, and after the injection 7.4 gm. per hour. The dog became muscularly active about half an hour after the administration of the drug.

The subcutaneous injection of epinephrin in a dog which had received 50 gm. of glucose resulted, in one experiment, in a respiratory quotient for a six-hour period of 0.98, and a combustion of glucose amounting to 7.7 gm. per hour, corresponding to 82 per cent. of the heat production of the period. On repetition of the experiment six days later, the respiratory quotient was found to be 0.99 during a period of five hours, and the oxidation of glucose amounted to 7.6 gm. hourly, being the equivalent of 85 per cent. of the total calories produced. The heat produced from the oxidation of 7.5 gm. of glucose is 28 calories, and the basal metabolisms of the dogs did not exceed 20 calories per hour. This is suggestive that epinephrin does not cause a diminution in the power of the organism to oxidize glucose.

The theory that epinephrin causes a production of sugar from fat, decreases the power of the organism to oxidize glucose through inhibition of pancreatic function, and stimulates the thyroid so that protein metabolism is increased, Lusk and Riche hold is untenable in any of its particulars.

19. **Blood-Serum of Cows Immunized against Tuberculosis.**—Baldwin's experiments relate to the properties of the serum of a cow repeatedly immunized against tuberculosis during a period of ten years. Six intravenous inoculations of living human cultures of tubercle bacilli, both of virulent and weak-virulent infectivity, besides numerous injections of all forms of tuberculin, were given to this cow. Specific agglutinin, precipitin, opsonin and complement-deviating antibody were demonstrated in varying degree in the serum, but never reached a high content. The presence of a bacteriolysin was not demonstrated; neither was a bacillicidal effect recognized either in the serum or leukocytes. Living human tubercle bacilli "sensitized" with the immune serum showed increased infective power in guinea-pigs and rabbits as compared with normal cow-serum. The increased infective power was manifested by earlier and more marked reactions or inflammation following inoculation, and a wider spread of the disease than in controls. This acceleration of infection was not manifest unless the cow had recently received injections of pulverized bacillus residue, but the immune-serum-agglutinin titer was not always greater than the normal cow-serum. To explain the apparent paradoxical action of the immune serum, it is suggested that the strongly agglutinated bacilli were protected from injury by the leukocytes of the inoculated animal by reason of the clumping. The bacilli were presumably phagocyted in large masses, but more difficult of digestion for that reason. It may also be suggested that the bacilli laden with antibody (opsonin) were more rapidly phagocyted and scattered, but owing to the resistant wax were not digested in sufficient numbers. A "sensitized" living tubercle-bacillus vaccine is not safe or practicable when prepared from immune bovine serums, considering the above-mentioned results.

20. **Study of Intestinal Obstruction.**—The results of their investigations of intestinal obstruction are summarized by the authors as follows: There are two factors at work in producing the symptoms and causing death in this condition.

First, the loss of water from the tissues, due to the excessive drain into the bowel in response to the irritation set up by the retained secretions. This water may be replaced by subcutaneous injection of normal saline solution, and the symptoms caused are thus entirely controlled with a saving of life. Second, the entrance into the circulation of poisonous materials, which occurs only when the mucosa of the bowel is damaged. This damage results largely from the trauma inflicted by the over-distention acting on the circulation, but possibly also by the chemical action of the digestive ferments stagnated above the obstruction. Such a damage having resulted, there occurs a bacterial invasion into the bowel wall with a death of tissue cells (which is invariably demonstrable by microscopic examination), and in this process the poisonous substances are elaborated. The action of these poisons is apparently not influenced by the administration of saline subcutaneously. The absorption of a poison from any source whatsoever, so long as the mucosa remains intact, is not a factor. The development of a bacteriemia as a cause of death is excluded.

23. **Method for Obtaining Standard Wassermann Antigen.**—Field uses the extract from guinea-pig hearts because a larger number can be used for each batch of antigen, so that the individual factor is reduced to the vanishing point.

24. **Action of Atropin on Eosinophil Cells of Blood.**—Herrick found that atropin in ordinary, non-toxic doses has no striking influence on the eosinophil cells of the guinea-pig's blood. Given in toxic doses resulting in loss in weight and other signs of disturbed nutrition, and particularly when such doses are repeated as often as every twelve hours, there is a diminution in the number of these cells, and the eosinophilia following interval injections of serum is diminished or absent. It is probable that this effect of atropin is not specific, but is the depression of a highly specialized function by the general effect on nutrition of large amounts of a strong poison.

25. **Defective Conduction in Branches of Auriculoventricular Bundle.**—Carter analyzed the reports of twenty-two cases. He found that in the presence of lesions involving the conductivity of the branches of the auriculoventricular bundle a distinct and characteristic type of electrocardiogram is obtained. To the ventricular contractions on which these depend the term *aberrant* may be applied. This type of electrocardiogram is frequently associated with aortic valve disease; it is distinct from that of hypertrophy predominant in one ventricle.

Bundle-branch defects are usually accompanied by defects in the main trunk, suggesting that the junctional tissues as a whole have a special pathology. Carter claims that the evidence is too slight to admit of any definite conclusions as to the relation between lesions of the bundle branches and the occurrence of extrasystoles, and that the electrocardiographic pictures of aberrant beats are probably of considerable prognostic importance.

Arkansas Medical Society Journal, Little Rock

May, X, No. 12, pp. 297-328

- 26 Meningitis. J. B. McElroy, Memphis, Tenn.
- 27 Organized Medicine. P. Hunt, Texarkana.
- 28 Preservation of Public Health. L. H. Lanier, Texarkana.

Boston Medical and Surgical Journal

May 21, CLXX, No. 21, pp. 781-820

- 29 Feeble-Mindedness as Leading Social Problem. E. E. Southard, Boston.
- 30 *Under What Conditions Is Diagnosis of "Tuberculosis" in Children Justified? J. B. Hawes II, Boston.
- 31 Causes and Their Relation to Treatment of Lateral Curvature of Spine. Z. B. Adams, Boston.
- 32 Nitrogenous Metabolism in Case of Chronic Myelogenous Leukemia. H. W. Goodall, Boston.
- 33 Aural Vertigo. D. H. Walker, Boston.
- 34 Report of Leukocytic Inclusion Bodies. L. W. Hill, Boston.
- 35 *Poor Health in Child: Some Developmental Influences and Their Importance to Adult. J. Bryant, Boston.

30. **Diagnosis of "Tuberculosis" in Children Justified.** In the absence of advanced tuberculosis or a recent infection with some acute disease which might cause a negative reaction, Hawes claims that a diagnosis of tuberculosis is rarely justified unless there is a positive skin tuberculin reaction.

Constitutional signs and symptoms are usually present and require careful study and investigation. If such symptoms are absent, a definite diagnosis is unwise, although this should not interfere with placing the child under proper treatment. Signs referred to the chest and lungs are of interest and value, if present; if absent, their absence should not preclude a definite diagnosis. If present without constitutional disturbance, look out for chronic influenza and pneumococcus infections. Positive roentgenographic evidence is of value in connection with other evidence. Diagnoses based on the roentgenogram alone are apt to be wrong, and are unjust to the patient.

35. Poor Health in Child.—Adhesions, ptoses and other demonstrable physical defects, according to Bryant, are of very common occurrence at all ages in both sexes, but the frequency of these defects in the adult is not markedly greater than in the child. It is not improbable that such defects may stand in a causal relation to some at least of the disabilities of the child and the adult. An anomalous ligament of Treitz may be a factor in obstruction of the duodenum. A simple double measurement of the thorax is presented, which is likely to prove an aid in the recognition of certain intra-abdominal abnormalities. This measurement in a variable degree an indicator of physical efficiency, and is useful after the age of 5 years. The treatment of developmental defects is primarily non-surgical, and if properly carried out in the child is preventive, in that it will result in creating an adult not only personally more efficient, but one who may entertain the hope of having physically more perfect children.

Canadian Medical Association Journal, Toronto

May, IV, No. 5, pp. 371-468

- Auto-Infection Associated with Intestinal Canal. G. E. Armstrong, Montreal.
Acidosis. V. E. Henderson, Toronto.
*Mentally Defective. G. S. Mundie, Montreal.
*Destruction of Sebaceous Glands, Sweat Glands, Hair Follicles and Diseases Thereby Cured. A. H. Pirie, Montreal.

38. Mentally Defective.—Mental deficiency is a defect of the brain, not a disease. It cannot be cured, but the condition of the child can be improved to a greater or less degree by careful and suitable treatment and training. The greatest biologic factor is heredity; other important factors are the condition of the mother during gestation, tuberculosis, alcoholism and injuries after birth. Mundie urges that all mental defectives should undergo a thorough medical examination, and any defect in vision, hearing or enlarged tonsils and adenoids corrected. Training should be carried out in institutions, and the teaching should be objective.

39. Destruction of Sebaceous Glands.—The following doses of Roentgen rays are prescribed by Pirie, for treatment of conditions mentioned: Sycosis: 10 X one application to the diseased area. Acne vulgaris: 3 X to the diseased area three consecutive days. Wait for three weeks and repeat. Continue this till six treatments have been given. Tinea capitis: 10 X to the whole scalp, one treatment only. Decubital ulcer: 10 X once a month till ulcer is healed, then 4 X a month for six or twelve more treatments, or 30 X for one treatment only. Hyperhidrosis: 10 X once a month for four months. Then 8 X for two more treatments. Ichthyosis: As for hyperhidrosis. Cheloid: 3 X once a week for six to twelve months.

Delaware State Medical Journal, Wilmington

March, V, No. 4, pp. 1-26

Gonorrhea in Female—Its Gravity: Far-Reaching Results: Prophylaxis: Treatment. E. E. Montgomery, Philadelphia.

Georgia Medical Association Journal, Augusta

May, IV, No. 1, pp. 1-32

Chronic Suppuration of Middle Ear. F. M. Cunningham, Macon.
Salvarsan in Treatment of Syphilis and Parasyphilis of Nervous System. J. N. Brawner, Atlanta.
Physician—His Duties and Obligations. R. B. Barron, Gray.
Pituitrin. M. T. Benson, Atlanta.
Infant Mortality. N. M. Moore, Augusta.
Local Anesthesia. R. Duffy, Plant City, Fla.

Indiana State Medical Association Journal, Fort Wayne

May 15, VII, No. 5, pp. 195-254

- 47 Need of State Detention Hospital for Early Diagnosis and Treatment of Acute Mental Diseases. F. M. Terflinger, Logansport.
48 Crime as an Expression of Feeble-Mindedness. D. C. Peyton, Jeffersonville.
49 *External Bone Plating. H. R. Allen, Indianapolis.
50 Paratyphoid and Typhoid. W. Shimer, Indianapolis.
51 Colonic Alimentation. A. Graham, Indianapolis.

49. External Bone Plating.—Allen recommends an external plate poured and cast over the heads of nails whose shafts penetrate two hard layers of bone. This external cast is melted or the shafts of the nails cut as soon as bone union is established. The nails it is claimed are withdrawn as easily and as painlessly as removing sutures after an external wound heals. After several years' experience with projecting wires and nails, Allen has thus far not had a single case of infection. In removing or casting the external plate there is little danger of burning the patient, since the metal Allen uses is a low-melting alloy. It is composed of a combination of metals that take a hard tough temper if cooled suddenly, and becomes more or less brittle if cooled slowly.

Concerning the nails or pins or wires, Allen recommends long, thin, small-headed wire nails or brads and drills that make neat fitting holes. The nails should pass through two layers of hard bone, because this provides much more strength than can be secured by five or ten times as many screws that merely have 1/16 to 3/16 of an inch bearing in hard bone, while the greater proportion of the screw length is left projecting into soft bone-marrow or cancellous tissue. The nails, unlike the screws, should never be parallel. The nails may be made of any good strong metal or may be plated with nickel or silver or other metal. They may have round or polyhedral sides, with smooth or uneven shafts, with or without projections or bends. The ends may be alike or unlike, a head at one end and a point at the other, or terminating in bends or knobs, or eye-holes, or notches, or have castings on their end or ends.

An open incision is made for observing the fractured zone. Holes are drilled and nails put through the holes about 1 inch or more from the fractured zone. The bones are set accurately by hand under direct vision and digital contact; while accurately set, the cast is made. If the work is properly done the bones remain in accurate position. If the soft tissues bind against the shafts of the nails, cut the soft tissues and relieve the tension. Let the soft tissues fit loose about the projecting nails, because this means unqualified comfort after the patient comes out from the anesthesia. Allen always uses an auxiliary splint made out of wire and adhesive plaster.

Iowa State Medical Society Journal, Washington

May, III, No. 11, pp. 697-799

- 52 Infections from Gas Bacilli. W. W. Bowen, Ft. Dodge.
53 Myocarditis. W. L. Downing, Moulton.
54 Chronic Interstitial Nephritis. H. M. Vinson, Ottumwa.
55 Pneumatic Rupture of Bowel. J. D. Blything and P. A. Bendixen, Davenport.
56 Diagnosis and Treatment of Fractures Involving Joint. A. P. Stoner, Des Moines.
57 Indications for Use of Lane Plate. J. W. Martin, Des Moines.
58 Model Laboratory for General Practitioner. H. Albert and M. E. Scheetz, Iowa City.

Journal-Lancet, Minneapolis

May 1, XXXIV, No. 9, pp. 231-259

- 59 Fractures in Neighborhood of Joints. (To be continued.) J. B. Murphy, Chicago.
60 Case of Septic Thrombophlebitis of Pelvic Veins. C. F. Lewis, Austin.
61 Rubber-Tube in Reconstruction of an Obliterated Bile-Duct: an Hepaticoduodenostomy. A. T. Mann, Minneapolis.
62 Mind in Medicine. C. Johnson, Willmar.
63 Report of Case of Traumatic Separation of Symphysis Pubis. F. R. Wright, Minneapolis.
May 15, No. 10, pp. 261-287
64 Fractures in Neighborhood of Joints. (To be continued.) J. B. Murphy, Chicago.
65 Operative Treatment of Fractures Demonstrating Use of Steel Plates for Correction of Bad Fractures. A. E. Benjamin, Minneapolis.

Journal of Medical Research, Boston

May, XXX, No. 2, pp. 87-260

- 66 *Studies in Anaphylaxis. VI. Study of Cellular Theory by Graphic Method. R. Weil, New York.
- 67 *Does Internal Administration of Potassium Iodid Have Any Effect on Thyroid Grafts in Guinea-Pigs? C. Smith, St. Louis.
- 68 Leprosy: Flies in Relation to Transmission of Disease. J. A. Honeij and R. R. Parker, Cambridge.
- 69 *Serologic Investigations in Typhus Exanthematicus. B. Jablons, New York.
- 70 Experiments on Cavity Formation and Fever in Tubercular Rabbits. I. Ayer, Philadelphia.
- 71 *Experimental Study of Relation of Bile to Ulceration of Mucous Membrane of Stomach. G. M. Smith, St. Louis.
- 72 *Statistical Study of Normal Growth, Atrophy and Hypertrophy of Middle Coat of Radial Artery. A. H. MacCordick, Montreal.
- 73 *Neuroblastomata: with Study of Case Illustrating Three Types That Arise from Sympathetic System. H. R. Wahl, Cleveland.

66. **Studies in Anaphylaxis.**—The anaphylactic condition, Weil claims, is entirely dependent on the sensitization of the cells of the body. All conditions which in any way influence the degree of sensitiveness of the cells in the same degree alter the anaphylactic state, or sensitiveness, of the animal. The presence of immune bodies in the blood, whether in large or in small amounts, does not in the slightest degree contribute toward the production of the anaphylactic response in the guinea-pigs.

67. **Administration of Potassium Iodid.**—Smith found that the administration of potassium iodid to a guinea-pig in which a piece of its own thyroid gland has been transplanted does not seem to have any marked effect on the behavior of the graft. He did not find atrophy of the grafts, as reported by Cristiani, after the use of thyroid tablets. However, thyroid grafts show early central necrosis. The peripheral acini only remain intact. Regeneration takes place by the growth of thyroid tissue from the peripheral acini toward the center.

69. **Typhus Exanthematicus.**—The sera of patients infected with Typhus exanthematicus, Jablons claims, give the Wassermann complement-deviation test, as observed in syphilis, framboesia, leprosy, scarlet fever and malaria. This reaction, he says, need not be carried out with typhus organ extract; since the components that give the Wassermann syphilis test also give it here, and is therefore not specific for this disease. The absence of a positive Widal agglutination test in the presence of an epidemic he considers of value in making the diagnosis. The absence of positive bacteriologic findings and the presence of the Wassermann complement-deviation test point to the fact that the cause of the disease is to be sought for among the class of protozoan organisms.

71. **Experimental Study of Bile.**—When introduced into the stomach of the cat or the dog, Smith found that bile in the presence of an excess of 0.5 per cent. hydrochloric acid may cause injury to gastric mucous membrane, whereas bile 0.5 per cent. hydrochloric acid introduced alone into the stomach is without harmful effect. Lesions of the gastric mucous membrane produced by bile in the presence of an excess of 0.5 per cent. hydrochloric acid consist of necrosis of epithelium and interglandular tissue with hemorrhages into the mucous membrane, as a result of which small superficial ulcers may form. Ulceration of gastric mucous membrane, following the introduction of bile and hydrochloric acid into the stomach injected by way of the duodenum, is produced most readily between the third and the fifth hour after meals; least readily in the fasting stomach or shortly after the ingestion of food. If confined in the fasting stomach by ligating the esophagus and the duodenum, bile in the presence of an excess of 0.5 per cent. hydrochloric acid is more toxic for gastric epithelium than either bile alone or bile in the presence of an alkaline solution, such as 0.5 per cent. sodium carbonate. The presence of mucus in the stomach protects gastric epithelium against injury by bile and hydrochloric acid.

72. **Middle Coat of Radial Artery.**—MacCordick claims that the arterial musculature grows like other tissues, increasing both in the number and the size of the individual fibers. It appears to reach its optimum normal development between the ages of 20 and 30 years. While this is so, it retains its

power of growth and proliferation throughout life, or certainly up to 76 years. It exhibits well-pronounced capacity to undergo both individual hypertrophy, that is, increase in size of the individual fibers, and numerical hyperplasia, that is, increase in the number of its constituent fibers. Of these numerical hyperplasia is the more frequently encountered and this particularly in cases of general arteriosclerosis and chronic nephritis. In the medical overgrowth of general arteriosclerosis, "zonal hyperplasia" is occasionally a marked feature—a numerical hyperplasia showing itself particularly in the inner zone of the media. In like manner the arterial musculature may exhibit both atrophy and numerical hyperplasia. These conditions may be either generalized or local. There are indications that the hypertrophied and hyperplastic media is liable to give place to a condition of atrophy.

73. **Neuroblastomata.**—Nerve tissue may give rise to new growths, which are properly called neuroblastomata. They may occur in any part of the nervous system, and Wahl says are of two types, according as they are composed chiefly of differentiated or undifferentiated elements. The neurocytoma is the undifferentiated type arising in the cerebrospinal nervous system. The corresponding type derived from the sympathetic system is the malignant neuroblastoma of the sympathetic nervous system or the "sympathoma embryonale." The ganglioneuroma and the chromaffin tumor represent the differentiated nerve growths, the latter taking its origin only in the sympathetic nervous system, the former arising also in the cerebrospinal nervous system. Most neuroblastomata, especially of the undifferentiated type, arise in the sympathetic nervous system.

Maine Medical Association Journal, Portland

May, IV, No. 10, pp. 1841-1882

- 74 Conservative Treatment of Chronic Suppurative Otitis Media. J. H. Allen, Portland.
- 75 Conservation of Vision. F. Y. Gilbert, Portland.

Medical Record, New York

May 23, LXXXV, No. 21, pp. 921-966

- 76 Progress of Education of Deaf and Dumb, and Some of Difficulties of Aural Instruction. N. J. P. Van Baggen, Hague, Holland.
- 77 *Calcium Therapy of Tuberculosis. M. Kahn, New York.
- 78 Pulse-Pressure in Diagnosis and Prognosis. J. S. Lankford, San Antonio, Tex.
- 79 French Aspect of Functional Liver Testing. M. E. Rehfuess, Philadelphia.
- 80 *Report of One Hundred and Twenty-Eight Cases of Scarletina Treated by Vaccines and Method of Milne. E. C. Schultze and L. A. Goldberger, New York.
- 81 Study of Bacteriology of Posterior Nasopharynx in Scarletina. N. S. Ferry, Detroit.
- 82 *Experiences with Bacterial Vaccines in Scarletina. G. L. Kiefer and N. S. Ferry, Detroit.
- 83 Retroperitoneal Hernia of Appendix into Ileo-Appendicular Foramen. I. Seff, New York.

77. **Calcium Therapy of Tuberculosis.**—In looking over the mass of literature on this subject, Kahn says one is left in doubt whether the use of lime in the treatment of tuberculosis is to be recommended. There is, however, no danger in its use, and according to the observations of a number of physicians, it is of marked benefit.

80. **Scarlatina Treated by Vaccines and Method of Milne.**—One hundred and twenty-eight scarlet-fever patients were treated by Schultze and Goldberger, with a vaccine prepared from the *Micrococcus "S"* (Schultze). In addition to the vaccine injection, all the patients received a preliminary course of eight or ten doses of calomel, 1/10 to 1/4 gm., and castor oil or citrate of magnesia, and also had their throats swabbed with a 10 per cent. solution of phenol in oil and their bodies rubbed with a 10 per cent. solution of eucalyptus in oil, as advocated by Milne. A few patients after having been subjected to Milne's treatment, passed smoky urine, an evidence of too great absorption of phenol. The authors temporarily discontinued the use of phenol and the urine promptly cleared. They then diminished the strength of the phenol solution to 5 per cent. and have been using the 5 per cent. strength ever since, with no untoward effects. Milne advised painting the tonsils with phenol solution every two hours during the first twenty-four hours, later diminishing the frequency according to the appearance of the throat.

The authors suggest painting the posterior pharyngeal wall, as well as the tonsils, and continue painting until cultures from the throat show no more "S" cocci. The rubbing in of the eucalyptus oil they found was very soothing, and in many cases relieved the intense itching, which accompanied desquamation. The phenol swabbing of the throats and the rubbing of eucalyptus oil in the bodies were continued throughout the course of the disease, and in a few cases were also used as a prophylactic measure on some of the healthy members of the family with very good result. The vaccines used were three in number, composed of the following organisms: (1) *Micrococcus* "S," 400 million per c.c.; (2) streptococcus, 100 million per c.c.; (3) *Micrococcus* "S" and streptococcus combined, 400 million per c.c. In 103 of the cases only culture "S" vaccine was injected. The other twenty-five cases received the *Micrococcus* "S" and streptococcus vaccine (combined), but as the results obtained by the use of the combined vaccine did not seem to be any better than with the culture "S" vaccine alone, the use of the combined vaccine was discontinued. The dosage of each injection was estimated according to the age of the patient and the severity of the disease.

Of the 103 cases that were given only "S" vaccine, 55 received 1 c.c., 41 received 2 c.c., 5 received 3 c.c., and 2 received 4 c.c. Of the 25 cases that were given the combined vaccine, 10 received 1 c.c., 10 received 2 c.c., 2 received 3 c.c., 2 received 4 c.c. and 1 received 7 c.c. In 121 of the whole series of 128 cases, only one injection was found necessary. Of the other 7 cases, 3 cases received two injections, 2 cases received three injections and 2 cases received four injections. The necessity for reinjecting a patient was judged by the reaction obtained from previous injections.

In most of the cases the reaction was rather striking. The temperature fell by crisis, reaching normal in from twenty-four to seventy-two hours; the general condition of the patient improved markedly; whereas, before injection, many of these patients "looked sick," soon after the injection, however, their general mental and physical conditions showed such improvement that their facial expressions were those of well-being rather than of severe sickness; usually they felt hungry and cried for food, although in some cases the rectal temperature registered 104 or 105 degrees. Of the 128 cases, there were 2 deaths (1.5 per cent.). Seven were complicated with diphtheria. Complications were: adenitis, 7 (5.46 per cent.); nephritis, 7 (5.46 per cent.); otitis media, 3 (2.34 per cent.); arthritis, 3 (2.34 per cent.); pneumonia, 1 (0.86 per cent.); measles, 1 (0.86 per cent.); arthritis and endocarditis, 1 (0.86 per cent.); total, 20 (15.62 per cent.).

82. Bacterial Vaccines in Scarletina.—The bacterial vaccines employed by Kiefer and Ferry were as follows: A vaccine composed of streptococci isolated from the nasopharynx of individuals suffering with typical symptoms of scarletina; a vaccine composed of an organism isolated from the same situation, called *Micrococcus* "S," and a vaccine composed of a mixture of the two. These vaccines which were polyvalent, being composed of several strains of each organism, contained 400 million organisms per c.c. each. Two series of treatment were undertaken: prophylactic and curative, the nurses receiving the prophylactic treatment and the patients the curative. For curative purposes the three vaccines were used as described, while, for prophylactic purposes, the *Mic.* "S" vaccine alone was tested.

The patients treated were proportioned as follows: Those receiving the streptococcus vaccine, 29; the *Mic.* "S" vaccine, 33; and the combined vaccine, 33. The vaccines were given out every two or three days, starting with one-half a cubic centimeter and increasing the dose as the symptoms warranted; and the treatment, as a rule, was continued until the termination of the case. No set rules for the course of treatment were adhered to; this was left entirely to the judgment of the physician in charge. The vaccines which contained the streptococci had an advantage over the ones containing the *Mic.* "S" alone, as well as over the usual expectant treatment. Whether the *Mic.* "S" bears any relation to the disease, it could appear from the study of these few cases that, as a curative agent, a vaccine composed of this organism alone

would not be indicated. This is also partly borne out by the fact that the *Mic.* "S" is more easily isolated and is found in larger numbers in the early stages of the disease, and has not been isolated from any of the discharges. For prophylactic purposes the *Mic.* "S" vaccine was given in three doses of increasing strength with three- to five-day intervals between doses. The doses contained 200, 400 and 800 million bacteria, respectively. Up to the time of starting this work six nurses out of about 100 had contracted the disease. However, since the introduction of this vaccine as a prophylactic measure among all nurses who had not already had the disease, not a case has been reported. It is interesting and rather significant also that during a period of three months when the prophylactic treatments were discontinued, four out of about twenty nurses became infected.

Military Surgeon

May, XXXIV, No. 5, pp. 401-500

- 84 "Field Service Regulations, U. S. Army, 1914," and "Organization Tables, U. S. Army, 1914." E. E. Persons, U. S. Army.
- 85 Wounded at Ojinaga. L. C. Duncan, U. S. Army.
- 86 Report of One Hundred Wounds, Received in Battle of Nuevo Laredo, Jan. 1 and 2, 1914. H. A. Phillips, U. S. Army.
- 87 Incinerators at San Antonio Maneuver Camp. F. W. Foxworthy, U. S. Army.
- 88 Importance of Blood-Pressure Readings in Annual Examinations of Field Officers. R. H. Pierson, U. S. Army.
- 89 Army Medical Corps. H. H. Baketel, U. S. Army.

Mississippi Medical Monthly, Vicksburg

May, XIX, No. 1, pp. 1-22

- 90 Hypopituitarism. J. B. McElroy, Memphis, Tenn.

Northwest Medicine, Seattle, Wash.

May, VI, No. 5, pp. 121-154

- 91 Recoverability of Insane. W. House, Portland, Ore.
- 92 Psychic Mind in Medicine. W. N. Pugh, Salt Lake City.
- 93 Urobilin in Urine. G. Baar, Portland, Ore.
- 94 Direct Transfusion of Blood with Special Reference to Its Use in Pernicious Anemia. W. C. Spidel, Seattle.
- 95 Case of Status Epilepticus Cured by Decompression Operation. D. A. Nicholson, Seattle.
- 96 New Hand-Driven Circular Bone Saw Including Flexible Shaft. H. A. Shaw and J. T. Mason, Seattle.
- 97 Medical Defense by State Association. E. E. Maxey, Boise, Ida.

Ohio State Medical Journal, Columbus

May, X, No. 5, pp. 263-326

- 98 Results of Treatment of Epilepsy with Crotalin. M. L. Austin, Gallipolis.
- 99 Case of Renal Hematuria, with Three Anomalous Renal Arteries. C. M. Harpster, Toledo.
- 100 Infant Welfare Campaign and Work Done in Cleveland. C. W. Wyckoff, Cleveland.
- 101 Intestinal Stasis—Internal Administration of Paraffin Oil. R. R. Kahle, Columbus.
- 102 Cerebrospinal Meningitis with Special Reference to Selected Cases. M. A. Brown, Cincinnati.

Oklahoma State Medical Association Journal, Muskogee

May, VI, No. 12, pp. 495-538

- 103 Unusual Cases and Incidents of Professional Career. W. Nairn, Nowata.
- 104 Cirrhosis of Liver. R. E. Pryor, Bartlesville.
- 105 Simplified Baldy-Webster Operation. W. E. Dicken, Oklahoma City.
- 106 Determination of Renal Efficiency. H. Reed, Oklahoma City.
- 107 Training of Expectant Mothers and Care of Infants. L. H. Huffman, Hobart.

Ophthalmic Record, Chicago

May, XXIII, No. 5, pp. 217-270

- 108 Glaucoma as Contributing Etiologic Factor in Insanity. Case Report. C. B. Welton, Peoria.
- 109 Retinochoroiditis Juxtapapillaris. L. F. Appleman, Philadelphia.
- 110 Diagnosis of Heterophoria from Portrait. S. Mitchell, Hornell, N. Y.
- 111 Pseudo-Optic Neuritis. F. P. Calhoun, Atlanta, Ga.
- 112 Parinaud's Conjunctivitis. N. W. Price, Niagara Falls, N. Y.
- 113 Light. H. E. Goetz, Knoxville, Tenn.
- 114 Castor Oil as Menstruum for Cocain. S. Mitchell, Jr., Hornell, N. Y.
- 115 Soap and Water and Opticians. C. H. May, New York.
- 116 Albinism of Eyes without Involvement of Hair or Skin. W. E. Gamble, Chicago.
- 117 Keratome, which Facilitates the Elliot Trephining Operation. G. B. Jobson, Franklin, Pa.

- 118 New Method of Preparing Eye for Microscopic Sections. H. R. Wright, Columbus, O.
119 Glioma of Retina in Child Eight Months Old. Case Report. B. Gleeson, Danville.

Ophthalmology, Seattle, Wash.*April, X, No. 3, pp. 375-590*

- 120 Basis of Light Treatment for Diseases of Eye. F. Schanz, Dresden, Germany.
121 Observations on Ophthalmology in Orient. F. B. Tiffany, Kansas City, Mo.
122 Two Unusual Cases of Pulsating Exophthalmos. W. O. Maher, Sydney, Australia.
123 Orbital Cellulitis with Total Loss of Vision. F. B. Tiffany, Kansas City, Mo.
124 Bilateral Coloboma of Lens. F. P. Calhoun, Atlanta, Ga.
125 Edema of Macular Area of Retina. Report of Case. C. C. Stuart, Cleveland.
126 Temporary Injurious, Accidental Action of Secacornin of Eye. J. Fejér, Budapest.
127 Use of Jackson's Cross Cylinders in Estimating Refraction. J. W. Kimberlin, Kansas City, Mo.
128 Intracapsular Cataract Operation in Immature Cataract. W. A. Fisher, Chicago.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London*May 9, I, No. 2784, pp. 1001-1052*

- 1 *Cause and Cure of Cancer Viewed in Light of Recent Radiobiologic Research. W. S. Lazarus-Barlow.
2 Radium in Treatment of Malignant Disease. Report of Eight Cases. J. R. Riddell.
3 *Intramedullary Tumor of Spinal Cord: Treatment by Laminectomy and Application of Radium. J. M. Clarke and R. G. P. Lansdown.
4 *Respective Advantages and Disadvantages of Roentgen Rays and Radium in Treatment of Cancer. F. Hernaman-Johnson.
5 Painful Shoulders and Their Treatment by Physical Measures. J. J. Grace.
6 Treatment of Neuritis by High Frequency Current: Report of Nine Cases. W. F. Somerville.
7 Interlobar Empyema. G. Marshall.
8 Veronal Poisoning: Recovery after 100 Grains. H. R. Souper.

1. **Cause and Cure of Cancer.**—From the laboratory point of view, Lazarus-Barlow tries to show how radiobiologic research indicates radium and other radiations as a very special agency wherewith to treat cancer; how certain disadvantages are unavoidable and others avoidable with our present knowledge; how, and in what directions, research should be conducted to turn present failure into future success. The ideal he holds is that in radium and other radiations we hold the solution of the cure of cancer. In a sufficient dose radium and other radiations are capable of killing every type of cell met with in cancer.

The action of radiations on cells, he claims, is selective, or conversely; all varieties of cells are not equally vulnerable to radiations. There is some evidence that an active immunity is produced as the result of acting on malignant cells with radium. Lazarus-Barlow insists that microscopic examination by a competent morbid histologist should be made of every case subjected to radium treatment. The amount of radium in use should be verified periodically by a competent physicist. It should be recognized that the metabolic processes of every patient after exposure to a considerable dose of radium are profoundly modified, at least for a time. Treatment with radium should not follow immediately on operation. If radium treatment of a malignant new growth be decided on, such treatment should not be preceded by complete removal of the main part of the growth.

Finally, Lazarus-Barlow states that, whatever treatment may be the case in the future, for the present radium treatment of malignant disease should be confined to those cases for which modern surgery cannot offer a fair prospect by operation. But this is the furthest that one can go. At present, where modern surgical operation can offer a fair prospect of satisfactory result, the knife must be recommended in preference to every other agent, and this is as true for recurrences as for the primary disease.

3. **Intramedullary Tumor of Spinal Cord.**—The case reported by Clarke and Lansdown was one of intramedullary tumor of the lumbosacral region of the cord, found irremov-

able at operation, some weeks later treated by placing a tube containing 50 mg. radium for twenty-two hours in the spinal canal, with the result of steady and progressive improvement in movement and sensation in the previously paralyzed lower limbs, until the onset of an acute cystitis with *B. coli* infection wore out the patient's strength and caused death.

4. **Roentgen Rays and Radium in Treatment of Cancer.**—In early cases, whether for preoperative or postoperative irradiation, the Roentgen ray is preferred by Hernaman-Johnson to the radium tube. When surgical removal is impossible, he says, a tube of radium should be buried in the center of the tumor, but Roentgen rays should be used, in addition to the surrounding area, and to any organs where a metastasis is likely to occur. This combined treatment may result in some actual necrosis in the immediate neighborhood of the radium, but so long as this is confined to the interior of the neoplasia, no harm will result. Finally, radium therapy is Hernaman-Johnson's method of choice in cancer of the vagina, uterus and rectum; but even here he states Roentgen rays form a useful adjunct, so far as adjacent parts are concerned.

Dublin Journal of Medical Science*May, III, No. 509, pp. 321-400*

- 9 Case of Phenol Poisoning. W. G. Smith.
10 Typhus. Its Etiology and Treatment. D. K. Milne.
11 Notification of Tuberculosis in Ireland: Its Failure. J. Moore.
12 Disordered Bladder Function in Nervous Disease. W. Boxwell.

Edinburgh Medical Journal*May, XII, No. 5, pp. 385-480*

- 13 Diffuse Scleroderma. B. Bramwell.
14 Biometric Analysis of Some Insemination Labor and Menstrual Labor Curves in Certain Mammalia. D. B. Hart.
15 Subconjunctival Cataract Extraction. A. MacGillivray.
16 Case of Acute Suppurative Otitis Media, Purulent Labyrinthitis and Leptomeningitis without Rupture of Tympanic Membrane. J. S. Fraser.
17 Anglo-Indian Surgeons. F. H. Garrison.

Glasgow Medical Journal*May, LXXXI, No. 5, pp. 321-399*

- 18 Radium: Question of Supply for Glasgow. Collected Opinion from Workers at Home and Abroad. J. MacIntyre.
19 Myeloid Tumors of Tendon Sheaths. Report of Case. T. P. Grant and M. J. Stewart.
20 Occurrence of Wassermann Reaction in Serum of Children of Poorer Classes. W. M. Elliott.

Journal of State Medicine, London*May, XXII, No. 5, pp. 257-320*

- 21 *Pathogenicity and Virulence of Bacteria. F. H. Thiele and D. Embleton.
22 Sexual Disease and Individual. A. Corbett-Smith.

21. **Pathogenicity and Virulence of Bacteria.**—The author considers that the toxicity of an organism hitherto supposed to possess an endotoxin or exotoxin really depends on the liberation of toxic proteoclastic degradation bodies from it by the ferments of the host. The pathogenicity of an organism depends on the relationship between the ferment activity and the amount of bacterial protoplasm, whereby toxic degradation bodies accumulate in sufficient quantities to cause symptoms. The virulence of an organism depends on the power that the organism has of exuding around itself a zone of its own protoplasm, in which the toxic degradation bodies liberated by the ferments can be maintained in position; to act, on the one hand, as an aggressive shield against the phagocytes and a protection against the further action of the ferment on the other hand. The infectivity of an organism depends on (a) its virulence, and (b) the relative activity of the ferment of the host.

Journal of Tropical Medicine and Hygiene, London*May 1, XVII, No. 9, pp. 129-144*

- 23 *Murmekiasmosis Amphilaphes. A. J. Chalmers and J. B. Christopherson.

23. **Murmekiasmosis Amphilaphes.**—The authors have observed a peculiar form of cutaneous wart characterized by an extraordinary facility for growth, causing it to spread and to occupy practically the whole of the right side of the face.

id neck, involving the external auditory meatus, destroying the right eye and even invading the mucous membranes of the mouth, gums, tongue and throat. Microscopically, the points of interest about this curious warty mass are the presence of numerous cryptococci and the fact that the cutaneous warts are largely composed of an adenoma derived from sebaceous glands which feature is absent in those on the tongue. The disease is readily curable by operation. The most important clinical feature of the disease is the wart, and therefore the authors propose to name this apparently new human disease "*Murmekiasmosis Amphilaphes*."

The leading diagnostic features are: (a) The presence of warty growth, the individual members of which are painless, firm, do not readily bleed and do not readily ulcerate, which tend to slowly spread and to endanger or destroy important organs. (b) The proliferation of the germinal layer of the sebaceous glands in the cutaneous warts (the authors produce a carcinomatous and not an adenomatous appearance), in the absence of this feature in the lingual warts. (c) The non-involvement of lymph-nodes, the non-formation of metastases and the non-malignancy of the growth. (d) The non-recurrence after removal. (e) The fact that the warts grow on healthy skin and not on cicatrices, and do not grow at first in any special relationship to mucous openings or moist areas of skin. The only effectual treatment is removal by means of a series of large dissecting operations, when the whole growth comes away like mats of warts, leaving large areas to be covered in by skin flaps and skin grafting. Damaged organs, such as the eye, must be removed.

Lancet, London

May 9, I, No. 4732, pp. 1299-1372

- Some Modern Theories Concerning Hysteria. J. A. Ormerod.
- Massive Collapse of Lungs Following Abdominal Operations. T. R. Elliott and L. A. Dingley.
- Tumors of Urinary Bladder. R. H. J. Swan.
- *Death from Hyperacute Streptococcal Infection (Streptocemia). G. Jefferson.
- Congenital Icterus. S. Sheill.
- *Rôle of Crucial Ligaments in Hemarthros and Injuries to Knee. E. M. Corner.
- Case of Carcinoma of Breast in Male. H. V. Welch.
- *Aspiratory Function of Heart. H. W. Verdon.

Hyperacute Streptococcal Infection.—The radical removal of tuberculous glands in the neck, while in Jefferson's opinion the only rational procedure, is not unfraught with danger. This is especially the case in the presence of sinus. Two cases operated on by Jefferson died from aminating streptococcal infection, one twelve hours, and the other twenty hours after operation. The exact source of infection was not discovered, but Jefferson believes was probably from the walls of the sinuses present. He emphasizes that prophylactic treatment should be carried out for a few days before operation. The sinuses should be well washed out with iodine or similar antiseptic. The wound should be well washed out with saline before it is closed and drainage employed, preferably through a separate stab wound in the skin flap. In children at least probably no treatment will avail when once the bacteriemia is established.

Crucial Ligaments in Hemarthros and Injuries to Knee.—Complete rupture of the internal lateral ligament of the knee, Corner says, is impossible without a complete rupture of the crucial ligaments. Partial rupture of the internal lateral ligament is produced by the crucial ligaments withstanding the strain of the accident and preventing complete rupture. The results of treatment will be satisfactory. Complete or severe lacerations of the internal lateral ligament will always be accompanied by a lesion of the crucial ligaments, even to the complete rupture of the anterior crucial ligament. The results of treatment vary *passu* with the extent of the laceration of the crucial ligaments. The convalescence may be long and the final result unsatisfactory.

Aspiratory Function of Heart.—The heart, Verdon says, is a pump and, like the mechanical pump, possesses aspiratory and propulsive powers—aspiratory power to draw

supplies from pulmonary and systemic veins, and propulsive power to discharge the contents of its ventricles into pulmonary and systemic arteries. The heart works in a minus-pressure environment which at the height of inspiration registers 30 to 50 mm. Hg and during expiration falls to half this measure. Since fluids flow in the direction of the least resistance a centripetal current of blood from pulmonary and systemic sources sets in toward the minus-pressure environment of the heart, filling the great tributary veins, the auricles, and the ventricles. Intrathoracic minus-pressure thus constitutes a potential aspiratory force which keeps the central venous system perpetually full of blood, and maintains this section of the circulation under favorable conditions for the action of the kinetic aspiratory function of the ventricles.

The kinetic aspiratory function is intermittent and exercises itself only during systole. When the cone of the heart contracts and expels the contents of the ventricles into pulmonary and systemic arteries it vacates a section of the pericardial sac, a space which is instantly filled by the head of the venous column entering and expanding the auricles—the advance movement being rendered imperative by the *vis a tergo* of atmospheric pressure exercised on the contents of pulmonary and systemic veins lying at the foot of the venous column. The aspiratory function may be lowered by asthenic states of the myocardium or by reduction of the minus-pressure of the environment. When aspiratory function is lowered certain phenomena occur. Congestion of the pulmonary stream and stasis in bronchiolar radicles display themselves in symptomatic expression by asthma and dyspnea. The barrel chest of emphysema is the result of attempts made by inspiratory musculature to neutralize the untoward effects of minus-pressure insufficiency.

Annales de Gynécologie et d'Obstétrique, Paris

April, XLI, No. 4, pp. 193-256

- 32 Signs of Normal Pregnancy. A. Pinard.
- 33 *Rupture of Superficial Layers of Body of Uterus in Case of Premature Separation of Normally Located Placenta. M. Fraipont.
- 34 Kyphotic Pelvis and Cesarean Section. A. Herrgott.
- 35 The False Appendicitis of Pregnant Women. M. Vautrin.

33. Incomplete External Rupture of Body of Uterus.—Fraipont reports a fatal case of this rare complication. The placenta was normally located but had separated prematurely. Necropsy showed several superficial fissures in the peritoneal investment and in the subjacent muscular tissue; none was deep. The premature separation of the placenta favors these superficial fissures by the infiltration of blood into the uterine wall back of the placenta site. This renders the uterine tissues friable, and the possibility of fissuring on the outside should always be borne in mind when the placenta is prematurely cast off.

Annales de Médecine et Chirurgie Infantiles, Paris

May 1, XVIII, No. 9, pp. 285-320

- 36 Advantage of Orthopedic Appliances in Connection with Sunlight Treatment of Surgical Tuberculosis. P. Redard.
- 37 Strapping Children with Pott's Disease to a Board; Lannelongue's Method. A. Broca and A. Trèves.

Archives Générales de Chirurgie, Paris

April, VIII, No. 4, pp. 385-512

- 38 *Snapping Hip Joint. (La hanche à ressort.) G. Coudray. Commenced in No. 3.
- 39 *Present Status of Operative Treatment of Pulmonary Tuberculosis. N. Lapeyre.
- 40 *Resection of the Knee for Osteosarcoma; Joint Implants. (Greffes semi-articulaires et résections typiques ou atypiques du genou pour ostéo-sarcomas.) P. Mauclair.

38. Snapping Hip-Joint.—Coudray calls the true snapping hip-joint that in which there is transient and intermittent subluxation of the head of the femur outside of the acetabulum. The false snapping hip-joint is that in which the cracking noise is not produced in the joint proper but on the greater trochanter. This latter type is the most common. He shows the mechanism of each by illustrations and

states that it is liable to induce some disturbance and call for operative intervention. Various technics have been applied for the purpose and the outcome has been excellent. The anomaly may be congenital or acquired but the results of operative treatment seem to have been about equally good in each form, as he reviews the published experiences.

39. Present Status of Operative Treatment of Pulmonary Tuberculosis.—Lapeyre takes rather a discouraging view of "collapsotherapy," as artificial pneumothorax can be induced only in about 1 or 3 per cent. of all cases of pulmonary tuberculosis, and has cured the patient only in about 8 per cent. of the cases on record in which it has been applied. Plastic operations on the walls of the chest are too much of a strain on the patients weakened by their tuberculosis; the mortality has been high, and is far from counterbalanced by the results obtained. Resection of the diseased part of the lung, especially the apex, he regards as logical treatment, simple and not so much of a strain. Tuffier extols it and has reported one patient cured for seven years, Stretton one for six, and MacEwen one cured for eighteen years. This operation has been discarded, but Lapeyre thinks that recent progress in technic justifies taking it up again. Extrapleural pneumolysis, detaching the lung and filling in the space with fibroma tissue, omentum, Beck's paste or paraffin, has been applied by Tuffier in sixteen cases since 1910, and ten of the patients seem to be materially benefited, as also in Jessen's six cases.

40. Resection of the Knee.—Mauclair states that the outcome has been very disappointing in his conservative operations on the knee for sarcoma in the bone, with the single exception of myeloplax osteosarcoma. This type of tumor does not seem to be malignant, and partial resection and scraping out the growth are safe as a rule. But with all other forms of sarcoma, round or spindle-celled, radical treatment should be urged. If refused or if the growth is of the myeloplax type, a modeling resection will generally give good results by the technic he describes, with illustrations, and compares with the literature on the subject. In one case reported he resected the epiphysis of the tibia and implanted the shaft of the tibia in the femur, giving a very good functional result.

Archives Mens. d'Obstétrique et de Gynécologie, Paris

April, III, No. 4, pp. 353-432

- 41 Bradycardia after Childbirth. (Bradycardie des suites de couches.) Fabre and Petzetakis.
- 42 *Importance for the Prognosis of the Blood Dust in Jaundice Following Childbirth. (Valeur pronostique de la recherche des hémokonies dans les ictères de la puerpéralité.) C. Jeannin and A. Levant.
- 43 Legislation on Rest after Childbirth. (La loi sur le repos des femmes en couches.) A. Levant.

42. Blood-Dust in Diagnosis of Liver Disease.—Jeannin and Levant recall that the hemokonias in the blood, the small refractive bodies seen in a drop of fresh blood, increase in large numbers after ingestion of butter when the liver is sound. It is thus a simple matter to examine the blood for these bodies, and if they are found in scanty numbers this may be regarded as a sign that the liver is functioning defectively. They report two cases in which they applied this alimentary lipemia test to women with severe jaundice after a childbirth. There were scarcely any hemokonias to be discovered in the blood in the first case and the grave prognosis from this was confirmed by death the seventh day after delivery. There were no hemorrhages nor nervous phenomena, but the jaundice was extremely severe and the liver was found much degenerated, with streptococci in some of the lobules. The symptoms were not severe enough at first to suggest a fatal outcome but the absence of blood-dust in the fresh blood compelled the gravest prognosis. In the second case the jaundice was mild and there were no threatening nervous or hemorrhagic disturbances. The woman had been in labor for three days with breech presentation, temperature 38 C., pulse 120. Here too only 15 or 20 hemokonias were found in the drop of blood, and she died the sixtieth hour after extraction of the dead fetus.

In three other cases the women presented jaundice in the course of pregnancy; one had very severe catarrhal jaundice with clay-colored stools and seemed to be in a bad way, but the hemokonias were found in normal numbers. The woman recovered and the pregnancy proceeded normally to term. In two other cases there was subjaundice; the women did not vomit much, the diacetic odor of the breath was not at all pronounced, but the small number of hemokonias in the blood gave the warning that the women were on the way to pernicious jaundice, and prompt interruption of the pregnancy seemed their only salvation. The test is made by examining the blood fasting and then again after the woman has eaten 50 gm. of butter on bread. Three and a half hours later the hemokonias show up in large numbers under normal conditions, every slide in the microscope looking like a "milky way" and alive with movements of the refractive particles from the alimentary lipemia.

Archives des Mal. de l'App. Digestif, Paris

April, VIII, No. 4, pp. 181-240

- 44 *Diagnosis of Gastric Cancer by Cells Found in Rinsing-Water. (Le cytodagnostic de l'estomac.) Loeper and E. Binet.
- 45 Uncontrollable Vomiting of Pregnancy, Sometimes Amenable to Impressive Psychotherapy. (Toxémie ou névrose?) J. Bélon.

44. Diagnosis of Gastric Cancer by Cells Found in Rinsing Water.—The technic which Loeper and Binet have found so useful has already been described in these columns (May 1910, p. 1587). They here review their experiences with it to date which confirm the importance of the findings with the test when applied to the fasting stomach and so cautiously that the lining of the stomach suffers no injury. It has demonstrated that purely functional stomach derangement is extremely rare, while unsuspected gastritis is astonishingly frequent, especially the superficial and transient form with more or less congestion, desquamation and diapedesis. The cytodagnosis reveals that a tendency to ulcer is at the bottom of many cases of supposed simple dyspepsia, and warns when the ulcer is becoming malignant, revealing the onset of the cancer long before it can be detected in any other way. The article is accompanied by twenty-one illustrations of the types of microscopic findings found with various stomach affections, mild and malignant.

Bulletin de l'Académie de Médecine, Paris

April 21, LXXVIII, No. 16, pp. 589-608

- 46 *The Wassermann Reaction in the Tuberculous. M. Letulle and Others.
- 47 Tracheobronchial Injections in Treatment of Asthma. H. Bougeois.
- 48 Local Eosinophilia with Cancer of Uterus. A. Siredey.
- 49 Area of Dulness Simulating Ascites and Splashing Sound Aids to Diagnosis of Intestinal Occlusion. (Valeur séméiologique de la fausse ascite et du clapotage abdominal pour le diagnostic de l'occlusion intestinale.) A. Mathieu.

46. Wassermann Reaction in the Tuberculous.—Letulle states that 19 per cent. of 346 tuberculous inmates of the Boucicaut Hospital gave a positive response to the Wassermann test. Only 10 of the total 64 reacting were aware of their syphilitic taint or had signs of it. Fourteen of the patients, including 8 under 36, had some aorta affection.

Journal de Chirurgie, Paris

April, XII, No. 4, pp. 425-560

- 50 *High Amputation of the Uterine Cervix plus Colpectomy in Treatment of Genital Prolapse. (Operation de Bouilly dans le traitement des Prolapsus génitaux.) C. Lenormant and D. Dutailly.
- 51 *Tardy Ulnar Paralysis after Fracture of External Condyle of Humerus. A. Mouchet.

50. Amputation of Cervix for Prolapse.—Ten illustrations show the various steps of this method of treating genital prolapse by supravaginal amputation of the cervix plus colpectomy involving mostly the anterior vaginal wall, a posterior colpoperineorrhaphy. This removes the hypertrophied cervix and entails more or less atrophy of the rest of the uterus while it reduces the size of the lumen of the vagina and supplies a solid support for the uterus and bladder.

1. **Tardy Ulnar Paralysis.**—Mouchet reports with illustrations four cases in which after fracture of the external condyle of the humerus, ulnar paralysis developed later after an interval of several years up to thirty. The fracture generally occurred in childhood. The result in time is a valgus deformity and this in turn stretches and induces inflammation of the ulnar nerve, and the neuritis gradually causes paralysis. Operative correction of the valgus deformity relieves the strain on the nerve and puts an end to the paralysis. A wedge-shaped resection of the humerus above the condyle, the broad end of the wedge toward the body, corrects the valgus deformity.

Journal de Médecine de Bordeaux

May 3, LXXXV, No. 18, pp. 293-306

Testing the Resisting Power of the White Blood Corpuscles. (Recherches sur la fragilité leucocytaire.) H. Secousse.

Journal d'Urologie, Paris

April, V, No. 4, pp. 393-544

*Fine Ultimate Outcome of Plastic Operations on the Urethra. (Résultats éloignés de l'uréthroplastie par la tunnellisation et la greffe dermo-épidermique dans les formes graves de l'hypospadias et de l'épispadias.) G. Nové-Josserand.

Prostate and Prostatectomy. A. Castano.
Suburethral Passages. (Les canaux anormaux sous-urétraux.) F. Lévy and V. Planson.

Electrolytic Abortive Treatment of Gonorrhea. G. Li Virghi.
*Reflux of Urine by the Ureter after Nephrectomy. M. Lévy-Weissmann.

Test Polyuria. (Contribution clinique à l'étude de la polyurie expérimentale.) E. Pirondini.

2. **Ultimate Outcome of Plastic Operations on the Urethra.**—Josserand has traced to date twenty-one patients whom he had operated for hypospadias or epispadias several years ago. Only three were adults. The new urethra made from the skin-epidermis flap in a tunnel hollowed out for it has stood the test of time, six, seven and twelve years having elapsed since in several of the cases. Two of the patients have had gonorrhea. He first closes the perineal orifice and diverts the urine through an opening in the perineum into the urethra. The formation of the new urethra is the next step; internal urethrotomy later ensures normal-sized lumen and then the perineal fistula is closed. By operating thus in stages there is only exceptionally a tendency to a fistula. In three cases the artificial urethra was wider as the boys grew generally. In one case there was a transient stricture which yielded to a few attempts at dilatation. A permanent stricture developed further in three cases in which the field of operation became infected; the infection was traced to a thread left in the new urethra to facilitate catheterization or to a retention catheter introduced into the bladder through the perineal opening. These procedures opened the door to infection which entailed slight edema requiring occasional dilatation to keep it under control.

3. **Reflux of Urine through Ureter after Nephrectomy.**—Weissmann says that he has been able to find only fifteen cases on record of this reflux of part or all of urine from the removed kidney. He reports a case from his own service, the urine from the bladder pouring out of the ureter stump after it had been brought out through the lumbar incision made from the nephrectomy. The flow continued uninfluenced by changes of position until finally the incision healed and the urine was voided by the natural route. The wound healed again a week later during hard coughing and part of the urine poured through it anew. The cause of the reflux was probably the irritable condition of the bladder in consequence of the tuberculous process for which the kidney was removed. The bladder contractions are so vigorous that the sphincter closes with them, and the urine is forced into the empty ureter. The walls of the ureter, besides, had their elasticity impaired and are unable to oppose physiologic resistance to the reflux. It may keep up for several days or weeks, six months (Rafin), seven months or a year (Desnos). In Hartmann's case a secondary ureterectomy became necessary, but in all the others a spontaneous cure was finally realized.

Lyon Médical

April 26, XLVI, No. 17, pp. 913-968

59 *Ramifying Bone Growth in the Lungs. (Cas d'arborisation osseuse du poumon.) L. Mangini.

59. **Ossifying Sclerosis of the Lungs.**—Mangini has found records in the literature of twenty-three cases of an ossifying process ramifying in the lungs, and after searching for three years in his own necropsy work he encountered a typical example. The cadaver was that of a man of 62, and the bone needles could be felt in the lungs reaching down to the pleura, as many as ten or fifteen in each lower lobe, and cohering to form an actual arborization. The microscopic findings explain it as the ossification of fibrous nodules, the cicatrix of repeated inflammatory processes. Some of the branches of bone were 3 or 4 cm. long, and enclosed in a fibrous sheath. There was nothing to suggest tuberculosis, but for twenty-seven years the man had suffered from "colds" and cough each winter, and during the last six months the sputum had been blood-stained. There was no valvular disease but signs of incipient tabes.

Presse Médicale, Paris

April 29, XXII, No. 34, pp. 321-328

60 Early History of Percussion. E. Rist.

May 2, No. 35, pp. 329-340

61 The Campaign against Uterine Cancer. E. Forgeue.

62 *Curability of Uterine Cancer. J. L. Faure.

63 Symptoms from Steeple-Skull Deformity. (Le syndrome oxy-céphalique ou syndrome de cranio-synostose pathologique.) M. Bertolotti.

62. **Uterine Cancer.**—Faure remarks that the results of operative treatment of uterine cancer have far surpassed the most sanguine anticipations of even a few years ago. Most of his patients operated on from eight to sixteen years ago are in good health to-day and we can count on at least 40 per cent. of permanent cures; in his private practice fully 70 per cent. are apparently permanently cured. As long as the uterus is movable he urges surgical intervention regardless of the extent of the lesion.

Revue Pratique d'Obstétrique et de Gynécologie, Paris

April, XXII, No. 4, pp. 97-124

64 *Suture of Levator Ani Interferes with Delivery Later. (La périnéorrhaphie avec suture étendue du releveur de l'anus cause de dystocie.) L. Pouliot.

65 Atresia and Stenosis of External Os of Uterine Cervix. W. Friedmann.

66 Radiotherapy of Uterine Fibroma. R. Gauducheau.

67 Pregnancy Cholecystitis. M. Audebert.

64. **Suture of Levator Ani as Cause of Dystocia.**—Pouliot's case is another warning against plastic operations for laceration of the perineum. The woman was at term with her second child, two years after an operation with myorrhaphy done six months after obstetric laceration of the perineum. The child's head was held back by a cord-like commissure of the vagina. Part of the perineum subjected to this strain developed gangrene but this was soon under control and recovery followed. Plastic operations on the perineum, with suture of muscles in this region, should never be done so as to interfere with child-bearing later.

Archiv für klinische Chirurgie, Berlin

CIV, No. 2, pp. 501-579. Last indexed May 2, p. 1439

68 Necrosis of the Cartilage as Factor in Deforming Arthritis. (Rolle der Knorpelnekrose in der Pathogenese der Arthritis deformans.) G. Axhausen.

69 *Importance of the Thymus in the Origin and Course of Exophthalmic Goiter. C. Hart.

70 *Intestinal Cystoid Pneumatosis. F. Demmer.

71 Pedunculated Cystic Lymphangioma on Diaphragmatic Peritoneum. I. Kumaris.

72 Cystic Degeneration of Mammary Gland. (Cystische Entartung der Brustdrüse.) T. Todyo.

73 *Traumatic Subdural Hemorrhages with Long Interval. A. L. Vischer.

74 Hemorrhage in the Kidney. (Renale Hämaturien.) H. Datyner.

75 *Tuberculous Fistulas Cured by Exposure to Direct Sunlight; Heliotherapy. (Einwirkung der Sonnenstrahlen auf tuberkulöse Fisteln.) E. Kisch and H. Grätz.

76 *Is Tuberculosis of the Lymph-Nodes in the Pancreas Region of Air-Borne Origin? H. Gross.

69. The Thymus in Exophthalmic Goiter.—Hart says that his report of a case in 1908 was the first to call attention to the thymus as a factor in exophthalmic goiter. In his case a man of 29 with a typical case of this disease died suddenly and the thyroid was found apparently normal in every respect. The thymus, on the other hand, was abnormally large and scraps implanted in guinea-pigs proved extremely toxic; the controls bore without harm implants of thymus of other origin. Hart thinks it is now established beyond question that exophthalmic goiter can develop from an exclusively thyroid origin, from an exclusively thymus origin, and from a mixture of both. The predominance of the thymus factor seems particularly deleterious, and the more so, the greater the tendency to constitutional hypoplasia. The earlier the disease develops the greater the preponderance of the constitutional element. The defective development of the chromaffine system, especially the medulla of the adrenals, is one of the chief signs of the constitutional hypoplasia, particularly from the functional standpoint.

Many cases of Addison's disease, he adds, develop on the basis of defective development of the adrenals—a manifestation of constitutional hypoplasia. He found extreme hypoplasia of the chromaffine system in a number of persons who had died during or soon after operative treatment of exophthalmic goiter. In one such case exophthalmic goiter and Addison's disease had both developed on the basis of physical inferiority. Neither disease was secondary to the other. In another case there was slight bronzing and merely hints of exophthalmic goiter, but the defective functioning of the chromaffine system had entailed death without the typical symptoms having had a chance to develop. In other cases the chromaffine system was in actual hyperplasia, showing the excessive functional demands on it; we must not forget that a hyperplastic organ is liable to be functioning abnormally as well as a hypoplastic one. In operative treatment of exophthalmic goiter, the thymus should be attacked first, he says. After its partial or total removal, follow with resection of the thyroid.

70. Intestinal Cystoid Pneumatosis.—Demmer gives an illustrated description of what he thinks is the fifteenth case on record of this affection in man. His patient was a farmer of 42, and, as in nearly all the other cases, the cystoid pneumatosis followed old chronic gastro-intestinal trouble of some sort, generally gastric ulcer. In nine cases an operation was done for dilatation of the stomach and pyloric disease was found in five. In two cases a tuberculous process was found in the intestines. The total cases compiled are tabulated for comparison. The stretch of intestine involved in the cystoid affection was successfully resected in four cases, and was excluded from the rest of the bowel tract in two cases. In the personal case reported, it was found necessary to apply gastro-enterostomy on account of an ulcer at the pylorus; the appendix and a long stretch of the ileum were resected. That cystoid pneumatosis may retrogress spontaneously is demonstrated by Urban's case in which all the symptoms gradually and completely subsided after an exploratory laparotomy. Operative intervention is not necessary as long as there is no trouble from adhesions or obstruction of the gut. The symptoms in the case reported had been those of a recurring stomach trouble for six years. Then constipation of the severest type developed, the bowel moving only under strong laxatives or high enemas. The stool was like goat droppings at times, and black. He had been unable to go to work for nine months and been confined to bed for three, when the operation put him on his feet again, a clinically well man. There was a history of a contusion ten years before in the stomach region, but no venereal disease.

73. Traumatic Subdural Hemorrhage with Long Interval.—Vischer's two cases warn that after an accident liable to entail subdural hemorrhage the patient should be kept under supervision longer than is usually considered necessary. Signs of pressure on the brain did not develop until one or two months after the trauma, accompanied in one case by a brief attack of aphasia which permitted exact localization of

the hematoma. An abscess was improbable on account of the normal temperature. No information was obtained from roentgenoscopy. Fresh and old blood and clots were found in the hematomas. The aphasia patient was entirely cured by the operation and the other patient's symptoms had subsided except a tendency to muscular paresis in one leg. This is probably the result of some slight subcortical injury of the brain at the time of the trauma and has nothing to do with the subdural hematoma. The headaches of which persons complain after an accident to the skull may be due to relics of submeningeal hemorrhage which at the time are not causing trouble otherwise. Trephining relieves not only in these tardy hematoma cases but also in actual hemorrhagic pachymeningitis. De Quervain operated successfully for this cause, relieving the brain from pressure by trephining the blood, first on one side and later on the other, in a case of internal hemorrhagic pachymeningitis in a hard drinker.

75. Direct Sunlight in Treatment of Tuberculous Fistulae.—This long article is by an assistant at Rollier's sanatorium in Switzerland and an assistant at Bier's surgical clinic in Berlin. Sixteen severe cases are reported in detail as typical specimens of what can be accomplished by months of sunlight treatment in old fistulous processes. Rollier reported last year a complete cure in 248 out of 331 cases of open tuberculosis. In the 16 cases reported the 4 in which the soft parts alone were involved have healed entirely, as also 8 of the bone cases but in 4 there is still a minute active process in the depths so that the fistula still persists although materially reduced in size. Fistulas in soft parts heal in four or seven months, but when a bone or joint process is the cause of the fistula a year is usually necessary, sometimes less, but oftener still longer. Kisch and Grätz state that even under a brief course of heliotherapy the fistulas show a marked reaction, including those that have previously resisted all conservative and surgical measures. The sunlight does not cause encapsulation of the fungous mass, but a breaking down of the disease tissue and its substitution by cicatricial tissue.

76. Tuberculous Lymph-Nodes in Pancreas Region.—Groves states that in the last two years he has encountered five cases of tuberculosis restricted exclusively to the lymph nodes in the pancreas region. In the first case the tuberculous lymph-nodes, lying back of the common bile-duct, had compressed it and the gall-bladder. This woman of thirty-seven years had been subject to gall-stone colic and the gall-bladder was finally removed. About ten months later symptoms developed anew, ascribed to a stone in the bile-duct. The duct was found empty, but compressed by the large swollen lymph-nodes, the seat of nodular tuberculosis with giant cells. Similar findings were also encountered at the necropsy of a young woman who had died from cholangitis after suffering two years from a stone in the common bile-duct. No tuberculous foci could be discovered except a single plum-sized, cheesy lymph-node back of the common bile duct. The third case was in a workingman who had had stomach trouble for years finally compelling operative treatment for the supposed gastric ulcer. The stomach was found adherent in the pylorus region and this was explained by a large tuberculous lymph-node close to the edge of the pancreas, surrounded by edema which spread toward and involved the pylorus. The big tuberculous node was excised and gastro-enterostomy done and the patient cured at one stroke. Exacerbations of the tuberculous process explain the course in these cases and throw light retrospectively on many puzzling cases of trouble in the upper abdomen. In another case colics in the upper abdomen and lately pain radiating to the back were the only symptoms presented by the young woman. An operation failed to reveal the expected gall-stones, but showed tuberculous nodules on the mesocolon and extensive adhesions which were broken up. The patient has been in good clinical health since. The lymph-nodes involved in the five cases were all on the right side of the pancreatic lymphatic system, some in the upper and some in the lower part.

Berliner klinische Wochenschrift

May 4, LI, No. 18, pp. 821-868

- 7 *The Filling and Emptying of the Heart during Repose and Exertion. (Füllung und Entleerung des Herzens bei Ruhe und Arbeit.) G. F. Nicolai and N. Zuntz.
- 8 Protective Ferments in the Serum That Digest Witte Peptone. (Zur Kenntnis der proteolytischen Enzyme im Serum Gesunder und Kranker.) P. Saxl.
- 9 Intranasal Operations on the Lacrymal Passages. (Intranasale Chirurgie bei Erkrankungen der Tränenwege.) M. Goerke.
- 10 *Idiopathic Intercostal Neuralgia. E. Tobias.
- 11 Recovery under Salvarsan from Supposed Progressive Paralysis Fifteen Months after Infection with Syphilis. W. Wechseltmann.
- 12 Technic for Introducing Instruments into the Stomach. (Magen-instrumentenschieber.) M. Einhorn (New York).
- 13 *Colored Plates to Show Proteolytic Action of Ferments and Antiferments. L. Brieger and Schwalm.

77. **Size of the Heart at Rest and at Work.**—Nicolai and Zuntz report experiments at the Athletics Research Institute Charlottenburg which demonstrate, they state, that the heart increases in size during vigorous exercise and afterward is smaller than it was before the exercise was commenced. They examined persons working on a kind of treadmill, the chest fitted with a fluorescent screen so that the changes in the heart outline could be supervised. It seems almost certain that the heart normally contains always some reserve blood, to be called on in special emergencies. This explains why the diameter is larger when the heart is working quietly than when it has been pumped entirely empty in the course of vigorous muscular exercise.

80. **Idiopathic Intercostal Neuralgia.**—Tobias says that analysis of the cases of supposed idiopathic intercostal neuralgia almost always reveals some unsuspected cause which excludes them from the idiopathic category. He found only five cases that stood the test among the 1,400 patients at the Berlin polyclinic for nervous affections since 1900. Of these five, herpes zoster on the left side was evident in three; another was a pronounced neurasthenic with left intercostal neuralgia. The fifth patient was a man of 39 with a history of gonorrhea; for eight weeks he had been suffering from bearable left intercostal neuralgia which had come on suddenly. The knee-jerk and Achilles reflex were lost on both sides and the Wassermann test elicited a positive reaction. Thus the polyclinic did not have a single case of actual idiopathic intercostal neuralgia during that period, and in Tobias' private practice he encountered only six cases which could not be traced to herpes zoster or cured by treatment for rheumatism. In three cases the discovery of an aneurism explained the "neuralgia" and in two others chronic inflammation in the vertebrae proved to be the cause of the lateral intercostal neuralgia.

83. **Improved Technic for Estimation of Ferment Action.**—The proteolytic power of a fluid is instructively shown by the depressions eaten into a Löffler plate, and Brieger called attention long ago to the dimpling (*Dellenbildung*) in the Löffler plate as a simple and reliable test for antitrypsin in blood-serum. It is here announced that the test is materially simplified by staining the mixture used for the plate. The depressions not only show up very much clearer in the proteolytic fluid decolors the mixture. A safranin solution, known as iris-violet, has been found most useful. Five drops of a 16 per cent. solution of the stain are added to the mixture which is made up of 80 c.c. fresh beef serum and 20 c.c. of a 2 per cent. solution of grape-sugar bouillon. A loop of serum to be tested is mixed in turn with 1, 2, 3, 4 or more drops of the standard solution of trypsin. One drop from each of the mixtures is then deposited on the plate. If no bubbles are hollowed out and there is no discoloration except in the 1 : 4 mixture, then the antitryptic power of the serum under examination is recorded as 4. This figure represents normal standard.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 25, XLIV, No. 17, pp. 513-544

*Recent Progress in Diagnosis and Treatment of Pulmonary Tuberculosis. M. Landolt.

4. **Recent Experiences with Pulmonary Tuberculosis.**—Landolt reviews what has been accomplished in recent years

at the Aarau Sanatorium, saying that tuberculin has rendered good service as an aid in differentiation, especially the reaction in the focus in the lung after subcutaneous injection. He insists that this focal reaction must be scrupulously avoided when tuberculin is being given for therapeutic purposes. The diazo reaction is unfavorable, especially if it keeps up. It is frequently positive with intestinal tuberculosis, and it is often negative in threatening pulmonary tuberculosis. In this latter case Weiss' urochromogen reaction may prove positive. He found the diazo positive in 43 and the chromogen in 204 of 395 patients tested, the latter test proving far more delicate. He often obtained a positive response with the latter and later, as the disease progressed, the diazo became positive. In the cases with a favorable course, the diazo dropped off first and later the chromogen reaction.

He found injections of a 10 per cent. guaiacol-petrolatum effectual in reducing the temperature; a small lump was rubbed into the skin twice a day. Artificial pneumothorax has been systematically induced in suitable cases but the precaution is always taken to inject oxygen at the first sitting, instead of the nitrogen which is used exclusively later. A brief syncope was observed in one case as the patient started to get up after injection of 400 c.c. of nitrogen; the pulse stopped entirely but tranquil breathing kept up; in two minutes she had recovered; she was subject to syncopes. This was the only occurrence of the kind in the 520 punctures for the purpose in the forty-eight patients given this treatment. They formed 33 per cent. of the 139 patients in the third stage of the disease, and many of them were materially benefited. Transient benefit was realized even in some acute cases, but the progress of the disease could not be permanently arrested. There was no air embolism in any case but mediastinal emphysema was observed in some and a pleural effusion was observed in 30 per cent. This is a very unwelcome complication as it may cause discomfort and production of adhesions later.

On the whole the immediate results of the pneumothorax were excellent in 65 per cent. of the cases, so that this method of treatment, he says, may be regarded as great progress. He does not approve of it in the milder cases; they may recover without it, and the procedure is more or less annoying and cannot be regarded as entirely harmless. But it is a welcome aid, and to sanatorium physicians in particular.

Deutsches Archiv für klinische Medizin, Leipzig

CXIV, Nos. 3-4; pp. 209-432. Last indexed May 2, p. 1441

- 85 *Sugar Content of the Blood in Carbohydrate Treatment and Negative Value of Determining the Sugar in the Blood in the Treatment of Diabetes. J. Menke.
- 86 Clinical and Experimental Study of Hemophilia. R. von den Velden.
- 87 The Epinephrin Content of the Blood. L. Adler.
- 88 Nervous Affections in Leukemia. H. Stursberg.
- 89 Coagulation of the Blood after Injection of Albumin Bodies. (Blutgerinnung nach parenteraler Zufuhr von Eiweisskörpern.) R. von den Velden.
- 90 Nervous Origin of Peptic Ulcers. K. Westphal.
- 91 Phenolsulphonephthalein Test for Kidney Function. K. Hessel.

Deutsche medizinische Wochenschrift, Berlin

April 30, XL, No. 18, pp. 889-936

- 92 *Threatening Hemorrhage in Pregnant Women. (Behandlung bedrohlicher Blutungen in der Schwangerschaft.) P. Jung.
- 93 Interstitial Keratitis a Phenomenon of Local Anaphylaxis. (Problem der Genese der interstitiellen Keratitis.) F. Schieck.
- 94 *Lipoid-Free Diet and Its Connection with Beriberi and Scorbutus. W. Stepp.
- 95 *Radiotherapy of Lupus. (Zur Lichtbehandlung des Lupus.) A. Jesionek.
- 96 *The Friedmann Remedy. (Zur Kenntnis des Friedmannschen Mittels.) F. F. Friedmann and L. Rabinowitsch.
- 97 *Reaction of the Heart to Epinephrin. (Reaktion des menschlichen Herzens auf Adrenalin.) O. Roth.
- 98 *Alimentary Galactosuria and Levulosuria. H. Wörner and E. Reiss.
- 99 Alcoholism in Women. Röper.
- 100 Strictures of the Urethra in Syphilitics Require Vigorous General and Mild Local Treatment. (Schwere Harnröhrenverengerungen bei Syphilis.) B. Goldberg.
- 101 Therapeutic Influence of Mineral Springs. (Haben die Heilquellen einen spezifischen Einfluss auf den kranken Menschen?) Lenné.

92. **Threatening Hemorrhage during Pregnancy.**—Jung remarks that tamponing is seldom necessary for hemorrhage from an abortion; but if the atony is such as to require it, the uterus must be packed to the fundus. The first thing, he emphasizes, when called to a case of hemorrhage from abortion is to take the woman's temperature, even before making any examination. Fever may be already installed when the physician first arrives, and if this is not ascertained at the time, he may be held responsible for the fever as the case progresses. He advises against the curet, whether the cervix is open or not, for fear of perforation, but as long as any relics of the abortion are left in the uterus and they are keeping up hemorrhage, they must be scraped out with the finger even if the case is already septic. It is a question whether to dilate the cervix with laminaria or a metal dilator; if there is already fever he prefers the latter.

The hyperemia of pregnancy is liable to start coexistent tumors to bleeding, and varices in the genitals or on the limbs may cause fatal hemorrhage. Tumors may be excised without interfering with the pregnancy if the uterus is spared as much as possible and the region is not tamponed afterward. If a varix in the labium or clitoris region bursts, manual compression is all that is possible, applying pressure with a cotton pad dipped in a weak disinfectant solution. The bleeding vessel is so friable that it does little good to ligate it, as a rule, and the only way to arrest the hemorrhage is to throw a stout ligature around the whole bundle of veins, applying a compressing T-bandage. With varices in the vagina the effort should be made to throw a ligature around the veins, avoiding the use of a tampon, to refrain from bringing on labor.

94. **Lipoids Indispensable in Food.**—Stepp found that his mice invariably died when fed on food from which the substances soluble in alcohol and ether had been removed. Restoring the alcohol-ether extract to the food rendered the food wholesome again for the mice. Addition of fat did not answer the purpose. His experiments point anew to the lipoids as representing the vitamins.

95. **Simplified Radiotherapy of Lupus.**—Jesionek presents arguments to show that the benefit from Finsen treatment of lupus is due to the inflammation-inducing properties of the rays and not to any direct bactericidal action from them. It is not necessary, he adds, to use such complicated technic to induce inflammation; the sun alone is able to inflame the skin. All the effect is not felt at the moment, but in twelve hours the skin shows signs of pronounced inflammation after prolonged exposure to the sun or, on cloudy days, to the mercury quartz lamp. At the dermatologic clinic at Giessen, this method of treatment has been systematically applied and with most excellent results. The therapeutic effect may be explained by assuming that the serum attracted into the patches of lupus by the inflammation brings a complement which enables the amboceptors present in the tuberculous foci to display their antibody action.

96. **The Friedmann Remedy.**—Friedmann reiterates that the turtle bacillus culture has always proved in his experience totally harmless for the guinea-pig. The infiltrations and nodules which occasionally develop at the point of injection are of a harmless and transient nature. They represent an intermediate stage and regularly retrogress, and further inoculation of guinea-pigs from them has never induced in any instance tuberculosis, that is, a progressive affection.

Rabinowitsch replies in detail to Friedmann's statements recapitulating what she said in a previous communication in regard to his remedy for tuberculosis (summarized in the Berlin Letter, page 1343), and adding further evidence to reenforce her protest against preventive inoculation of children. She states that the abscesses at the point of injection are not such harmless matters as Friedmann claims; she knows of a large number of Friedmann's patients who have had to suffer for months from these abscesses, in addition to the case she previously mentioned. She describes another in detail in which the woman lost 18 pounds in three months. She also calls attention to the necessity for discriminating

between the "culture" and the "finished remedy." What Ehrlich said of the culture was only from the bacteriologic point of view and applied only to the harmlessness of the culture for animals. She says that it is certainly strange that Friedmann in his "long years of research" has never succeeded in inducing tuberculosis in guinea-pigs with his bacilli while others have obtained positive results in a few months. This testifies either that the culture is not a standard unit culture—as Friedmann claims—or else that the avirulent bacilli have acquired virulence in the course of time.

97. **Reaction of the Heart to Epinephrin.**—Roth states that in fifteen patients with heart disease and an equal number free from cardiac taint, injection of epinephrin caused modification in the heart action to the extent of extra systoles when the heart was already pathologic, but not with the sound hearts. He discusses the nervous factors evidently at work.

98. **Galactosuria and Levulosuria in Tests of Liver Functioning.**—Wörner and Reiss declare that when 40 gm. of galactose are given for the test, an elimination of 3 gm. and more must be regarded as positively pathologic. Levulosuria given for this purpose must be in the dose of 100 gm., and more than 0.7 gm. must be eliminated before we can speak of a pathologic output. Alimentary levulosuria testifies in general way to some injury of the liver. Pathologic alimentary galactosuria on the other hand, testifies to the existence of certain definite liver affections and thus permits differential diagnosis of catarrhal jaundice, phosphorus poisoning and fatty liver. Circumscribed liver affections, gall-stones and cancer do not lower the tolerance for galactose unless infection is installed.

Deutsche Zeitschrift für Chirurgie, Leipsic

April, CXXVIII, Nos. 1-2, pp. 1-208

- 102 *Correction of Tendency of Viscera to Sag. Splachnoptosis. Wiedhopf.
- 103 Autoplastic Correction of Fractures of Humerus Just above the Condyle. G. v. Saar.
- 104 *End-Results of Fracture of the Leg. (Heilungsergebnisse von Unterschenkelbrüche.) O. M. Chiari.
- 105 Diagnosis of Acquired Diverticulum in Lower Bowel. (Erworbenes Dickdarmdivertikel und Sigmoiditis diverticularis.) F. Quervain.
- 106 *Acute Pancreatitis. Rollmann.
- 107 Influence of Roentgen Rays on Healing of Bone Wounds. Salvetti.
- 108 Tearing Off of Lesser Trochanter. (2 Fälle von Abrissbruch des Trochanter minor.) O. Walbaum.
- 109 Complications of Coxa Valga. B. Brand.
- 110 Prothesis after Resection of Lower Jaw. Behrend and Bauchwitz.
- 111 Permanent Cures of Mammary Cancer. H. Lindenberg.
- 112 *Transplantation of Entire Knee-Joint. C. Deutschländer.

102. **Splachnoptosis.**—Wiedhopf presents evidence to prove that the viscera sag because there is disproportion between the size of the abdominal cavity and the size of its contents. Treatment can aim to reduce the size of the cavity or to increase the bulk of the contents or both. The latter can be accomplished by eating more, while the size of the cavity can be reduced by toning up the abdominal muscles by wearing a bandage or by an operation on the abdominal wall or floor of the pelvis. He emphasizes that any "pexy" operation, fastening any organ to support it, is illogical in the extreme as it does not act on the cause. He has worked out a technic to correct splachnoptosis which he thinks he has everything to commend it as it reduces the size of the anterior abdominal wall and materially strengthens it without opening into the peritoneum. The rear aponeuroses of the rectus muscles are brought forward and the folds in each are sutured together.

104. **Outcome of Fracture of the Leg.**—Chiari has found that the ultimate functional outcome of a broken leg is better in those who were compelled to go to work early than in those who were paid a sickness indemnity and thus were able to spare their leg longer. The most favorable results were encountered on the whole in those whose stay in hospital (Innsbruck) was relatively brief. This does not apply naturally to fracture of the malleolus, which must

considered apart; his eleven bilateral cases of this class in that plaster casts should be discarded in favor of tension or Lexer's bandage.

106. Acute Pancreatitis.—In the twelve cases described by Allmann the patients were nearly all corpulent and passing past middle age. Gall-stone trouble was a factor in two, gross error in diet and abuse of alcohol in one. In one case the head was swollen and a few foci of necrosis were all that was found at the gall-stone operation. In two other cases the pancreas disease caused death from toxins in less time than usual with peritonitis from perforation. When there is much suppuration the course is generally milder. Several of the patients said they had had similar attacks on previous occasions, and the calcified foci of necrosis found in the mesentery in some cadavers testify that acute pancreatitis may sometimes heal spontaneously. Five of his twelve patients died; one developed diabetes five years afterward, and one still seems unable to digest fat properly.

112. Implanted Knee.—Deutschländer implanted an entire knee-joint after resection of the knee of a boy of 12 for deformity left from poliomyelitis. The results were not all that had been anticipated, but were far from a total failure. Most of the implant was in time destroyed and only a small section actually healed in place. The parts that were thus retained were all cartilage. By restricting the implant to cartilage alone we are thus more certain of final success, and the operation becomes much simpler, making less demands on the organism. It is in fact merely a form of the arthroplasty technic.

Jahrbuch für Kinderheilkunde, Berlin

May, LXXIX, No. 5, pp. 507-644

- Intestinal Infections in Infancy. (Zur enteralen Infektion im Säuglingsalter.) H. Schelble.
- Inherited Syphilis Producing Symptoms of Friedreich's Ataxia; Two Cases. A. Spiecker.
- Treatment of Rickets. IV. (Vergleichende Untersuchungen über die Wirkung von Lebertran und Phosphorlebertran beim künstlich ernährten rachitischen Kinde.) L. Frank and E. Schloss.
- Suppuration in Parotid Gland in Children Originating in Middle Ear Disease; Four Cases. E. Handrick.
- Sugar Metabolism in Lymphatism in Children. H. Schirokauer.
- Experimental Study of the Effect of Thymus Extracts. R. Fischl. Commenced in No. 4.

Medizinische Klinik, Berlin

May 3, X, No. 18, pp. 753-794

- Treatment of Disturbances in Hearing and Subjective Noises. (Neue Mittel gegen Hörstörungen und Ohrgeräusche.) A. Passow.
- *Scoliosis. A. Schanz.
- *Alimentary Galactosuria in Diagnosis. (Zur Galaktoseintoleranz.) E. Maliwa.
- Action of Thermal Baths on the Cardiovascular System. (Einwirkung von Thermalbadekuren auf Erkrankungen der Kreislauforgane.) E. Pfeiffer.
- The Seashore for Tuberculosis Children. (Behandlung der kindlichen Tuberkulose an der See.) Treplin.
- Action of Brine Baths on the Cardiovascular System. (Einfluss der Bad-Kosener Sole auf den Circulationsapparat des Menschen.) C. Schütze.
- *The Duodenal Tube. (Zur klinischen Verwendbarkeit der Duodenalsonde.) M. Gang and P. Klein.
- *Differentiation of Diseases by Serodiagnosis. (Klinische Ergebnisse mit dem Abderhaldenschen Dialysierverfahren.) B. Forster.

120. Scoliosis.—Schanz declares that there is scarcely a case of curvature of the spine for which medical advice is sought early in the case. The mother usually notices deformity at once and hurries the child to the doctor. The child's fate is decided chiefly by what the doctor decides at this time. If the child is told to "stand up straight," diagnosis and supervision of the course of the case are rendered practically impossible thereafter. Never tell a child under these conditions to stand up straight. The next day, Schanz continues, is to determine whether the curvature is benign or malignant, and the course of the case depends only means to ascertain this. The malignant form develops considerable deformity in a few weeks or months; onset before or after school life is also suspicious; likewise a history of trauma. The malignant form also grows worse at intervals, with periods of remission, but the course

is progressive on the whole. He has had about one malignant case to ten benign ones; the latter do not require treatment as a rule. The mother can massage the back, the child can wear a brace or sleep in a plaster bed—this is generally ample. Too much gymnasium work is liable to transform a mild into the malignant type, and aggravate a malignant case. It is not necessary to take the child out of school; resting the elbows on the school desk helps to relieve the spine. The scoliosis seldom grows much worse during school life, but severe deformity may develop rapidly after leaving school.

121. Alimentary Galactosuria.—Maliwa tabulates the findings in twelve cases of liver disease, in ten of orthostatic albuminuria, and twenty-one other patients, after ingestion of 40 gm. galactose, fasting. The data demonstrate that intolerance for galactose is by no means an unequivocal symptom of insufficiency of the liver. The kidneys often have something to do with it. When the latter is the case, the galactose elimination begins abruptly and in large amounts, dropping off equally abruptly. With insufficiency of the liver, the curve of elimination is generally more protracted.

125. The Duodenal Tube.—Gang and Klein expatiate on the important information to be derived from the use of the duodenal tube in various stomach and duodenum affections and in making tests of the digestive ferments, etc. They tabulate the details in twenty-one cases of intestinal derangement and in ten gastric ulcer or chlorosis cases.

126. Serodiagnosis in Differentiation.—Forster applied Abderhalden's ninhydrin technic to detect cases of incipient exophthalmic goiter and states that treatment instituted on the basis of the ninhydrin reaction gave constantly corroboratory results. Among the cases related is that of a very effeminate man of 43 who for some time had complained of disturbances resembling those of women at the menopause. His serum digested ovary tissue but not testicle, thymus or thyroid tissue. The man is evidently a pseudohermaphrodite and this case suggests that the ninhydrin test may be found especially useful in puzzling cases of hermaphroditism, eunuchoidism, etc.

Münchener medizinische Wochenschrift

April 28, LXI, No. 17, pp. 913-968

- 127 Bronzing with Cirrhosis of Liver and Pancreas but no Glycosuria. (Hämochromatose unter dem Bilde des Morbus Addisonii.) J. Nakano.
- 128 Danger from Diphtheria Bacilli Carriers. (Sind die Diphtheriebazillenträger für ihre Umgebung infektiös?) G. Riebold.
- 129 Transverse Tracheotomy. (Erfahrungen mit dem queren Luftröhrenschnitte.) O. Franck.
- 130 Polyuria with Mammary Cancer Suggests Metastasis in the Hypophysis; Two Cases. H. Hohlweg.
- 131 Spontaneous Cerebral Hemorrhage Eighth Day of Acute Hemorrhagic Diathesis in Previously Healthy Young Woman. A. Hufschmidt.
- 132 Electric Testing Instruments. (Elektrische Reizinstrumente für chirurgische Operationen.) M. Brandes and P. Buschmann.
- 133 Advantages of Graduated Syringes instead of Pipets in Serologic Work. Alter.
- 134 Munich Chair for Communal Preventive Medicine. (Sozialhygienische Unterricht an der Universität München.) J. Kaup.
- 135 Present Status of Pleurisy. H. Königer.
- 136 The Protective Ferments. (Enthält das Serum von Kaninchen denen ihr eigenes Blutserum resp. solches der eigenen Art intravenös zugeführt wird, proteolytische Fermente, die vor der Einspritzung nicht vorhanden waren?) E. Abderhalden and G. Ewald. (Nachweis von spez. Fermenten mit Hilfe des Dialysierverfahrens.) S. Lichtenstein and Hage. (Klinische Verwertbarkeit des Abderhaldenschen Dialysierverfahrens.) F. Freymuth.

Therapie der Gegenwart, Berlin

May, LV, No. 5, pp. 193-240

- 137 The Ovary and Internal Secretion. W. Benthin.
- 138 Value of Strophanthus in Sleeplessness from Heart Disease. (Schlaflosigkeit bei Herzinsuffizienz.) A. Fraenkel.
- 139 Dosage for Children. (Dosierung von Arzneimitteln im Kindesalter.) Engel.
- 140 Diagnosis and Curability of Multiple Abscess in the Liver. (Multiple Leberabscesse.) O. Heinemann. Commenced in No. 4.
- 141 *Full Utilization of Vacations for Young and Old. (Ferienausnutzung für Kinder und Erwachsene.) M. Bockhorn.

141. **How to Make the Most of Vacations.**—Bockhorn urges physicians to realize better the opportunities afforded by the vacations of the families in their charge, to enable the "resorters" to utilize to the full this welcome change. The physician may deem it best for the children to be separated from the parents for a time, or for one child to be separated from the rest. Children who are nervous, those who stutter, and both children and adults who have bad breathing habits, can be trained in better habits during the vacation.

Children are usually such imitators that even a brief course of training may do wonders. Bockhorn practices in a seaside resort and for the last four years has given summer courses out on the dunes in correct speaking and breathing and the use of the voice in general. It is remarkable, he observes, that so many persons who have to use their vocal organs a great deal never give a thought to perfecting the technic of its use. By his courses he has enabled some to resume their teaching or other career which they had had to give up on account of their voice failing, or asthma or other disturbance.

Wiener klinische Wochenschrift, Vienna

April 30, XXVII, No. 18, pp. 545-596

- 142 Further Study of Wassermann Reaction. C. Sternberg.
- 143 Auscultation of the Heart Sounds Through the Nose and Mouth. (Methode die Herzscliallphänomene vermittels der Luftwege deutlich zu vernehmen.) K. Mayer.
- 144 Anatomy of Tonsil Region and Technic for Tonsillectomy. F. Hutter.
- 145 *Complications after Gastro-Enterostomy. J. Decker.
- 146 Dubious Sex. (Sexus anceps.) R. Hofstätter.
- 147 *The Chemistry of the Stomach with Cholelithiasis and Its Importance in Treatment. L. v. Aldor.

145. **Complications of Gastro-Enterostomy.**—In Decker's case fistulas had developed uniting stomach and jejunum, jejunum and transverse colon, and between the colon and stomach. The stools were clay colored. He broke up the adhesions and sutured the perforations, restoring the patient to health.

147. **Stomach Complications with Gall-Stones.**—Aldor recalls that nearly eight years ago he published his experiences in about a hundred cases of cholelithiasis without jaundice in over half of which he had found signs of a catarrhal affection in the small or large intestine or both. His examination of hundreds of similar cases since has confirmed the frequency of chronic intestinal catarrh with cholelithiasis, suggesting some causal connection between them. He here reports almost similar findings in respect to the stomach. Normal conditions of gastric secretion were found in only 18 per cent. of the 82 patients; hyperacidity in 39 per cent.; subnormal or no acidity in 42.6 per cent. The latter condition seems to be the result of the severe affection of the gall-bladder abolishing its function. The loss of gall-bladder functioning possibly modifies the composition of the bile as well as its mode of outflow. Bile in the gall-bladder is nearly ten times more concentrated than bile which drips directly from the liver into the intestine.

For these and other reasons enumerated, it seems evident that the gall-bladder is more than a mere reservoir for the bile, and the loss of it often entails severe and irreparable disturbance in gastric secretion. In a certain proportion of other gall-stone cases, chronic gastritis is responsible for the disturbance in gastric secretion. In this class of cases the symptoms on the part of the stomach keep up more or less most of the time, while in the other group they subside more or less during the intervals between the attacks of gall-stone trouble.

It is very important in treatment to discriminate between the cases with catarrhal affections and those without, as the measures appropriate in one may be directly injurious in the other. When the subacidity results from loss of gall-bladder functioning, hydrochloric acid is indicated, 25 or 30 drops in water half an hour after meals. This does not supply the natural amounts of hydrochloric acid, but it is enough to give the stimulus for pancreas secretion. When it is a question

of chronic gastritis, with large amounts of mucus, rinsing out the fasting stomach has often had a surprisingly favorable action. Discovery of impairment of the gastric secretion with nothing else to indicate chronic gastritis, testimony to severe changes in the biliary apparatus, especially in the gall-bladder, and thus betokens a graver prognosis from this point of view than the gastritis cases.

Zentralblatt für Chirurgie, Leipsic

May 2, XLI, No. 18, pp. 753-800

- 148 *Destroying the Nerve Causing Secretion in Salivary Gland Cure of a
Rebellious Fistula. (Behandlung der permanenten Parotid-
fisteln durch die Entnervung der Speicheldrüse.) R. Leriche.
- 149 *Operative Treatment of Spastic Flat-Foot. A. Fischer and A.
Baron.

148. **Treatment of Fistulas into Parotid Gland.**—Leriche cured an absolutely intractable fistula left from a stab-wound by exposing the auriculotemporal nerve, loosening it up back to the condyle process and then slowly twisting up its central end, pulling on it and tearing out a stretch about 4 cm. long. The secretion ceased completely in a few days and the fistula soon healed. He has applied this operation in three cases to date. (See Abstract 85 in THE JOURNAL, April 11, 1911, page 1203.)

149. **Operative Treatment of Spastic Flat-Foot.**—Fischer and Baron give an illustrated description of an amplification of Tubby's operation. A strip of tendon 6 or 8 cm. long cut from the peroneus longus and a shorter piece from the peroneus brevis. The longer piece is then used as a brace to hold the foot in good position. One end is slit and one of the halves is worked through a tunnel bored across the side of the scaphoid. The two halves are then sutured together, forming a kind of handle to the scaphoid. The strip is then brought upward under the skin and fastened to another tunnel bored across the side of the tibia just above the malleolus. The scaphoid bone and hence the whole foot can then be held in normal position by tightening the connecting brace.

Zentralblatt für Gynäkologie, Leipsic

May 2, XXXVIII, No. 18, pp. 649-680

- 150 Treatment of Puerperal Inversion of the Uterus. W. Beckmann.
- 151 Anatomy of Uterine Cervix. (Portio vaginalis.) E. Kraus.
- 152 Roentgenoscopy of Uterine Tumors by Intra-Uterine Injection of Collargol. I. C. Rubin (New York).

Gazzetta degli Ospedali e delle Cliniche, Milan

April 19, XXXV, No. 47, pp. 489-504

- 153 Retrograde Incarceration of Hernia. L. Bozzotti.

Riforma Medica, Naples

April 18, XXX, No. 16, pp. 421-448

- 154 Typhoid Bacilli Can Often Be Cultivated from the Mouth Early in Typhoid. (Sulla presenza dei bacilli di Eberth nella bocca dei tifici.) E. Mondolfo.
- 155 Experimental Study of Cellular Secretion in Tumors. Piscitelli.
- 156 Smaller Doses of Bromids during Abstention from Salt in Treatment of Epilepsy. (Epilessia e trattamento bromicoipoclorurato.) G. Pellacani.

Rivista Ospedaliera, Rome

April 15, IV, No. 7, pp. 317-356

- 157 Some Practical Aspects of the Question of Prophylaxis of Typhoid. A. Caccini.

Mitteilungen a. d. med. Fakultät der k. Univ. Tokyo

XII, pp. 1-686 and Supplement

- 158 Physical Anthropology: Measurements of 3,425 Coreans. T. Kusano.

Hospitalstidende, Copenhagen

May 6, LVII, No. 18, pp. 545-576

- 159 Volvulus of Sigmoid Flexure and Its Treatment. A. Klindt. Continued in No. 17.

Ugeskrift for Læger, Copenhagen

April 30, LXXVI, No. 18, pp. 779-838

- 160 The Skin Tuberculin Test in the Campaign against Tuberculosis. (V. Pirquets Prøve og praktisk Tuberkuloseforebyggelse.) Isager.

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RECOMMENDATION AS TO SANITATION CONCERNING EMPLOYEES OF THE MINES ON THE RAND MADE TO THE TRANSVAAL CHAMBER OF MINES

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At the invitation of the Chamber of Mines, I arrived in Johannesburg Dec. 3, 1913, to make investigations into the cause of the high death-rate from pneumonia among the native laborers working in the mines of the Rand. As a result of this investigation I was asked to recommend such measures as may appear necessary for the reduction of the death-rates and the improvement of the general sanitary condition of the mines and compounds.

For this purpose I was assisted by Major Robert E. Noble, Medical Corps, United States Army, general inspector, Department of Sanitation, Isthmian Canal Commission, and Dr. Samuel T. Darling, chief of the Board of Health Laboratory, Department of Sanitation, Isthmian Canal Commission.

In investigating this matter I find that the mortality among employees has been very large.

The reports of the Native Affairs Department show that for natives employed in mines and industrial works in the proclaimed government district of the Transvaal during the year 1903, the death-rate was 1.7 per thousand. This high death-rate has been steadily dropping till the present time. During the year 1912, for about 300,000 employees in the same area, the rate was 26.84. This rate is still very much too high, as we are considering men in the prime of life.

The death-rate among the negro employees working in the Panama Canal during the same year was only 0. Still this drop from 71 per thousand to 26 per thousand in the course of nine years is most encouraging.

On analyzing the reports for 1912 of the Native Affairs Department, Appendix 2, page 79, we find that the total death-rate was 22.6 for diseases. The four highest diseases were pneumonia, phthisis, meningitis and enteric fever, giving us rates of 9.8, 4, 1.3, 1.1. These four diseases are all more or less infectious and contractable. If they could be entirely eliminated, the rate for 1912 would be reduced to 5.0 for all other diseases. While entire eradication of these diseases cannot at present be accomplished in

this or any other community, probably, by proper hygienic measures, a very appreciable reduction could be accomplished.

PNEUMONIA

First, let us consider pneumonia. It varies very greatly in the different mines. It also varies greatly as to the locality from which the natives come. Among natives from the British Nyassaland Protectorate it is highest. Among the natives from the Cape Province it is lowest.

Taking the report of the Native Affairs Department from 1909 to 1913, we find that February had the lowest rate with an average of 9.56, and May the highest with 12.64. Taking three consecutive months, we find that January, February and March have the lowest rates with an average of 10.02. We find that October, November and December have the highest rate with an average of 12.28. Ordinarily, pneumonia causes its greatest mortality in the cold winter months. This does not seem to be the case here as far as the mortality-tables bear evidence; but these tables are obscured, as far as this particular point is concerned, from the fact that the tropical native was not brought to the Rand during the winter months. It is no doubt the case here, as it is everywhere else, that the incidence of pneumonia is greater during the winter than during the summer months.

Dr. Maynard has worked out tables which show this to be the case.

The pneumonia rate varies widely also in different localities. Among natives not working in mines in the city of Johannesburg, the rate was 1.20 per thousand for the year 1912. In the new Goch mine, the rate among natives was 16.71. In the Municipal Location at Klipspruit, the rate among 750 natives over 18 years of age, extending over a period of three years, was 1.37. This is the same class, and also age, as the men in the mines.

Pneumonia is a disease in man due to infection by a particular organism—the pneumococcus. Individuals and races differ widely in the degree in which this organism affects them. Some races, like the white, resist infection strongly. Others, like the negro, have less resistance. Those races with less resistance acquire a much higher degree of resistance after long exposure to the infection. The negro when brought into a community in which pneumonia prevails acquires nearly as high a degree of resistance as the white man. If we take 100 white men and examine them, we shall find that twenty or thirty have virulent pneumococci in their throats. When one of these individuals becomes much depressed from any cause, such as exposure to cold, starvation, severe sickness or any constitutional strain, he is liable to develop

pneumonia. If we bring the unacclimatized negro into contact with such persons or other infected negroes, he gets the pneumococcus in his throat and secretions in the same way. The white man, by long exposure to this pneumococcus, having constant slight colds, sore throats, etc., has acquired more or less immunity to the organism. The negro, when he first comes in contact with the pneumococcus, has none of this immunity. Expose the two men to the same depressing agency, give them both a bad cold, for instance, and the white man, through his immunity, resists the pneumococcus, while the negro does not. The organism obtains an entrance in the latter case, and the man succumbs to pneumonia.

If we take a community composed of persons who have had little exposure to the pneumococcus, we shall find a high mortality-rate from pneumonia. If the community is made up of persons who have had prolonged exposure to the pneumococcus, we shall find a low mortality-rate from pneumonia.

We find for the year 1912, that the 21,000 tropicals had a death-rate from pneumonia of 26.30. But the 199,000 non-tropicals had a rate of 8. In general, the tropical is the non-civilized native who has had little contact with the white man's diseases, and the non-tropical, the native who has had more or less contact with civilization—and the white man's diseases.

In general, therefore, a community which has had a large proportion of tropical natives will have a high pneumonia death-rate, and a community with a large proportion of non-tropical natives will have a low pneumonia death-rate.

This is a general rule to which there are individual exceptions, as is always the case in infectious diseases.

It is everywhere asserted on the mines by those in a position to know, that the old "boy" has a very much lower rate of pneumonia than the new "boy." I have no doubt that this is true. All the facts that we can collect point in that direction. On the Isthmus the new "boy" had a four and a half times higher rate than the old "boy." Dr. Maynard, in his excellent report on this subject, finds that taking the pneumonia among natives on the mines, from the first to the eighteenth month at work, the rate is: 15.83 per thousand during the first six months, 9.01 during the second six months, and 5.31 during the third six months.

Furthermore, in confirmation of this, in one of the mines especially investigated with regard to this point, it was found that a marked preponderance of deaths from pneumonia occurred during the first few months of service in the mines. All the deaths from pneumonia during the year 1913 at this mine, according to the month of service in which they occurred are given in Table 1. The very extensive and useful sta-

TABLE 1.—DEATHS ACCORDING TO MONTH OF SERVICE

| No. of Deaths | Month of Service* |
|---------------|-------------------|
| 16 | 1st |
| 18 | 2 d |
| 11 | 3 d |
| 9 | 4th |
| 11 | 5th |
| 9 | 6th |
| 7 | 7th |
| 8 | 8th |
| 5 | 9th |
| 4 | 10th |
| 6 | 11th |
| 5 | 12th |

* Including previous service.

tistical tables furnished us by the Witwatersland Natives' Labor Association show that during the year 1912, 2,031 deaths from pneumonia occurred

among native laborers. Of these deaths, 1,199 occurred among men who had been on the mines less than six months. In 1913, 1,668 deaths occurred from the same cause. Of these deaths, 981 occurred among men who had been on the mines less than six months.

The uniformity with which pneumonia attacks preponderatingly the new boy, or recently arrived native, is as pronounced here on the Rand and in Rhodesia as it was on the Isthmus of Panama, and this seems to be the only generalization of epidemiologic value yet drawn with regard to the incidence of pneumonia.

This indicates that the question of immunity is the most important element in the causation of the death-rate. This being the case, what sanitary step can be taken to decrease the rate?

In the construction of the Panama Canal, in its incipency, we had much the same trouble with pneumonia among the negroes that is experienced with the negroes in the mines in the Transvaal.

The bulk of our working force is composed of negroes brought from the West India Islands, mostly from Jamaica and the Barbados. In August, 1913, our total force was 58,500, of whom 46,000 were negroes and 12,500 white men. In 1906, our force was an average of 21,000 negroes and 5,400 white men. Among these negroes we had 396 deaths from pneumonia, a rate of 18.74 per thousand per annum. In 1907, we had an average of 28,600 negroes and 10,700 white men. Among these negroes we had 304 deaths from pneumonia, a rate of 10.65. In July 1906, with a negro force of 22,989, we had 84 deaths which gives us an annual rate of 43.41.

The death-rate for pneumonia among the black employees of the Isthmian Canal Commission in 1906 was 18.74 per thousand, which is higher than the death-rate for this disease among native employees in the Proclaimed Labor District of the Transvaal for any year since 1909.

The rise in pneumonia, with us, commenced in October, 1905, and increased until July, 1906, when it reached its maximum, from which time it slowly decreased.

Our death-rate from pneumonia for the succeeding years among the negroes is given in Table 2.

TABLE 2.—DEATH-RATE AMONG NEGROES

| Year | Death-Rate | Year | Death-Rate |
|-----------|------------|------------|------------|
| 1906..... | 18.74 | 1910..... | 1.66 |
| 1907..... | 10.61 | 1911..... | 2.24 |
| 1908..... | 2.60 | 1912..... | 1.30 |
| 1909..... | 1.66 | 1913*..... | 0.42 |

* First eight months.

We appointed a board to examine into this matter. This board gave a great deal of time and attention to the work and went into it very carefully. It found that no particular house or town had a continuous high rate. The rate would vary from time to time. This indicated that the variation was due to a varying factor of infection, and not to location or surroundings.

With regard to seasonal incidence, we found that the pneumonia in Panama increased from the beginning of the dry season of 1907, being the greatest toward its end, with 124 cases in April, the driest month. It diminished in number in May and June, which are wetter months, but rose again in July, which was as wet as June. It was decidedly worse in the dry season of 1907 than in the wet season of 1907; but this was opposed to its general course for 1906, for the greatest number of cases of pneumonia appeared during some of the wettest months.

Our men worked continuously in the rain, and came home soaked through at night. The majority of them were so poor that they did not have a change of clothing. They therefore slept in their wet clothes. The board tabulated those who had one suit of clothing, and those who had more than one suit. The results showed no relation. The men who slept in dry clothes had as much pneumonia as those who slept in wet.

Our barracks were arranged with tiers of bunks, and were so ventilated that the top bunk had much more draft than the others. The men were tabulated as to sleeping in top bunks, or lower bunks, with no result. The rate of pneumonia in the top bunk was no greater than in the lower.

Altitude had little effect. Though there was not much difference in our camps in this respect, some were at sea-level, others in the hills on the divide at between two and three hundred feet elevation. There was no constant difference between such camps. Some camps at sea-level had very high rates, others at the same altitude low rates. Some camps in the hills high rates, others low.

The only difference in susceptibility was shown to be governed by the length of time that the laborer had been on the Isthmus. This is shown in Table 3, which indicates that the same number of men over three months on the Isthmus who furnished two cases of pneumonia would give nine cases if they were men who had had less than three months' residence.

TABLE 3.—SUSCEPTIBILITY OF NEW MEN AND OLD MEN *

| Month | No. New Men | No. Old Men | Colored Pay-Roll | Cases, New Men | Cases, Old Men | Ratio No. New Men to Old | Ratio of No. of Cases New Men to Old | Comparison of the Two Ratios |
|-----------|-------------|-------------|------------------|----------------|----------------|--------------------------|--------------------------------------|------------------------------|
| March .. | 6,559 | 20,655 | 27,214 | 55 | 29 | 1:3.14 | 1:0.52 | 6.04 |
| April ... | 6,458 | 21,537 | 27,995 | 77 | 91 | 1:3.33 | 1:1.18 | 2.82 |
| May | 3,994 | 24,543 | 28,537 | 32 | 41 | 1:6.14 | 1:1.28 | 4.79 |
| June ... | 3,235 | 25,596 | 28,831 | 10 | 15 | 1:7.91 | 1:1.50 | 5.27 |

* By "old men" is meant those who have been over three months on the Isthmus, and by "new men" those who have not been over three months on the Isthmus.

Sum of cases among new men.....174

Sum of cases among old men.....176

Number of new men.....20,246

Number of old men.....92,331

Ratio, 1:1

Ratio of ratios, $4\frac{1}{2}$:1

Ratio nearly 2:9

The board found that the pneumonia was four and half times as high among the men who had been on the Isthmus less than three months as it was among men who had been on the Isthmus more than three months. We argued from this that the question was one of immunity; that the negro who had been on the Isthmus three months became acclimatized, and acquired a certain sort of immunity. We probably get the organism slowly, and thereby acquire immunity, whereas the man who developed pneumonia had not been exposed long enough to acquire immunity when the exciting causes came along.

The arrivals on the Isthmus of steerage passengers from 1905 on are shown in Table 4.

The number of steerage passengers is a fair measure of the number of negroes coming out to the work.

We see that there is a relation between the number of newcomers and the incidence of pneumonia in 1906

and 1907. At that time all laborers were housed in barracks provided by the Isthmian Canal Commission. From 1908 to 1913 the incoming negroes were from the same areas as those who came in 1905, 1906 and 1907. During the whole period, laborers were returning to their homes and later returning to the Isthmus for work, just as is the case on the Rand. The only

TABLE 4.—QUARANTINE REPORT OF ARRIVALS AND DEPARTURES OF STEERAGE PASSENGERS FROM AND TO FOREIGN PORTS

| Year | Arrivals | Departures | Increase |
|-------------|----------|------------|----------|
| 1905 | 24,202 | 12,904 | 11,298 |
| 1906 | 34,433 | 16,694 | 17,739 |
| 1907 | 36,438 | 17,900 | 18,538 |
| 1908 | 26,605 | 16,679 | 9,926 |
| 1909 | 22,851 | 13,445 | 9,406 |
| 1910 | 21,851 | 17,319 | 4,532 |
| 1911 | 21,520 | 17,272 | 4,248 |
| 1912 | 21,298 | 19,911 | 1,387 |
| 1913* | 21,573 | 14,969 | 6,606 |
| Totals..... | 230,771 | 147,093 | 83,678 |

* Eight months only.

difference is that on the Isthmus there was for each year a decided increase of arrivals over departures, which shows that there was each year a considerable number of non-immunes arriving on the Isthmus, yet with a decrease in the incidence of the disease. The fall in death-rate from pneumonia was coincident with allowing laborers to leave the barracks provided by the commission and build for themselves cabins on the hills, or to live in the towns of the Canal Zone, and the bringing in of their families. Table 4 shows the incoming and outgoing steerage traffic with the net increase in population.

Among the 24,000 negroes coming to the Isthmus in 1905, there was a very small proportion of persons who had been to the Isthmus before, whereas among the 21,000 who came in 1912 there was a very large proportion. In 1908 our pneumonia dropped to 2.60 per thousand, and since that time it has continued to fall, though we have continued to bring in a considerable number of new employees.

During the first few years on the Isthmus, we housed our negroes in barracks containing about eighty-four men each, and of such dimensions as to give them about 30 feet of floor-space. This is ordinarily considered very crowded. In 1907 we allowed our negro laborers to scatter out along the line of the Canal, build each man his hut, with a small cultivable piece of land, and bring over his family. In 1910 our negro force was 37,000. Of this force, only about 7,000 lived in barracks; the other 30,000 lived in their own establishments. To this fact of scattering I attribute the disappearance of epidemic pneumonia. I explain it in this way:

It is a well-recognized fact in military hygiene that overcrowding of a barrack is coincident with inflammation of the upper respiratory passages, which at times becomes epidemic. This was the case on the Isthmus of Panama, and doubtless is the case on the Rand. Non-immunes crowded into barracks would in the same manner develop inflammation of the upper respiratory passages, in many cases due to the pneumococcus, which inflammation would afford a portal of entry for the pneumococcus, resulting in some persons in lobar pneumonia, and in others in a certain amount of immunity. If we have eighty-five men in a crowded barrack, and the pneumococcus gets

in, the probabilities of its spreading to the other men are considerable. If the pneumococcus establishes itself in a man living in a hut alone, or with his family, it is not apt to spread to the men with whom he works, and with whom the contact is not intimate. I am satisfied in my own mind that the scattering of our negroes was the chief cause of our sudden and permanent drop in pneumonia on the Isthmus.

Other causes no doubt contribute to it. The next most important, we think, is acquired immunity, such immunity as the old boy would have as compared with the new boy. It is self-evident that the proportion of old boys to the new was much larger in the force in 1909 than it was in 1906.

We are at present endeavoring to get 1,500 new tropicals with the idea of trying the matter by experiment. Our wish is to take some one mine, place the whole number at this mine, put 500 in huts, of the remaining 1,000 inoculate 500 against pneumonia, and place the whole 1,000 in barracks. Such an experiment would not be at all conclusive, however, if tried for only a short time. For instance, the barrack in which the inoculated lived might become infected, and the other barrack and the huts remain uninfected. In this case all the pneumonia might occur among the inoculated, not because of the inoculation, but because of the accident of their infection. The experiment, however, would be useful as far as it went. If continued for a long enough time, and in a considerable number of instances, fewer men ought to become infected in the huts than in the barracks.

I recommend that the question of immunization for pneumonia as recommended by Sir Almroth Wright be more carefully looked into. So far the evidence on the subject is more or less contradictory. As tried on the Rand the inoculated do not show any greater protection than the controls, but as used at the Premier Mine in 1913, the results seem very striking. In 1912, the 17,000 inoculated had a death-rate from pneumonia of 6.89 per thousand, and the 6,700 controls a death-rate of 17.72 per thousand. The inoculated and controls were selected at random, and I can see no reasonable explanation for the marked difference between the pneumonia death-rate of the inoculated and that of the controls, except that the inoculation gave a large degree of protection to the inoculated. It has been urged that a large proportion of the vaccinated might have come, purely accidentally, from regions in which the immunity of the native was high, and a large proportion of the controls from regions in which immunity was low. As a mathematical proposition this is true. There is one chance in a hundred that this might be so. But as a practical proposition it can be thrown out and not considered.

In 1910, the death-rate from pneumonia was 27.72 per thousand; in 1911, 30.99; in 1912, 9.83, and in 1913, 7.63.

They received their last tropicals in 1910. Since that time, as was to have been expected, the death-rate has dropped. In 1913 they vaccinated all their men, and their death-rate dropped to 7.63. It is rather against the Premier that their death-rate from pneumonia in 1913 (7.63) should be just about the same as the average death-rate from pneumonia on the Rand from natives south of latitude 22—8 per thousand.

Dr. Darling has suggested that the vaccine used at the Premier may be from organisms of a different strain from those used on the Rand. This has actu-

ally occurred in the use of vaccine for typhoid fever. A body of men protected by vaccination against typhoid fever has been found *not* to have been protected against paratyphoid.

It would be useful for the Chamber of Mines to continue the experimental inoculation against pneumonia, using the different strains of pneumococci. If we had such a vaccine, as the results at the Premier seem to show, then the question of the employment of the tropical natives would be at once solved. I recommend that in future when vaccinating natives, one-half be kept as controls. By this method you would soon arrive at positive results.

In considering preventive measures it must be borne in mind that the causative agent in pneumonia is the pneumococcus, an extremely delicate micro-organism; when exposed to external influences, such as sunlight and drying it is killed in a few minutes, but when resident in the respiratory passages of those infected it lives for weeks and months.

Persons recovering, or having recovered, from pneumonia may, and usually do, carry virulent pneumococci in their mouths and respiratory passages for long periods, and may infect others indirectly by means of their sputum, or by infecting the drinking or eating-utensils used by several persons in common, or by infecting the common water-tap or cup. It has been observed that natives when drinking from the water-tap place it in their mouths, and in this way may leave a moist film of infected spittle on the tap to be taken up by the next person using the tap. In the mines, one tap has to serve for many laborers on the level, and personal observation has shown the facility with which a line of thirsty natives may become mutually infected.

Not only are pneumococci transferred in this way from persons who have recovered from pneumonia, but it is most probable that pneumococci are acquired similarly from persons suffering from the "common cold," tonsillitis and other forms of inflammatory disease affecting the upper air-passages.

It is highly desirable, therefore, that means should be used to prevent as far as possible such conveyance of infection as is indicated above. This might be done effectively and economically by means of some of the well-known types of "bubbling" fountain, or protected taps. These taps prevent the dissemination not only of pneumonia, but also of tuberculosis and syphilis.

TUBERCULOSIS

Next let us consider tuberculosis. This disease is far too high among native miners. The report for 1912 shows that the total rate for all native miners was 5.65 per thousand for pulmonary tuberculosis. The rate at Panama, for the same class during the same year, was less than 1 per thousand. The rate for London, total population, men, women and children, was 1.03 per thousand for 1911, and for New York 1.67 per thousand for 1911.

In addition to the deaths of natives from pulmonary tuberculosis, there is a high percentage of death from other forms of tuberculosis among the native laborers, as tuberculosis of the intestines and abdominal viscera.

During the year 1912, 1,168 patients with tuberculosis in all its forms, were repatriated by the Witwatersland Natives' Labor Association. It is no high estimate to say that half of these (584) died

during this year. During the same year thirty-three patients with tuberculosis died in the W. N. L. A. compound.

Judging from findings of necropsies witnessed by Dr. Darling, I am of the opinion that a considerable number of cases of deaths reported as occurring from pneumonia, result really from tuberculosis. This, under the circumstances, is an unavoidable clinical error. The actual number of deaths from tuberculosis for the year 1912 among your 156,534 natives is probably 885 reported, 584 deported, 33 in compound, and 200 error in diagnosis, a total of 1,702.

This gives a death-rate for tuberculosis in all its forms of 10.87 per thousand per annum, of the average working force of 156,534 natives, so that the death-rate from tuberculosis in all its forms is as a matter of fact considerably higher than 5.65 per thousand for 1912, and 4.80 per thousand for 1913, as shown by the reports supplied me by the Chamber of Mines.

Estimating the deaths from tuberculosis in the same way as above, we find that in 1910 we had among natives 1,001 by report, 268 repatriated for last six months of year, 51 in compound, and 200 by error, a total of 1,520, which would give us a rate of 8.85 per thousand. In 1912, estimating as above, we have a rate of 10.87 per thousand. I am inclined to think that for the future, present conditions continuing, tuberculosis will cause you more trouble among natives than does pneumonia at present.

Overcrowding plays just as important a part in the spread of tuberculosis of types other than pulmonary tuberculosis, as it does in the pulmonary type. The same measures for its control are applicable.

Tuberculosis is caused in man by a well-known micro-organism, the *Bacillus tuberculosis*. This bacillus can be transferred from person to person in many ways. The most common way is by the sputum of the diseased person. This sputum is expectorated, dries, becomes pulverized, and the bacilli are blown about, and enter the lungs of the well person. Or, without drying, it can get on the hands of others, and thus be transferred to the mouth and enter the system. The greatest preventive measures are therefore concerned with the care of the sputum. White miners having tuberculosis should be eliminated; if elimination is not possible, they should be supplied with spit-cups, or cloths into which they can expectorate, and be individually furnished with literature explaining the danger of promiscuous expectoration. With the native miner any attempt of this kind would be impracticable. Careful routine medical examination should be made of the sick, and when a man is found to have tuberculosis he should be excluded from the mines. As far as the native is concerned, the most important single measure is that recommended for pneumonia, that is, scattering, and in the same way as recommended for pneumonia.

Disinfection in the dwellings of the tuberculous is useful and important, and should always be resorted to.

No argument is necessary to prove that by reason of close personal contact, if we have a hundred men in a room, each with 25 feet of floor-space, infection would spread more rapidly and generally than if we had fifty men in the same room having 50 feet of floor-space. It is equally evident that a larger number of persons would be infected, when infection was introduced into a room in which a hundred persons

were living, than when introduced into a room in which six persons were living, the floor-space per capita being the same in the two cases.

Tuberculosis is a disease that can be particularly combated by fresh air, sunshine, cleanliness and roomy quarters.

MINERS' PHTHISIS

Miners' phthisis is a disease which has so far been steadily increasing on the Rand. The reports for 1903 show a rate of 0.05 per thousand, and that for 1912 a rate of 0.10 per thousand. This disease is essentially a silicosis, and is caused by particles of silica getting into the lung-tissue, through respired air, causing chronic inflammation, the tissue thickening until finally a considerable portion of the lung is destroyed for respiratory purposes. This condition of the lung brings about a low state of local vitality, so that an organism like the tubercle bacillus easily finds lodgment. At present on the Rand most persons with miners' phthisis die from an incidental tuberculosis implanted on a silicized lung, rather than from silicosis itself. The hygiene of this disease is obvious, that of laying the dust, so that particles of silica will not be floated in the air where they can be breathed. Some form of water-spraying apparatus is now very generally used on the Rand. I advise that such measures be generally and carefully enforced and extended. I believe that they will soon reduce miners' phthisis to a minimum.

CEREBROSPINAL MENINGITIS

Cerebrospinal meningitis is a disease that at times causes considerable mortality among native miners on the Rand. This is an infectious disease whose organism, so far as we know at present, is spread from person to person by crowding and contact. Scattering would also be the most effective sanitary measure against this disease, in addition to the general measures of cleanliness, air and light already referred to. Disinfection is probably more useful in this disease than in either of the diseases previously discussed.

TYPHOID FEVER

During the last four years you have lost 310 men on an average by death from typhoid fever. During 1912 you had 234 deaths in this class of employee, and during 1913, 249. Typhoid fever by vaccination is as preventable as is small-pox. This death-rate could be entirely wiped out at once. With your present organized force of medical men it would be neither difficult nor expensive. The vaccination itself causes nothing like the trouble to the person vaccinated as does the vaccination for small-pox. In general, there is almost no reaction, soreness or effect of any kind.

I recommend that all native employees and such of the white employees as so desire, be vaccinated for typhoid fever.

HOUSING THE NATIVE

The most serious sanitary defect that I notice in the mines on the Rand is the manner of housing the native. The quarters are much too crowded. He has in general 200 cubic feet of air-space, which would give him 14 feet of floor-space. The general objection to such crowding is that it causes the respired air to become vitiated. My great objection to such crowding is that it forces the occupants into close personal contact, and therefore largely increases the

spread of any infectious disease. This applies particularly to pneumonia, tuberculosis and cerebrospinal meningitis. A large aggregation of men in one room is objectionable in itself. It is evident that if infection is introduced into a room containing a hundred men, it is more likely to affect a larger number than if introduced into a room containing six men.

In the French army they allow about 50 feet of floor-space to a man. Recently they have largely increased their army, which has caused crowding in their barracks. I see it stated in the newspapers that epidemic pneumonia is prevailing among the men, and that the French sanitary authorities attribute the epidemic pneumonia to this overcrowding.

I am satisfied in my own mind that the scattering from large barracks into single huts and small rooms was the important measure in its effects on pneumonia on the Isthmus. For the sanitation of pneumonia I would urge a similar measure on the Rand. Place your negro laborers in individual buildings, and bring in, and place with them, their families. This measure, I feel confident, would result with you as it did with us. In the course of about a year it reduced our pneumonia death-rate from 18.40 per thousand to 2 per thousand. It would probably reduce your present rate of 15 per thousand (the highest pneumonia monthly rate for 1913) to 2 per thousand. If this is not feasible at present, the nearest approximation to it should be attempted.

What is at once feasible, it seems to me, is to extend your family locations. At present all the mines have such a location where the native lives with his women and children. Wherever I have examined into these locations the pneumonia rate and the general death-rate are low. They are always among the very best class of native rates on the Rand. We recently examined into the condition of the city location at Klipspruit. Here about 2,800 natives, men, women and children, live in neatly constructed single dwellings, more or less separated, from 50 to 200 feet apart. The whole village, both inside and outside the dwellings, was well policed, and presented a clean and attractive appearance. We had the superintendent, Mr. Smith, go over the records, selecting the male native, over 18 years of age, and give us his records both for pneumonia and for general rate. We found that for the past three years, with an average of 750 natives of this class, the pneumonia death-rate had been 1.37 per thousand, and the general rate 9.17 per thousand, while the native rate for pneumonia in the mines on the Rand for the same year (1913) was 10.05.

It is a very striking coincidence that whenever we find the native on the Rand living as he does on the Isthmus of Panama, his health-rates are approximately as good as they are on the Isthmus. When the negro on the Isthmus lived in large barracks, as does the native in general on the Rand, his health-rates were fully as bad as those on the Rand. Wherever I have inquired, the compound manager has told me that he has more applicants for married quarters than he can accommodate, and that if he had more buildings he could fill them. Let each mine therefore put up cheap but comfortable buildings, as they find they have need for them. The native hut, of which Mr. Lloyd, your superintendent of recruiting, furnished me drawings and specifications, strikes me as being excellent. It has a circular wall with thatched roof.

In this type of hut, concrete floors and glazed window I consider quite unnecessary.

I saw a large village of these huts at the Arcturum mines. They were attractive and neat in appearance, complied with the needs of sanitation, and were economical in construction. In extending locations, it would be better, from a sanitary point of view, to erect huts rather than to extend the present buildings.

In extending these locations an eye should be had to the future. They should be laid out in streets and blocks with a view to eventually putting in a water-borne sewerage system.

Eventually, in this way, a considerable portion of the force could be placed in these villages, and the barracks mainly used for the unmarried men. This would begin at once to give more room in the barracks for the highly susceptible new boy. As the barracks ceased to be needed for the unmarried natives they could be slightly rearranged for native married families. This was very satisfactorily done at Panama. As we ceased to need the barracks for our unmarried negro laborer, we transformed them economically into comfortable married quarters.

A native labor force living with families near the mines would be more stable and contented than the present force. They would be old and experienced men and therefore more efficient, and from all points of view more economical and satisfactory to the mine manager than the present force.

The economy of this method of housing native laborers might be emphasized by calling attention to the fact that recruiting men costs about \$5,000.00 (£1,000,000) per annum. The greater part of this expense can be saved by the construction of locations—such as Klipspruit—or building huts of the general type of those erected by natives at their kraals.

A force of married men living in such a location would be a permanent force of skilled workmen always available as a source of labor for the mine.

A nominal charge for such huts should be made, such a charge as would pay for the hut, say in ten years, and also keep the huts in repair. Such a location would be self-supporting and would correct the unsatisfactory health conditions of the compounds by giving more floor-space per capita to those who continue to live in them.

Public sentiment will not approve the keeping of a large body of semisavage laborers in the community in such conditions as obviously to foster sexual crimes. Both the public and the laborer will insist on the native having his women and children. If the laborer cannot have his family with him at the mine he will, as the country develops, seek other employment where he can have them.

On the order of the government, recruiting among the tropical natives ceased last March. If we were considering the sanitation of the tropical native alone I should still more strongly urge scattering, as much as possible, as the proper sanitary measure for him against pneumonia. This dispersion I should bring about, if possible, by putting him in a hut with his family. If this were not possible, I should put him in huts, without his family, arranged so as to give him 50 square feet of floor-space. If huts were not possible, I should put him in barracks with the smallest rooms I had, arranged so as to give him 50 square feet of floor-space.

In general, the care of the compound yards showed everywhere neatness, cleanliness and commendable care and discipline; but when we came to examine the interior of the native living-quarters the very opposite was the case.

Food was always present in dirty and unkept vessels in considerable quantities; old clothing and wearing-apparel of all kinds, soiled and dirty, was littering up everything, and litter of all kinds was stowed away under the sleeping-platforms. I was told that discipline and cleanliness were not enforced in the sleeping-quarters from the fact that the authorities did not wish to interfere with the natives to such a degree as to make them dissatisfied. This is a very good general rule, and a population of the class of the ignorant native miner should not be worried with too many and exacting sanitary regulations. Indeed, I do not see that much in the way of correction could be done, even if the native cooperated, in the present crowded condition of the barracks. But give each man 50 feet of floor-space, and he can have an individual bed and box of some kind in which he could keep his personal belongings. It would then be no hardship to require him to keep his belongings to his own bed and in his own box.

If a number of small sheds, inexpensive in construction, and convenient to the sleeping-rooms, were erected around the compound, it would be no great hardship to require him to eat his food under this shed. In the receiving compound at Johannesburg, the native is required to eat his food on a concrete platform, and no food is allowed in the living rooms. Dr. Turner tells me that there is no particular objection on the part of the natives.

I am confident that if the sanitary necessity of keeping the barracks in a cleaner condition was considered, the details could be worked out gradually so as not to interfere to any great extent with the habits and customs of the natives.

A commendable effort is being made generally to correct this condition by cleaning up, taking out refuse, destroying bugs, whitewashing, etc. But this must be done (in the nature of things) very often. In the best-kept quarters which I have seen this is done about once a month, but in a few days conditions are as bad as ever. It is not feasible to make any considerable improvement in present conditions as long as the barracks are as crowded as they are, and as long as the men are allowed to eat and keep food in their sleeping-quarters.

I recommend that each native be allowed 50 square feet of floor-space; that he be furnished with an individual bed, and an individual box in which to keep his belongings; that the barracks be divided into smaller rooms to contain not more than from twelve to fifteen men; that no food or utensils of any kind be allowed in the dormitories, and that eating-sheds be erected about the compound, located conveniently to the dormitories. A good many of the men at present keep their food from meal to meal and consume it between times. They also use the mealie porridge for making fermented drinks. If it is necessary to allow this, to each native who asked for it, a locker in the eating-shed could be assigned. The expense of such changes would not be large. The increase in floor-space would cause a large expenditure, if the force were as full as it was a year ago. If you encourage your married locations, some room would

be gained in the barracks in this way. The reforms could be carried out gradually. Those compounds could first be selected in which the death-rate was high. There are a considerable number of compounds in which the death-rate has been low for a number of years. They are frequently the old compounds which the native prefers, and therefore they contain a larger number of old boys. In all the cases into which I have examined the crowding there was not so great.

These two conditions, namely, the lesser crowding and the greater proportion of old boys, generally explain the better health-rates. Such compounds I should not interfere with. In this way gradual improvement could be brought about at no very large yearly outlay.

DIET OF THE NATIVES

The ration is another thing that has impressed me very strongly in inspecting the various mines. I have never seen so large a proportion of the ration supplied by one article as is here supplied by mealie meal. The two chief components of the daily ration are 2 pounds of mealie meal and $5\frac{85}{100}$ ounces of meat. This I think, a great deal too large a proportion of the carbohydrates for men doing the hard manual labor that the natives do. The mealie meal might be reduced, and the meat and other articles increased.

A soldier's ration in the British Army is 16 ounces of bread, 12 ounces of meat, and also an allowance of 3 pence per day for vegetables, and other articles. A miner does very much harder labor than the soldier. I think that his diet should be at least as good.

On the Isthmus we had a great deal of trouble as to rations. There was no particular disease among our laborers that we could attribute to diet, but they seemed to be underfed, and there was constant complaint. The whole matter of food was satisfactorily settled both for the negro and ourselves when the families came and when we established commissaries for the sale of food at cost. The negro then bought what he liked in such quantities as he wished, and his wife cooked it in the manner to which they had been accustomed. At the Premier mine they have three systems of feeding going on at once. The native can either eat his food at the regular mess, buy such cooked food as he likes, or buy food and cook it himself.

At the Kimberly mines the system of food-supply is altogether that of allowing the native to buy his own food. It seemed to be very satisfactory. This would be an excellent system of feeding to adopt generally, although I prefer our system on the Isthmus, where food is supplied the native at cost. The object of this measure is to give him an abundant food-supply in such a way that he can vary it as his tastes suggest. If you attempt to make a profit on food, you by so much defeat the object of your measure.

I am inclined to attribute scurvy to the large amount of mealie meal in the ration. It has been found that beriberi is caused by making polished rice the almost exclusive article of diet. It is due not to the rice itself but to the fact that the rice is polished. In polishing, the pericarp is rubbed off, and this pericarp contains substances that are necessary in the body economy. Mealie meal, as used on the Rand, has a similar outer coating removed in the process of mill-

ing. Dr. Macaulay goes into this question, and brings some very strong evidence to prove that scurvy is due to having such a large proportion of the diet consist of the bolted mealie meal. If this is the case, it can be corrected easily and economically by having the meal properly prepared. This question should be investigated further.

On the Isthmus of Panama in 1906, each man bought his own food from a poorly supplied market, at a very high price, and cooked it himself. In 1908 he bought from a well-stocked market, at cost price, and had some one to prepare his meals.

We first started having each man take care of himself as far as food was concerned. Each laborer bought his uncooked food from the nearest native vender, and cooked it himself between working-hours. This proved very unsatisfactory for several reasons. The laborer did not have time to collect his food and cook it between working-hours. He was also too much fatigued to do it properly. Our force increased so rapidly that we consumed everything that there was in the country. We then put up stores along the line, supplying food at cost, and also kitchens where it could be bought cooked at a reasonable price. This proved a distinct improvement over former conditions, but the matter of feeding was put on an entirely satisfactory footing, both to ourselves and to the negroes, by bringing the families over, and allowing each man to put up a hut for himself and his family.

Since that time we have had no trouble as to food for the negro, or dietetic diseases among them. Each negro now gets such food as he likes at cost, and his wife cooks it for him in the manner and quantities which he likes best. Present conditions as to food are entirely agreeable to both parties. The establishment of stores by the commission and selling at low price in no way interfered with opening of stores by private persons. Such stores existed in considerable numbers at all towns and were prosperous.

SEWERAGE AND WATER SYSTEMS

Another sanitary improvement completed at about this time was the introduction of sewerage and water systems. One of the prominent causes of death among our predecessors had been dysentery. Indeed, this disease is generally prominent in tropical countries.

Typhoid fever is another disease that we knew we should have to reckon with. In the hope of protecting ourselves against these two diseases we put in eight different water systems along the 50 miles of canal. Generally for getting water, we dammed the small streams near their source in the mountains, and piped the water down to the cities and villages along the line of the canal. About twenty sewer systems were put in at these villages. The sewerage systems were limited to the villages.

We see, therefore, that several things happened about the time of the disappearance of our epidemic of pneumonia.

The men were scattered from crowded barracks to individual huts in the hills, and houses in the towns.

An insufficient, poor, expensive food-supply, badly cooked, was replaced by one abundant in quantity, good in quality, cheap, and very well cooked.

Water-supplies and sewerage systems were everywhere installed.

It is an obvious axiom of both hygiene and economy that no unnecessary tax should be placed on the strength of the native laborer. With these objects in view, he should be conveyed to his place of labor and away from it, with as little delay and as little exertion to himself as possible.

The present bucket system of disposing of night soil should be replaced by a water-borne system. This is possible everywhere on the Rand above surface level. This bucket system promotes the breeding of flies and the transference of diseased fecal matter by these insects. The water-borne system would be economical as compared with the present bucket system. Several of the mines have at present partial water-borne systems. I commend particularly that of the Crown mines.

Where a water-borne system is not feasible I consider a properly constructed, fly-proof, pit-closet preferable to the present bucket system. It is more sanitary and less expensive.

Underground a water-borne system seems to be impracticable from a mechanical point of view. A vault system would be a decided improvement on the present bucket system, both from a sanitary point of view and from the point of view of economy. I mean by a vault system the excavating of a small vault and placing on it a fly-proof seat wherever a closet is needed. I should use no water whatever. Allow only in the vault fecal matter and urine. When the vault is filled, close the vault and move the seat to a new location, or empty the vault with an odorless excavator. I should empty the vault or move the seat as seemed most convenient and economical. Vaults that were located on the outer workings, and that were to be used less than a year, I should think could be more economically closed than emptied. Vaults that were located near the center of the workings, and were to be used for several years, might be emptied when filled. This should be determined purely from the point of view of expense.

There would be some sanitary advantage in closing a vault rather than emptying it. I think that from an administrative point of view it would be found more economical to close a vault and build a new one, rather than to empty it. The length of time that a vault would last would be determined by its size.

It has been objected that there would be leakage through cracks in the rock from these vaults into the mine below. There would be so little fluid, that urine only, that I do not believe this would be the case. If the deposit were found to be too fluid, the condition could easily be remedied by the use of dry earth or some similar drying material. I have seen this system used on a large scale in cities with little objection as to odor or inconvenience. The great sanitary objection to the present bucket system is against the daily handling and carrying through the mines of fecal matter, and the necessary fouling and disagreeable odors that go with such a system. The great sanitary advantage of a vault system in such locations as the mines is that the excreta are permanently disposed of as soon as deposited.

The economical disadvantage of the bucket system lies in the considerable expense of daily transporting the buckets to the surface, emptying, cleaning and returning, as well as the expense of plant. The only expense of the vault system would be that of originally digging the vault and then of closing it.

A system of septic tanks might be considered if it should be found more economical than the vault. I think that such a system could be planned so that there would be no objection to the effluent passing into the general drainage system.

THE FLY NUISANCE

I commend the effort at some of the mines to abate the fly nuisance by trapping and otherwise. All eating-houses, kitchens, dining-rooms, or wherever cooked food, or food, such as fruit, that is eaten uncooked, is exposed, should be well screened as a protection against these insects. In addition, traps, fly-paper and such devices as tend to destroy flies that have gained entrance to these places should be used. The present crusade against fly-breeding should be encouraged in every way. Such a movement is one of the best educators that I know of.

The disposal of garbage is generally satisfactory. It is in general dumped at some out-of-the-way place sufficiently removed from the mine so that the odors and the flies are not troublesome. I should recommend, however, the general use of crematories. The crematory system is generally more satisfactory than the dump, from the fact that it does away with fly-breeding and disagreeable odors. In many cases it is more economical from the fact that the haul is much shorter in the case of the crematory.

Alcohol for the native, I believe, is an unmitigated evil. It is in no way necessary for his health; in fact, it is always hurtful.

THE LIQUOR QUESTION

On the Isthmus we had our laboring force located on the line of Canal about 50 miles in extent. In this distance we had about twenty towns. At first we allowed as many liquor establishments as chose to pay the high license, \$1,200 per year. As time went on we gradually abolished saloons in town after town, till last year, liquor-selling was finally abolished on all the Zone. Saloons were gradually abolished in district after district, generally at the request of the engineer in charge of the working force in that district.

The two Panama towns of Colon and Panama, at the northern and southern end of the Canal, are not under the jurisdiction of the commission as far as regards liquor-selling. There is no restriction on an employee going to these towns and getting liquor as he wishes and bringing it out into the Zone to his own home. The only prohibition is that it must not be sold in the Zone. But to get liquor he has to make a longer or shorter railroad trip, and go to considerable effort. Our experience has shown that there are a considerable number of men who do not care enough for liquor to make the effort, and therefore do without. Of course there are a large number who bring liquor out and drink as much as ever; but on the whole our prohibition of its sale has largely decreased drunkenness. It has increased the efficiency of our working force so much that generally the men in charge of the laborers in the different districts have asked to have their districts included within the prohibited area. I believe that it would be best for the native on the Rand to have no alcohol at all.

That alcohol is not a necessity for the native is evidenced by the condition of affairs at the De Beers mine. There they have compounds that are kept

rigidly closed. Neither kaffir beer nor any other alcohol is given him. Yet he remains in perfectly good health and seems contented. He likes the life at Kimberly better than he does that on the Rand. This is evidenced by the fact that their force is always full, yet they do not have to recruit, whereas on the Rand the opposite is the case.

One cannot see these mines, or look over their statistics, without being struck by the many advantages a closed compound has in the management of these semicivilized natives.

MEDICAL SERVICE

Attention should be given to the methods at present in vogue of getting the East Coast boy from his home to the mines. In my opinion there is opportunity here of the native becoming infected with both pneumonia and tuberculosis before he reaches the mines.

In any case some machinery is needed for carrying out a system of sanitation. You have on the Rand now about fifty-four mines, each entirely independent as to the sanitation and care of the sick. About thirty-eight physicians are employed by these mines. Each is doing the same work as the other. That is, each man on his own mine has to do the surgery, the medicine, the pathologic work, the sanitary work and the Roentgen-ray work. It is impossible for each man to be specially qualified in all these branches. You have sixty-two hospitals, treating 2,150 patients. None of these hospitals is equipped or manned in a first-class manner. In general, the larger the hospital the better manned and equipped. The nursing force in native hospitals is made up of natives who have neither the intelligence nor training for such work. All is being done, probably, that can be done under the present system of numerous small hospitals. It is impracticable from an economic point of view to equip all these small hospitals with a first-class instrument outfit in every direction, and if it were possible economically, one doctor could not acquire the skill and experience for using them all. If a combination could be effected, a much higher state of efficiency could be brought about at no increase of cost. If all the sick could be brought together into one hospital, they could be cared for at less cost than in sixty-two hospitals. You could select the best qualified doctor among your present men, and put him in charge of the surgery. With such a service as he would have, in the course of a few years, he would become the peer of any surgeon anywhere, and you would be able to give your employees as good surgical attention as the very wealthiest could command. You could afford to equip such a hospital with first-class surgical appliances of every kind at a less cost than the moderate supply at present given to the sixty-two hospitals now in use. The same could be done on the medical side.

In the Bacteriological Institute you already have an institution and personnel that could be used for the pathologic work, and the patient could be brought to hospital by the railroad, which connects with all the mines, and by motor ambulance and wagons.

With 200 white trained nurses, male and female, in such an institution, you could select your subordinate native nurses from the more intelligent and better educated natives, and thus secure a first-rate nursing force.

Such a hospital scheme has been adopted by us on the Isthmus for our force of 60,000 men scattered along a railroad 50 miles in extent, and it has been for us both economical and satisfactory. I believe that you could adopt the same plan for your 200,000 men, who, it seems to me, are in a comparable condition.

The construction of such a hospital need be no more expensive than your barrack construction, if the hospital were built in single story on the pavilion plan. I believe that eventually you will have to provide more barrack space, and the present hospitals could be used as such.

In a large hospital of this kind you could keep in better touch with the character of disease affecting the employees, which is in itself a considerable sanitary advantage.

With a pathologic department making all the necropsies, you would have greater protection than you now have on the question of paying claims, and greater accuracy and uniformity in diagnosis.

You could select the men best fitted and place them in charge of the sanitary work. These men should devote their whole time to their work, and be in thorough and constant touch with the sanitary conditions of all the mines. One man should be chief, and on the staff of the Chamber of Mines; he should be responsible to the Chamber of Mines, and entirely independent of the management of the individual mines. There need be no conflict with the present public officials in

such an organization. If such an organization were in effect now, when the chief sanitary officer of the Chamber of Mines found a mine not complying with the present public sanitary ordinance, he would report the matter to the Chamber of Mines. The Chamber

of Mines could either take the matter up with the mines concerned, or directly report the defect to the medical officer of health of the district. If it were the enforcing a sanitary measure not covered by public ordinances, but which had been authorized by the Chamber of Mines, the chairman of the chamber could take the matter up directly with the mine management. For instance, if the mines at present associated had authorized the Chamber of Mines to enforce as far as possible dispersion, the measure which I recommend for the sanitation of pneumonia, the chief sanitary officer would be in constant touch with all the compounds. He would have in view the desirability of increasing the married location as rapidly as possible, so far as was compatible with economy and expediency. If, under these circumstances, the chief sanitary officer found a mine where the married location was full, and there were applicants on hand for additional married quarters, he would urge the erection of additional accommodation on the mine management. If a satisfactory agreement could not be arrived at between them, the chief sanitary officer would take the matter up with the Chamber of Mines.

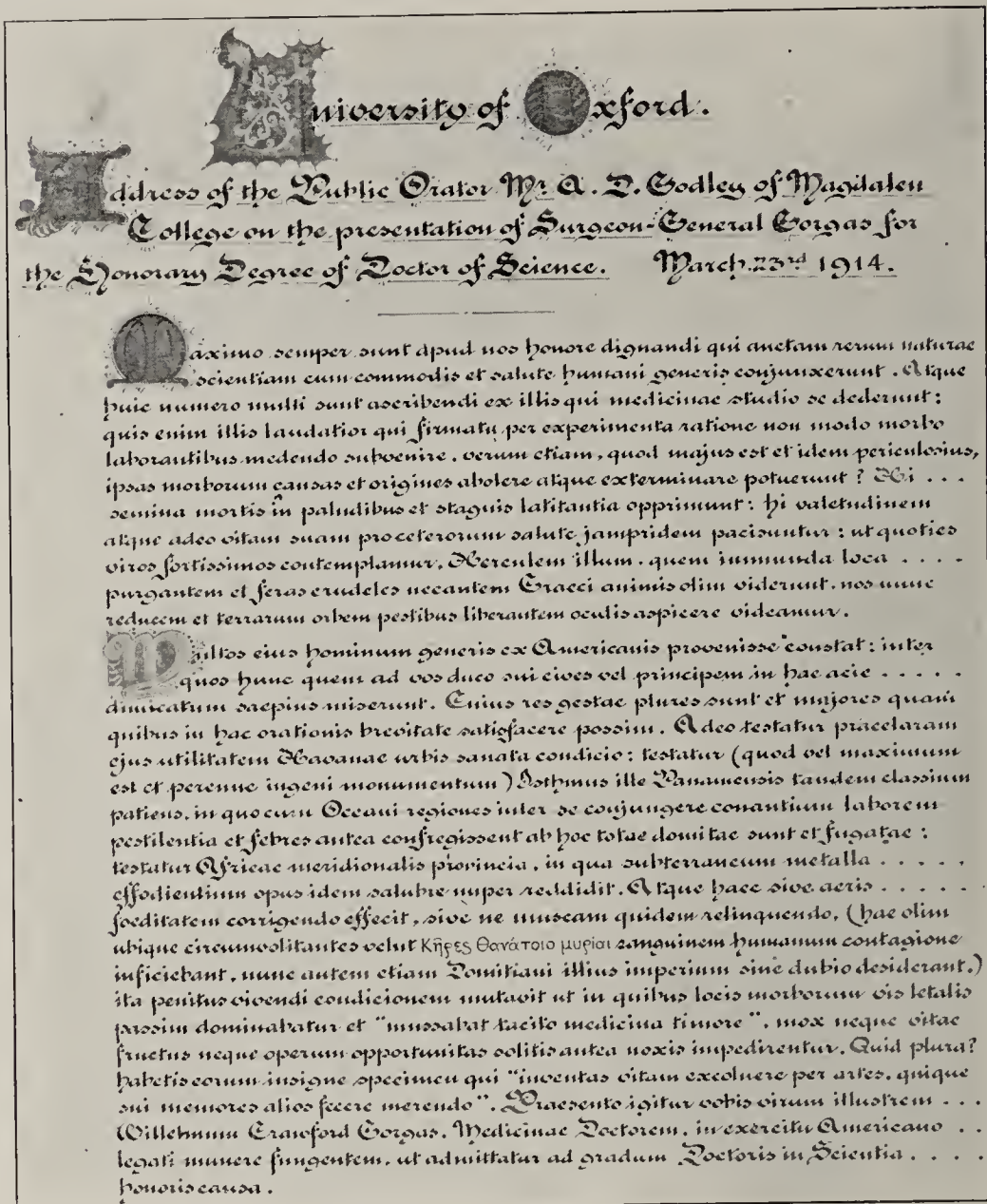


Fig. 1.—Address of the Public Orator of the University of Oxford on the presentation of Surgeon General Gorgas for the honorary degree of Doctor of Science. Made on sheepskin in four colors (see editorial department). In the original the following English translation is appended. That it may be more easily read we have reproduced it letter for letter.

THOSE are most to be honoured by us who have increased knowledge and thereby promoted the welfare of the world. Such are many students of medicine: it is a fine thing to have the scientific knowledge which can cure disease: but theirs is a still finer if more dangerous task who can extirpate the causes from which disease springs. It is such men who destroy the seeds of death which are bred in swamps, risking their health and even their lives to serve their fellows. These heroes are a modern realization of the legend of Heraclis, the cleanser of foul places and the enemy of evil beasts.

THE eminent American who you see today has like many of his countrymen fought in the forefront of the battle. His achievements are too numerous for me to relate in detail. Suffice it is say that it is he who cleansed Havana: it is he who put fever and pestilence to flight in the Isthmus of Panama, and made possible the long-thwarted construction of the great inter-oceanic waterway: it is he who has recently improved the sanitary conditions of the South African mines. He purified foul air; he waged war on the myriad swarms of death disseminating mosquitos. The result has been an amelioration of the conditions of human life in plague haunted districts, where once "in silent fear the helpless healer stood", and it is now possible to live in comfort and to work with advantage. There can be no better example of those "Whose skill hath served the human lot to raise, and won a name that endless ages praise."

Or, if the chief sanitary officer found the pneumonia rate high in any particular compound or building, he would see that the proper corrective measures, as outlined above, were applied. On the other hand, in compounds and buildings in which the health-rates were satisfactory, he would not make any change. Such effort applied for a year or two would gradually bring about a uniform system of sanitation. If you had had such a system for the past few years, a sufficient force constantly devoting their whole time and attention to sanitation, you would have by this time reduced pneumonia to a minimum. If it were adopted now, I believe that at the end of a few years pneumonia would be reduced to a minimum. If it were feasible to adopt the whole scheme as outlined, which is the scheme that we used at Panama, I see no reason why the results should not be the same, the rapid reduction of pneumonia to a minimum. Your native labor force is evidently undergoing a gradual process

of immunization. In 1903 and 1904, your total rate from pneumonia was 25.31 per thousand.¹ For the first nine months of 1913 this had fallen to 8.8 per thousand per annum. The fall has been more rapid during the last months of this period, on account of the stoppage of the introduction of the more susceptible native from the tropical regions north of latitude 22. This process will continue going on for several years till the whole of the native laboring population reaches the state of immunity that the Cape native has now. This, I take it, is the maximum that the native is capable of reaching under

your present sanitary conditions. I think that this could be still further reduced by the sanitary improvements suggested. I base this opinion on our experience on the Isthmus, where the negro pneumonia rate has been reduced from 18.74 in 1906 to 0.42 for the first eight months of 1913. During one month in 1906, it was higher than it has ever been on the Rand for a similar body of men, and for a similar period, 43.41 per thousand. Meanwhile, if you introduce the native from the non-immune regions, your rate will go up. This, I think, could in great part be prevented by housing the tropical native in huts as suggested, and by furnishing him with cooked or uncooked food to be purchased as he liked. In the course of a year or two he would acquire immunity, and would then be on the same footing as

a boy from the South. The success of any system of sanitation which is more or less new to any locality will depend a great deal on the choice of the man who has the charge of carrying it into execution. If he believes in it, has tact, and is enthusiastic and persevering, it will succeed. If he is discouraged by difficulties and opposition, he will fail even if his system is correct. He will find many men who have ideas of their own on these subjects, and who will point out the impossibility of carrying out the plans agreed on. It will be the health officer's business to familiarize himself with all the details involved and to find reasonable means for meeting reasonable objections.

Of these sanitary recommendations, I consider that of increasing the floor-space to about 50 feet the most important and pressing, and by far the best way of doing this to be the village hut system and the introduction of families. If this particular method cannot be carried out, effort should be made to come as near it as feasible.

Second in importance, I consider improvement in the hospital system and care of the native sick. This can be best carried out by a central hospital. If a central hospital is not feasible, such concentration of hospitals as is possible should be made.

The third in importance is the establishment of a central sanitary bureau or department under the Chamber of Mines, the head of this department to represent the mines on all sanitary questions.

The present regulations regarding matters of sanitation should be revised so that the sanitation of the mines might be

accomplished by the authority of one official, government or municipal, instead of with five different interested parties, as is now the case.

Report of Tuberculosis Commission in Kentucky.—Kentucky, by an act of the legislature, established a commission in 1912 for the study of tuberculosis. The first report of that commission, a cloth-bound pamphlet of sixty pages, sets forth what has been accomplished. The work so far has been chiefly preliminary and educational. An exhibition car and moving-picture exhibit, teachers' institutes, a nursing service and the distribution of much printed matter have been some of the means employed. Special county campaigns in cooperation with local organizations have also been conducted. The further work of the commission will consist not only in keeping up the educational campaign, but also in the establishment of local sanatoriums in the districts into which the state is to be divided. The report shows that much interest has been aroused and much good work done.

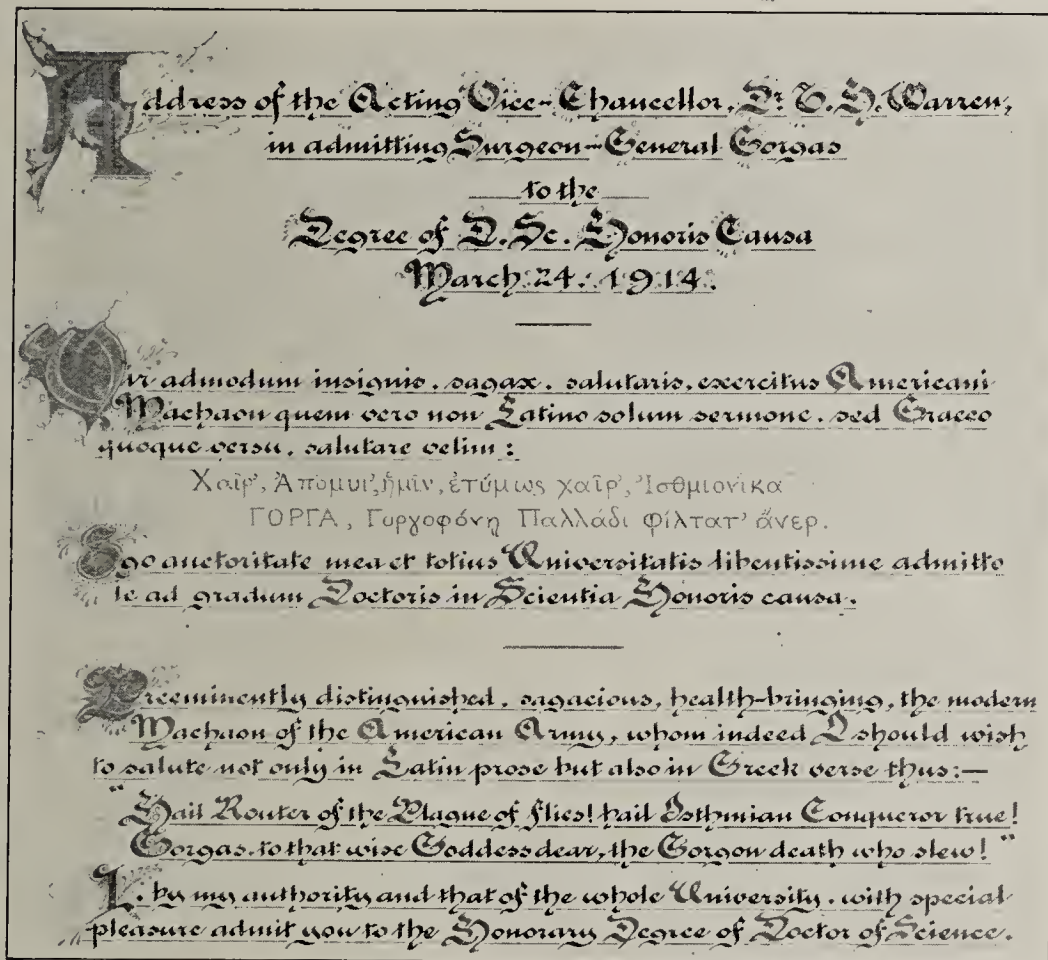


Fig. 2.—Address of the Acting Vice Chancellor in admitting Surgeon General Gorgas to the degree of Doctor of Science. Reproduction of an illuminated manuscript made upon sheepskin in four colors: red, gold, blue and black.

1. Final Report of Mining Regulation Commission, i, Table 1.

THE TREATMENT OF HEMORRHAGIC DISEASE OF THE NEW-BORN BY DIRECT TRANSFUSION OF BLOOD

WITH A CLINICAL REPORT OF FOURTEEN PERSONAL CASES

V. D. LESPINASSE, M.D.

CHICAGO

The chief causes of this condition are: syphilis, infection, hypoplasia of the coagulating elements of the blood and asphyxia. External factors, such as parity, the fetal presentation, duration of labor, complications of labor, obstetric operations and chloroform, are of minor importance. Syphilis, according to Holt, is a causative factor in from 2 to 6 per cent. of the cases, contrary to a generally current idea that syphilis is always the cause.

The pathology of this condition is yet rather obscure. In nine personal post mortems, Townsend states that there were no gross lesions except the hemorrhages, and in one case the blood-culture was negative. He also reports eighty-one post mortems from the literature, in most of which no lesions of any sort were found, except hemorrhages. In a few cases the following lesions were present: lesions of syphilis, enlarged spleen, enlarged liver, inflammation of the umbilical and portal veins and acute fatty degenerations.

Some cases give a positive and others a negative blood-culture. The bacteria found are the common ones. Wassermann reactions have been made in a few cases, and are positive in some and negative in others. The chief pathologic lesions are the same as the clinical lesions, namely, hemorrhage and its consequent anemia.

The symptomatology is quite striking. In some cases there are a few premonitory symptoms, such as restlessness, refusal to nurse and a slight elevation of temperature; the chief symptom, however, is spontaneous hemorrhage. The site of this hemorrhage may be from any of the following sources: intestines, stomach, mouth, nose, navel, ecchymoses of skin, cracks of the skin, pressure-points, as heels and sacrum, meninges, genito-urinary tract and eyes.

As the hemorrhage persists, there is a progressive whitening of the child's skin and a gradual drying up of the tissues. The face becomes pinched; the muscles become weaker and weaker; the pulse becomes rapid, thin and weak; respirations are deep and sighing; the cry is weak, it may even be a whine; coma comes and death soon follows.

The diagnosis is very easy, as there is no other condition that even simulates this disease, except traumatic hemorrhage.

In hemorrhage of the gastro-intestinal tract, inspection of the stool in the diaper shows a black tar-colored mass with a pink fringe around the edge. The differential diagnosis of these conditions is of minor importance. The treatment is the same whether the case is one of hemorrhagic disease of the new-born, Winkel's disease, Buhl's disease, jaundice with hemorrhage or hemophilia. Brown and Swift divide these cases into three clinical types, namely, the umbilical, the seromucous and the purpuric, with a mortality of 60, 50 and 22 per cent., respectively. This was before the use of serum and direct transfusion of blood.

PROGNOSIS

The hemorrhage usually appears from the second to the fifth day of life. The earlier the onset of the hemorrhage, the more serious the prognosis. In luetic cases it usually appears from the seventh to the ninth day. One of the chief terrors in this disease arises from the fact that in half the fatal cases death occurs suddenly within twenty-four hours or less from the onset of the bleeding; hence, if the child is to be saved, it must have immediate attention. Townsend reports 32, in which 25 patients died and 7 recovered; 9 of those that died lived less than a day from the detection of the bleeding, and 4 lived only one day. It must not be forgotten, in the bowel cases, that the amount of blood that is vomited or passed by rectum does not represent the patient's entire loss of blood. The intestinal tract may be full of blood and the amount passed in the stool will be only a small percentage of the total blood lost to the baby.

The cases in which there is bleeding from the bowel are often quickly fatal, the entire clinical course being only a few hours; the shortest clinical course in my series was four hours from the discovery of the bleeding to the virtual death of the baby. Frequently the babe will nearly bleed to death into the bowel or stomach before any of the blood is passed by rectum or vomited. In the umbilical and purpuric types, the hemorrhages, being external, are discovered earlier, and the loss of blood can be accurately estimated. According to Dr. Jacobi, the total blood in a baby is equivalent to one-nineteenth of its body-weight.

Using this as a basis, a baby has approximately 1 ounce of blood to an adult's quart. Hence, a hemorrhage of 1 ounce in a new-born baby is equivalent to 1 quart in an adult.

TREATMENT

In the treatment of hemorrhage of the new-born, there are three indications: First, the hemorrhage should be stopped; second, the lost blood should be replaced; third, the infection should be overcome. Transfusion of live non-clotted blood meets all these indications in an ideal manner. Transfusion stops the bleeding at once, replaces the blood lost and gives the baby fresh complement and antibodies to aid it in overcoming any infection that may be present. Some of these cases are due to asphyxia and consequent fatty degenerations.

A well-transfused baby has more red blood-corpuscles than normal, each one capable of carrying oxygen to every portion of the baby's body, and this oxygen is available to prevent further fatty change and to remove that already formed. Direct transfusion of live, non-clotted blood from a healthy adult meets all the indications in hemorrhagic diseases of the new-born, better than any other method. Direct transfusion of blood will cure in practically every case. It is never too late to transfuse if there is still the slightest auricular beat, or even if the heart has apparently stopped for a short time; by means of a transfusion of blood the heart may be started again (Case 1). The patients who bleed from the bowel should be transfused early, because of the liability of sudden death from a massive hemorrhage into the bowel. Most surgical operations are of a destructive character and accompanied by a shock, which requires a certain amount of bodily vigor to overcome. Direct transfusion of live, non-clotted blood is not a destructive

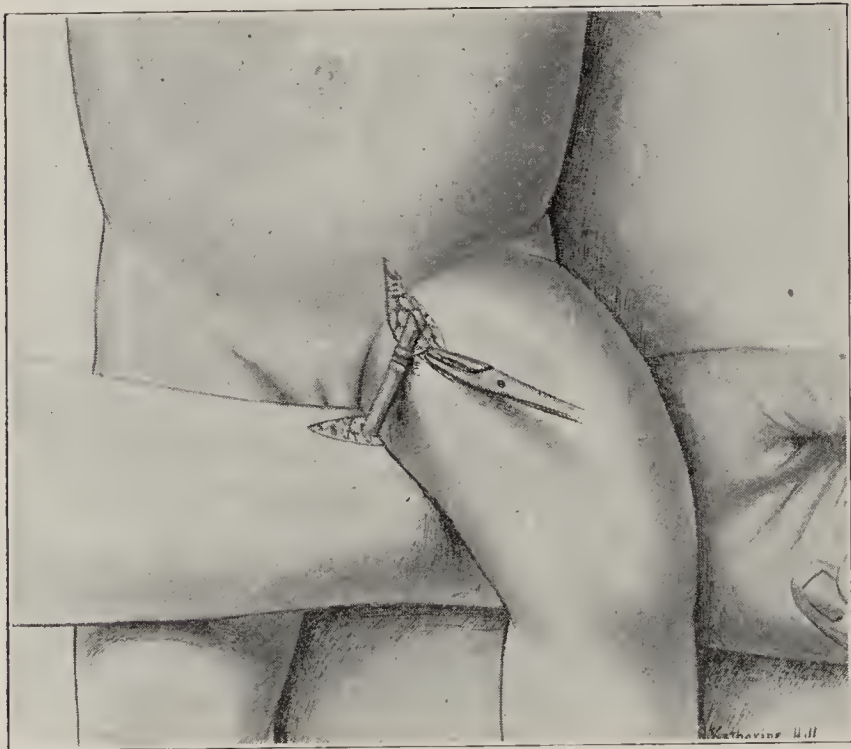
| Case | No. of Children | Weight at Operation Lbs. Oz. | Age of Baby Hours | Source of Hemorrhage | Treatment Before Operation | Duration of Hemorrhage, Hours | Condition Before Transfusion | Condition During Transfusion | Condition After Operation | Remarks | Ultimate Results |
|---|-----------------|---------------------------------|----------------------|--|---|----------------------------------|---|--|--|--|-----------------------------------|
| 1. Dr. DeLee | 2 | .. .. | 48 | Rectum; stomach | None | 4 | Almost pulseless; intense pallor; comatose | Heart not audible for 5 minutes | Very red; strong | Heart was heard about 15 seconds after transfusion was started. This babe was practically brought back to life. Gained 1 ounce per day for first seven days after transfusion | Recovery |
| 2. Dr. Bellows | 4 | .. .. | 34 | Mouth; rectum | None | 26 | Anemic | Skin became red | Normal | Weights 25½ pounds at 22 months old, fine healthy boy | Recovery |
| 3. Chicago Lying-In Hospital, Dr. Horowitz | 1 | 7 2½ | 9* | Bladder; circumcision wound | Clamps; sutures | 24 | Pale; very anemic | Became pink; first ear, cheek, genital | Normal | Took the breast three-fourths hour after transfusion | Recovery |
| 4. Dr. Woods | 2 | 5 1 | 20 | Mouth; rectum | Gelatin; horse-serum | 5 | Anemic; comatose | Color better; still stuporous | Somewhat stronger but not much | Lutetic parents. Baby's blood contained staphylococci and gave a + Wassermann. | Death five days after transfusion |
| 5. Dr. H. M. Stowe... | .. | 6 2 | 24 | Circumcision wound | None | † | Very anemic | Color red; stronger | Excellent | Cesarean section baby. Ether used as anesthetic | Recovery |
| 6. Dr. Gill | 1 | .. .. | 72 | Rectum; stomach | None | 48 | Very weak | Became red | Good | Delivered by high forceps. Progressed normally after transfusion | Recovery |
| 7. Dr. Roberts | 1 | .. .. | 72 | Rectum | None | 48 | Anemic | Became red; Stronger | Excellent | Nursed mother one hour after transfusion. Now is a fine baby | Recovery |
| 8. Dr. Bellows | 2 | 4 .. | 7* | Umbilical cord, mouth skin, finger-tips, heels, sacrum | Umbilical cord buried | 48 | Very weak; very anemic | Very red; stronger | Cried lustily; quite strong | First baby died of lues. Patient had condylomas, snuffles and macules on the skin | Death nine days after transfusion |
| 9. Dr. Knapp | 1 | 8 .. | 19 | Bowels; mouth | Horse-serum | 72 | Grave; almost gone | Gradually improved | Greatly improved | Passed old blood for two days, otherwise normal | Recovery |
| 10. Dr. W. L. Ruggles.. | 7 | 5 .. | 72 | Frenum of tongue; intestine | Normal salt; horse-serum | 48 | Exsanguinated | Pulse afficker; gasps at long intervals | Excellent | Regained original weight at age of 4 weeks; perfectly well. Bleeding from tongue ceased at once, the mouth filling with a dense black clot. This was removed and the area was dry. | Recovery |
| 11. Dr. Piper | 7 | 9 5½‡ | 40 | Bowels | None | 12 | Thirsty; restless; crying constantly | Became red; abdomen became prominent | Very good, gained 14¾ oz. in weight | Stools normal thirty hours after transfusion | Recovery |
| 12. Dr. Cleary | 2 | .. .. | 72 | Bowels, stomach, mouth, subcutaneous | Horse- and human-serum | 48 | Poor; very anemic; very weak | Improved as blood flowed in | Excellent | Treated with human serum for 30 hours. Had massive hemorrhage and almost died before transfusion. Weighed 10½ pounds at 4 months | Recovery |
| 13. Dr. Cleary | 1 | 6¼ .. | 36 | Bright blood from bowels | Horse-serum | 9 | Restless; dried up; very anemic and weak | Red blood passed by bowel; improved | Good; color fine | Bright red blood by rectum on the table. No more red blood passed. Weighed 7½ lbs. at age of 20 days | Recovery |
| 14. Dr. McQuarie | 2 | 7¼ .. | 96 | Intestine | None | 12 | Pale; cold; unable to nurse; very feeble | Became red, then blue, then intense red all over | Fine; red all over as in scarlet fever | Nursed one hour after transfusion | Recovery |
| 15. Drs. Marcusson and Dorland | 1 | .. .. | 6* | Bowel | Gallic acid; adrenalin; stypticin by hypo | 96 | Very anemic; very weak; marked pallor; fed with medicine drop per | Became red; cried lustily | Very good; strong; nursed at once; no more blood | Continued to gain; nurses and in every way is strong and well; nursed immediately after transfusion | Recovery |

* Days. † Unknown. ‡ With clothes.

operation; instead of inducing shock, the transfusion overcomes shock. The postoperative condition of the baby after direct transfusion of blood is very much better than the preoperative condition.

CLINICAL PICTURE

When first seen a bleeding baby is anemic, pale, weak, restless, passing tarry stools frequently and having a dried-up appearance. Later on the baby becomes limp and can hardly cry, and is as white as the proverbial sheet, blood is oozing from the mouth or from the navel, and there are purpuric spots scattered about more or less diffusely over the skin. The diaper is full of a black tarry mass, which may show red blood around the edges. During the progress of the transfusion, the child's color gradually becomes pink, then red, first on the lips and ears; then little pink spots are scattered diffusely over the body, and finally, after the baby is filled with blood, may become as red as an ordinary scarlet-fever patient. The hemorrhage from the various lesions cease as if they had been clamped with artery-forceps; by the time the transfusion is completed, the lesions are absolutely



Position of baby and the arm of the donor in direct transfusion. The radial artery of the donor and the femoral vein of the baby are used for the transfusion, which is done according to the Crile technic.

dry. In the wound that is made on the baby to dissect out the vein, one can note the formation of a firm, hard clot. When the wound is first made, the blood that flows looks like poor red ink. The coloring-matter seems to be in little particles floating in the serum. As the transfusion progresses, the blood becomes redder and redder, and finally the wound becomes filled with a firm, hard clot. Simultaneously with the color-changes in the skin, there is a great improvement in the baby's general condition. The cry becomes vigorous and he kicks with more strength; when the wound is being sewed, he makes a great protest every time the needle is passed. Finally, when the babe is taken back to his mother, he is strong enough to nurse and weighs from 8 to 14 ounces more than he did before the transfusion. After the operation, the baby nurses and sleeps quietly, the restlessness is gone; the temperature drops to normal, the old blood is passed out of the intestine in a day or two and the babe gains weight as fast as a normal babe, or even a trifle faster.

MORTALITY

In my series of cases there have been no deaths from hemorrhage. Two patients died of syphilis, one five days and the other nine days after transfusion. My cases varied in severity from one in which the patient was practically brought back to life, to others in which there was less immediate danger. If we compare this mortality with that of cases treated by other methods, we find that the same types of syphilitic patients die and that in severe bowel cases the patients die as in most of the other types of cases that are treated late. Transfusion cures in these bowel cases and all the late cases provided it is done before the baby is actually dead. (In three cases in which I have been called I found the baby dead.) Direct transfusion of blood has cured after all other methods failed. My plea is to transfuse early and take no chances of a sudden hemorrhage before anything can be done as almost happened to me in Case 12.

The amount of blood received by the baby in Case 11 was $14\frac{3}{4}$ ounces by weight. In Case 12 the baby was weighed just before the transfusion; twenty-four hours after the transfusion he weighed 15 ounces more. This represents 421.5 c.c. of blood in Case 11 and 428.5 c.c. in Case 12. Some may be inclined to doubt these weights, as at first glance they seem rather excessive. To confirm them I made the following experiment: A dog weighing $7\frac{1}{2}$ pounds without any preliminary bleeding was transfused from a dog weighing 15 pounds. The time of transfusion was five and a half minutes. At the completion of the transfusion, the abdomen of the recipient was rather prominent, the mucous membranes of the mouth were very red, and the dog had gained 18 ounces in weight. The donor was practically dead at the completion of the transfusion. Hence, this small dog contained all of his own blood and all the blood from a dog twice as big as himself. The recipient recovered from the anesthetic and was in excellent physical condition, in no way the worse for having received this large amount of blood.

After transfusion, fresh blood disappears from the stool at once, showing cessation of hemorrhage; tarry stools may continue from ten to forty hours after transfusion, being the old hemorrhage gradually expelled. One of my patients the second day after the transfusion had one stool which contained a few flecks of bright blood (Case 1).

In hemorrhage of the new-born the patients are not hemophiliacs; they are not bleeders in after-life at all. All sorts of operations have been performed on these babies from one week to several months after the bleeding has ceased, and there has been no extraordinary hemorrhage. These children grow and become normal healthy persons. Rapidity of transfusion should be considered carefully; if the blood is allowed to enter the vascular system of the baby too rapidly, there will be a temporary dilatation of the heart and the baby will become blue about the face and on the feet and hands. When this occurs, the blood flow should be stopped until the red color returns. Patient 5 had a double femoral vein, an anatomical anomaly that complicated the operation considerably. The smallest baby was Patient 8, weighing 4 pounds. In Case 1 the heart could not be heard for about five minutes before blood was transfused. The heart was heard a few seconds after the flow was started, and in a few seconds more the heart-beat was visible.

The father was the donor in ten cases, the mother's half-sister in one and a non-relative in three.

The blood-vessels used were the radial artery in seven cases and a forearm vein in seven cases on the donor; on the baby the femoral vein was used in four instances and the jugular in ten.

The duration of the transfusion varied from five to fifteen minutes. In the case that took fifteen minutes, Case 11, the father fainted, reducing his blood-pressure so low that it took longer to fill the baby with blood.

Table 2 shows the cases that have been reported in the literature. In their essentials they are all exactly like my own cases, details of which are given in Table 1.

TABLE 2.—CASES FROM THE LITERATURE

| Reporter | No. Cases |
|-----------------------------------|-----------|
| Presi, New York | 9 |
| Wincent, Boston | 7 |
| Booley and Vaughan, Detroit | 1 |
| Bernheim, Baltimore | 1 |
| Murphy, Boston | 1 |
| Berg, New York | 1* |
| J. Hubbard, Boston | 1 |
| Alexis Carrel, New York | 2 |
| D. Lespinasse, Chicago | 14† |
| Total | 37 |

* Syphilitic and died.

† Two syphilitic patients; both patients died.
Three deaths and thirty-four recoveries.

CONCLUSION

Direct transfusion of blood stops the bleeding, restores the lost blood and aids in overcoming infection. Direct transfusion of blood has cured where all other methods have failed. Transfusion should be used early, but so long as there is a spark of life evident, it is never too late to transfuse.

The experimental part of this work was done in the Laboratory of Experimental Surgery of Northwestern University Medical School.

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COMPOUND FRACTURES OF THE BONES OF THE EXTREMITIES *

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This paper may be better followed and understood if at the outset its matter is indicated in the following statements:

1. In civil practice a compound fracture is always not only a solution of the continuity of a bone, but also a lacerated wound of the soft tissues in continuity from the periosteum to, and including the skin.
2. Violence necessary to produce a compound fracture of the bone of an extremity must be very great; hence the traumatism is extensive. Commonly the bone is comminuted and the laceration of the soft tissues very severe.

3. Compound fractures are practically always infected wounds.

4. The management of these injuries must include the treatment of a fractured bone and the treatment of a more or less extensive infected lacerated wound of the soft tissues of the same area.

An examination of 2,089 fractures admitted into St. Luke's Hospital shows that 800 of these fractures

were compound. In regions where large manufacturing establishments are located, and also where railroads are many and active, the relative frequency of compound fractures to all fractures is therefore 1:2.6, or 38 per cent. of the fractures.

The management of compound fractures of the extremities must resolve itself into two general considerations, namely, (1) the treatment of the general condition of the patient brought about by the injury; (2) the treatment of the injury itself.

A patient's reaction to these severe traumatisms depends on many individual peculiarities, on his environment and on the circumstances of the injury. Individual resistances to psychic shock, to "anoci-association," to loss of blood, must all enter into consideration. The horrors of a severe railroad or factory wreck and the conditions of the locale of the accident have also their effect. In short, a compound fracture, as every other disease or injury does, varies in every case, and should be treated as individual. The treatment must be adapted to the circumstances of each case, not the case adapted to any set method of procedure. This I consider a most important matter and I try to emphasize it on all occasions.

FIRST AID

The intelligence and skill of a practitioner in many instances, will be taxed to the utmost to meet the necessities of first-aid treatment of compound fractures. One cannot too much emphasize the importance of the proper initial treatment of these injuries. As I have said so often, the fate of the limb and perhaps the life of the patient depend on the manner of the first aid.

First, the general condition of the patient must be gauged as accurately and rapidly as possible. Stimulants may be necessary and should be used (alcohol is not a stimulant and should not be given). An analgesic should be given; as a rule, morphin, in full dose, combined with a small dose of atropin and given hypodermatically, I think, is the best. The control of hemorrhage should be sedulously sought. If practicable to avoid it, a tourniquet of any kind should not be used to control hemorrhage in these cases. If nothing else avails and a tourniquet must be used it ought to be applied some distance away from the seat of fracture. In cases of compound fractures of the bones of the legs, for instance, the tourniquet should be applied to the lower third of the thigh, or if of the bones of the forearm, to the lower third of the arm. An elastic constrictor is best and much safer.

Hemorrhage may as a rule be controlled and at the same time another indication, namely, protecting the wound, may be carried out, by packing the open wound with sterile gauze or any sterile fabric, placing thick compresses of sterile cotton wool or any other clean material over the wound and bandaging it firmly in place, from the extremity, over the wound, and to at least six inches above the fracture. Great care must be used to prevent any further soiling of the wound. No effort should be made to "set the bones," and in no case should a projecting end or fragment of bone be allowed to recede under the skin, unless means are at hand of making adjustment and proper fixation of the bones and limb, and unless the projecting bone and the edges of the external wound have been carefully cleansed and disinfected beforehand. Death has often resulted from the infection

* Read by invitation before the New York State Medical Society.

occasioned by unnecessary manipulation of a wound without previous sterilization of the hands. Never should a finger be thrust into any wound unless the finger and the wound have been previously cleansed and sterilized.

Careful fixation "in the position assumed by the injured limb" should be employed, unless it is clear that the ends of the fragments are where they will surely do more damage unless their position is changed. The patient should then be transported where he may receive proper permanent dressing and such treatment as his case will require.

The surgeon should try to determine at the very beginning of his responsible management of every case of compound fracture, the following points:

I. What will be the best treatment of this particular injury, considering: (1) the individuality and the physical condition of the patient; (2) the environment of the patient; (3) the actual condition of the injured member.

II. What method of treatment or operation will most likely result in the shortest time of disability of the patient and give him afterward the best functional result?

PERMANENT TREATMENT: I. SPECIAL CONSIDERATIONS

1. *Individuality of the Patient.*—Before everything else I would place the consideration of the patient himself. That is to say, I would learn, if possible, not only the actual physical condition of the patient with regard to the tolerance of the trauma, its effects and the extent and degree of the local injury, but also his habits, his temperamental peculiarities and his general health and resistance. Obviously, it would be highly improper to treat an exhausted patient, or a very old person, or a very young child, or a diseased and weak individual, as one would treat a vigorous adult in prime condition.

Thus, after assuring himself that hemorrhage has been thoroughly controlled and that the patient's suffering has been relieved as far as practicable, the surgeon should at once make a thorough physical examination of the patient. He should carefully note all organic lesions, indications of dyscrasias, improper or delayed development, or signs of marked senility. The blood-pressure should always be taken. The immediate subsequent procedures should be determined by this physical examination.

If the patient is in a condition of exhaustion from psychic shock, loss of blood, or "anoci-association," or if his blood-pressure is very low, all extensive and tedious manipulations and operations must be delayed. If he is very old, a long operation with continued anesthesia will be dangerous. Also any method of treatment which will require long confinement to bed should be avoided. Bone repair in most dyscrasic individuals is very slow and always uncertain. Methods must be varied and adapted to meet the indications of the patient's condition.

2. *Environment of the Patient.*—The surroundings of the patient will have a very important bearing on the treatment to be employed. When at all practicable, a serious compound-fracture case should be treated in a first-class hospital. It is as a rule far better for the patient to endure the hardship of a one- or two-hour journey in order to reach a hospital than to be subjected to the discomforts and deprivations he would have if he were treated at his home, unless he were

very rich. A surgeon is sadly handicapped in trying to treat such cases outside of a well-equipped hospital.

3. *The Actual Condition of the Injured Member.*—As was said in the beginning, a compound fracture is always a complicated injury of very grave severity and is practically always an infected wound. One must always bear this last fact in mind and treat the case with a full recognition of the importance of thorough cleansing and disinfection of the wound, and especially of thorough drainage.

General anesthesia is usually necessary for the proper examination, handling and dressing of a compound fracture of one of the principal long bones. This is particularly desirable, not so much for the relaxing effect, as to obviate the dreadful pain of the examination and fixation. Compound fractures when not comminuted are much easier to reduce and fix in place than simple fractures.

There is one point in regard to cleansing and disinfecting the injured parts I wish to note, that is, the great value of tincture of iodine for its rapid and very efficient action in disinfecting soiled skin and wounds. One must remember that iodine is of little use over skin which is moist and sodden. In such condition it will not penetrate but will blister. The surface of the skin to which iodine is applied for disinfecting purposes should be dry. Therefore cleanse the skin of the limb about the wound with benzine, ether or turpentine, and alcohol, then dry carefully and paint it with the tincture of iodine.

Every compound-fracture case will require some operative procedure. In rare instances measures for proper drainage only will be necessary; but in most instances much more will be required.

One must decide at the time of the first permanent dressing:

1. Can the limb be saved?
2. If saved, will the limb be left in a condition for practical use?
3. Will it be best for this patient to run the possible risk of his life, endure a period of long disability, have probably a permanently disabled limb, or will it be best to amputate and thus practically assure his life and shorten the time of his disability by at least one quarter?

1. *Conditions Determining Amputation rather than Attempts at Conservation.*—A. If the skin has been so crushed or lacerated that it is evident that at least three-quarters of the periphery over the fracture will slough, and the muscles beneath are badly lacerated or comminuted, amputation will be inevitable.

B. If there has been a circular or annular destructive pressure on the whole periphery of the limb, at the site of fracture or very near it, amputation will be necessary.

C. If in a case of compound fracture with a serious annular laceration of the skin the subjacent muscles are badly comminuted, it will be best to amputate.

D. If the injury has been produced by tremendous pressure, as of a car-wheel or heavy pillars of iron or steel, the limb may have the skin of its whole periphery, or nearly all of it killed but not divided, but the muscles beneath will be torn across and the bone comminuted. Such injuries require amputation.

E. If the main blood-vessels are torn across in the irregularly jagged way common in these injuries, amputation will be necessary. I do not think anastomoses or transplants of blood-vessels will succeed.

in this class of injuries. The laceration of one of the chief vessels when there are two in an extremity does not necessitate amputation. The large nerve trunks will stand much more injury than blood-vessels and may successfully be sutured, unless a long segment of the nerve be destroyed.

F. If the bone or bones are comminuted so that the fragments are loose and deprived of periosteum, requiring the loss of as much as 6 cm. (3 inches) of the shaft, this, together with the lacerations of muscles and skin always present in such cases, will require amputation.

2. *Probable Final Condition of the Limb.*—This is a very important matter and might profitably be considered with the third condition, namely, the best thing for the individual patient. Undoubtedly limbs might be saved which would be quite useless and sometimes positively in the way afterward. Again, for some persons even a useless limb might be considered best if it could be left in a painless condition. A man who has to earn his living by activity and manual labor would be placed in a different category from a man whose livelihood depends on sedentary work requiring very little or no activity. Also for some persons the long confinement and disability resulting from the treatment of a serious compound fracture might be so burdensome and indeed disastrous that they might prefer an amputation, and this would be best.

With regard to the danger to life there is no question that conservation is much more hazardous. Analysis shows that in 8.8 per cent. of the cases of compound fractures treated conservatively, the patients died. The average mortality after single major amputation is but 4.54 per cent. The average disability from compound fractures of the femur and both bones of the leg is thirteen months. That of amputation is not quite five months. Of course, this means that the patient may get about, and through the use of an artificial limb may return to a life of comparative activity and much usefulness, though rarely will he be able to return to his former occupation, if it were a laborious one.

Having decided to attempt conservative treatment of the extremity, the first consideration should be to cleanse the wound and surrounding skin. Disinfection (sterilization) of skin and wound should be done thoroughly, especially the ends of the fragments if one or more has penetrated through the skin. Some extension apparatus, such as the Lemon or Lambotte extension bar, is very useful in these cases. Reduction is usually not difficult, on account of the facts that one may see or directly feel the ends of the fragments and guide them by forceps or some kind of lever, and that the muscles are usually so badly lacerated that they do not offer the resistance which is nearly always present in cases of simple fractures. The fingers should be kept out of the wound as much as possible. I think there can be no doubt that infection is most apt to occur from finger manipulation in the wounds. By a little practice and experience one will learn to perform all the necessary manipulations with the aid of instruments.

Frequently the wound made by the injury, by a little extension or direction, may be used as a way of approach to the bone. The muscles usually are so much lacerated that an incision of the skin and fascia is necessary. In short, the injury has frequently prepared a way to the bone and if any further incision

is necessary it may be so made as to assist in another cardinal object, namely, drainage. One objection to the open method of treating fractures of the long bones of the extremities, that is, the necessary wound, has in compound fractures been removed by the traumatic opening of the tissues.

Direct fixation of the fragments is nearly always best. "A rigid splint or plate applied directly to the bone is better than wiring the fragments. In selected cases a nail or nails may be used. I cannot understand the objections and warnings of some otherwise very up-to-date and experienced surgeons against the use of plates in compound fracture cases. My experience and conviction have always been that these are the very cases which demand plates. No valid objection can be offered to sterile fixation instruments unless they in some way harm the fragments. If a proper plate is used in the proper manner it does not injure the bone.

Even if the wound cannot be thoroughly sterilized (and it is exceedingly difficult to do this), suppuration and the evils of infection are diminished locally by a proper metallic plate. Researches at Johns Hopkins Hospital over twenty years ago proved the inhibiting influence of many metals on bacterial growth. Iron and steel are not thus active, as they oxidize too readily, but silver, copper and nickel and their alloys are active inhibitors.

Since 1886 I have used a plate made of Wessel silver, and I have used Wessel silver pegs for many years to fasten this plate to the fragments. I am sure this plate has always seemed to exercise a beneficent effect in compound fractures even with active suppuration present. Besides, fixation relieves pain and further injury which might be caused by the excursions of the ends of the unfixed fragments. After fixing the ends of the fragments one must decide about suturing the lacerated soft tissues. As was said before, blood-vessels are injured in such a way in compound fractures that not only are long stretches absolutely destroyed, but the vasa vasorum are thrombosed for some distance on either side of the evidently destroyed area. The vessel-walls will not bear tension or constriction. I think, therefore, that vascular anastomoses and implantations cannot be used. This is all the more true because these cases are always infected more or less, and vascular anastomoses do not succeed except in sterile fields. Arteries and large veins, therefore, should be ligated and not sutured. Divided nerve-trunks may be successfully sutured in these cases and this should be done when necessary. Tendons and muscles may also be sutured, but not when they would seriously impede or block proper drainage. The lacerated fascia and skin should be pared along the margin of the original wound and then be closed with interrupted sutures, sufficiently close to prevent gaping of the wound, but not so as to interfere with free drainage.

Drainage is all important. There will have been very considerable hemorrhage. In very painful lacerated wounds the muscular coats of the local arteries are usually in a condition of almost tetanic spasm. Relief of the pain and complete rest of the limb will be followed by relaxation of the arteries; the result will be that small vessels not perceived during the operation will bleed after the wound is closed. Considerable oozing will always occur. In addition to the oozing blood the opened lymph-spaces will pour out

quantities of serum. All this fluid should be released and drained out of the wound. Unless this is done, disaster will almost surely occur. The reasons for this are so well known it is not necessary to go further into this.

A very important point with regard to drainage is that it should always be done in such a way and the drains so placed as to avoid all tension and harmful pressure in the wound. This is particularly important when the skin has been torn from the fascia and turned back as a flap, or raised up by a large effusion of blood. Most of the blood-supply has been cut off from the skin in such cases, and any pressure or much tension on the skin will cause a slough. Multiple incisions should be made through the skin and drainage by canalization (without the use of any drain material) should be employed. The incision should be so placed as to assist in relieving tension.

Thus, the bone having been fixed, the lacerated soft tissues sutured, the wound closed and proper drainage provided, a masse dressing of dry, sterile, absorbent material should be applied with fairly firm pressure, and over all a gypsum splint with strips of flexible wood or light metallic strips worked into it, should be molded, and so placed as to give support and some elasticity to the dressing. If all goes well the dressing may remain on for three weeks, then be changed and a similar one applied. Usually all drainage-tubes and gauze packs may be removed and left out at this first dressing. Also it is my custom at this dressing to remove the pegs which hold the plate, unless it be a fracture of the femur. If the wound has not closed over it the plate may also be removed. If the plate is well enclosed and buried by union of the flaps no effort should be made to remove it. As was said before, the plate does not cause any irritation if allowed to remain; on the contrary it seems to inhibit bacterial growth and hastens union of the wound.

PERMANENT TREATMENT: II. AS TO RESULTS

What method of treatment or operation will most likely result in the shortest disability of the patient and give him the best functional result? This determination is meant to apply only when conservative treatment is to be attempted. The indications for amputation have already been given. The question resolves itself therefore, practically, as it is intended to apply it in this instance, into: Will it be best to use direct fixation to the fragments, if so, what kind?

I have recently analyzed fifty-one cases of compound fractures treated in my clinic in St. Luke's Hospital. These cases are taken from the records of the last five years and represent the cases which could be traced and the final results definitely determined. They represent the following classes of compound fractures.

| | |
|-------------------------------|----------|
| Femur | 8 cases |
| Tibia and fibula..... | 15 cases |
| Tibia alone..... | 10 cases |
| Patella | 2 cases |
| Metatarsal bones..... | 2 cases |
| Humerus | 4 cases |
| Radius and ulna..... | 7 cases |
| Radius alone..... | 1 case |
| Ulna alone..... | 1 case |
| Humerus, radius and ulna..... | 1 case |

Total 51

Direct fixation of the fragments was made in 35 cases, of which 28 were plated and 7 were wired. In

13 cases external fixation only was used; 3 patients were moribund when admitted and died within a few hours after admission. (No special treatment and not enumerated further.)

The cases in which plating was done were the following:

| | |
|-----------------------|----------|
| Femur | 7 cases |
| Tibia and fibula..... | 12 cases |
| Tibia | 5 cases |
| Humerus | 4 cases |
| Total | 28 |

The cases in which wiring was done were the following:

| | |
|-------------------------------|---------|
| Tibia and fibula..... | 2 cases |
| Radius and ulna..... | 3 cases |
| Humerus, radius and ulna..... | 1 case |
| Patella | 1 case |
| Total | 7 |

The external fixation apparatus was practically the same in all the cases, namely, a reinforced gypsum splint carefully molded over a large masse dressing of sterile gauze and cotton wool. The average length in days of confinement in bed in the various injuries was

| | |
|--------------------|---------|
| Forearm cases..... | 6 days |
| Humerus cases..... | 11 days |
| Leg cases..... | 28 days |
| Femur cases..... | 38 days |

The average time in days spent in the hospital in the various injuries was:

| | |
|--------------------|---------|
| Forearm cases..... | 23 days |
| Humerus cases..... | 48 days |
| Leg cases..... | 53 days |
| Femur cases..... | 69 days |

The average length of time the patient was away from work, that is, until he returned to his occupation was six months in leg fractures and thirteen months in fractures of the femur. For fractures of the upper extremity the time of disability has not yet been thoroughly worked out, but it appears to be about four months. All except three of the patients who had direct fixation were operated on within forty-eight hours. Two cases of compound fracture of both bones of the leg were plated on the fifteenth and eighteenth day after injury respectively, because the fragments could not be kept in place. The case of compound fracture of the humerus and both bones of the forearm was wired on the tenth day after injury, also because by other means the fragments could not be kept in apposition.

Though compound fractures should always be regarded as infected wounds, it is noteworthy that in only two of these cases that suppuration occurred in only two of those which were fixed by direct application to the bones. One patient with compound fracture of the femur, plated, had a streptococcic infection, but made a good recovery; one patient with compound fracture of the humerus, radius and ulna wired, had suppuration from a mixed infection, but also made a good recovery. Not one of the patients in the direct fixation cases died.

RESULTS

In the forty-eight cases treated, there were two deaths, both from septicemia. In one case of compound comminuted fracture of the femur with very extensive injuries to the soft tissues, amputation

should have been done, but the patient refused amputation and died on the fourth day from acute sepsis. The other case was one of prolonged septicemia from a mixed infection in a man who had a compound fracture of both bones of the leg, for which no direct fixation was done. The mortality was 4.16 per cent.

One patient with compound comminuted fracture of the bones of the leg with dislocation of the ankle-joint had a mixed infection; destruction of the joint and tarsus followed and an amputation became necessary. All but one of the forty-six patients who left the hospital had useful limbs, that is, the one previously noted on whom amputation was done. Of these patients, 40.32 per cent. have returned to their former work and report that they notice no disability.

Roentgenograms which were taken show the conditions of the bones during and after recovery. Roentgenograms in cases of compound fractures are taken (1) after the first permanent dressing; (2) after the fixation plates have been removed; (3) when the union seems complete; (4) after the patient has returned to his occupation.

The number of cases is too small for any set conclusion with regard to the treatment of compound fractures, but certainly in this small series direct fixation has produced much quicker recoveries and far better results than the former conservative methods. It will be noted that not one of the thirty-five patients in whom direct fixation was applied to the fragments died. They all made good recoveries. In the smaller number of cases (thirteen) in which the fragments were not fixed by direct splints on the bones (three hopeless cases are not considered in this reckoning), two patients died of sepsis.

Roentgenograms show that fragments which have been plated together remain in better adjustment than those which have been wired, and the anatomic results are better, except in cases of fracture of the patella. There is less pain after the use of plates than when wire is used, and union results more quickly. It seems, therefore, that compound fractures of the long bones are best treated by rigid splints applied directly to the bones. I believe that the Lane plates are not the best for these cases, however. Experience of other surgeons has shown that in cases of compound fractures the Lane plate must nearly always be removed. Usually it is difficult to get at the screws and then it becomes necessary to use a general anesthetic and to make a considerable additional wound in order to remove this plate; whereas a plate fastened by pegs which project through the skin may be released simply by withdrawing the pegs, and if it is necessary to remove the plate this may be done simply by utilizing one or two of the punctures remaining after the peg has been removed, which requires no anesthesia.

A further consideration is the time of disability. My cases show that the average time of disability for compound fractures below the knee was six months and for those above the knee, namely, fractures of the femur, thirteen months. The use of plates thus shortens the time of disability in leg cases by about four months and of the thigh cases, five months. Of the patients, 40.32 per cent. are known to have been able to resume their former occupations. No doubt a number of others were likewise able to do this, but I could find only this number after a year or more from the time their treatment was ended.

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THE ROUTINE TREATMENT OF PUERPERAL SEPSIS

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It is obvious that not every case of fever in the puerperium is of septic origin. Engorgement of the breasts, constipation, nervous perturbation, malaria, syphilis, typhoid and other adynamic fevers are some of the many causes of fever entirely separate and distinct from sepsis due to bacterial invasion. It must also be remembered that there are two distinct varieties of sepsis: sapremia due to saprophytic infection and putrefaction of pieces of placenta, membranes, decidua or blood-clot in the uterine cavity, and septicemia due to actual bacterial invasion, most often streptococcic, of the endometrium and adjacent structures, frequently invading directly the blood-current and by far the most dangerous variety.

Sapremia answers promptly to a single evacuation of the uterus and disinfection of the genital canal, with possibly a few supplementary daily intra-uterine douches. Septicemia means a long, hard fight, not infrequently a losing one, against many complications.

It is not my purpose to discuss the various means by which bacteria can be introduced into the genital canal of a parturient patient, except in one particular. One of the causes spoken of is auto-infection, in which the germs are already present, and no one, except the patient herself, is responsible. This is a comforting thought, but merely means that she is suffering from one infection (gonorrheal, for instance) which reduces her resisting power to a supplementary infection by any pathogenic micro-organisms which may be in the lochia, and is really not auto-infection at all.

DIAGNOSIS

The diagnosis of sapremia is easy. There is a moderate fever, considerable subinvolution of the uterus and a foul brown or brownish-red discharge. A single evacuation and disinfection of the uterine cavity is usually sufficient.

The diagnosis of septicemia is not so easy, in its early stages. The general symptoms are chills, rapidly rising temperature, rising pulse-rate and a physical depression often out of all proportion to the other symptoms.

The local symptoms, on which the diagnosis usually rests, are a foul discharge (though this symptom may be entirely absent), reddened and edematous labia, a false membrane formation and a subinvolved, boggy, tender uterus. Pelvic exudate is not often an early symptom, though common enough in the later stages. In doubtful cases, certain methods of precision may be employed as aids in diagnosis. Leukocyte-counts will usually be higher than in any other form of fever in the puerperium, but in some of the worst cases a low count, showing poor resistance, will be obtained. Cultures taken from the uterine cavity, by the Doederlein tube, or cultures directly from the blood-current, are often valuable aids, but unless they are taken with the strictest aseptic technic, and submitted to a competent bacteriologist with adequate facilities for their culture and diagnosis, they become the reverse of precise.

PREVENTION

The preventive treatment of sepsis may be summed up in two words: surgical cleanliness. The nearer an obstetric case is handled like a major surgical one, the less will be the danger of infection.

The patient's room should be sunny and well ventilated. The patient herself should take a bath at the onset of labor and empty the lower bowel by an enema, and the pubic hair should be shaved or at least clipped close. The bed should be made fresh and adequately protected by pads (preferably of nursery cloth, which can be boiled and dried). The water should be boiled for half an hour at least, and trust should not be placed in antiseptic solutions. Instruments should be boiled, or if injured by boiling, soaked for at least an hour in 1:1,000 mercuric chlorid or 1:20 phenol (carbolic acid) solution, being previously wrapped in gauze or a towel. Bougies, for instance, unless wrapped, will float on the surface.

The sterilization of sheets, gauze, towels and cotton is often a matter of some difficulty. If access to a hospital sterilizer can be had, steam under pressure in an autoclave is the most efficient. A Rochester portable steam sterilizer is quite satisfactory, however, but the time-honored custom of baking in the kitchen stove is a delusion and a snare. Unless the materials are so charred as practically to disintegrate, they are not sterile, and when so charred they are of course useless. The gauze and cotton commercially prepared in glass jars have always proved satisfactory. That in cardboard cartons is open to suspicion. For sheets and towels a safe method of procedure is to have them freshly washed and then ironed with an iron not quite hot enough to scorch them.

The physician should scrub his hands just as carefully as if about to operate, and in addition should wear a sterile suit, or at least a gown, and boiled rubber gloves. It has been proved many times that parturient patients are more subject to infection by the exanthems than at other times, so the care of these patients and obstetric ones do not go together.

The nurse is governed by the same general rules as the physician, being scrupulously clean in the handling of the patient and her pads, etc. The so-called practical nurse on whom we must so often depend is a problem. Her intentions are of the best, but her execution is bad. If one can be found who does not have an ineradicable desire to test the temperature of water by wiggling her fingers in it; who does not keep the patient's pads in an open pasteboard box under the bed, or who is without a habit of impressing into service as a pad every piece of cloth she can find, before it is thrown away as useless, that one is the exception and as such a jewel beyond price.

TREATMENT

The first step in the curative treatment of septicemia is the local disinfection of the genital canal, commonly but erroneously spoken of as curettage—an operation more abused than any single one in obstetrics. It is indicated in nearly every case, and properly done, is productive of much good—improperly done, it may be homicidal.

The patient is placed on a table (an ordinary kitchen-table answers the purpose very well) and not in her bed, as remaining in bed adds greatly to the difficulty. An anesthetic is not necessary. The vulva and vagina are carefully cleansed with cotton and

tincture of green soap and sterile water, followed by a douchè of 1:4,000 mercuric chlorid solution.

The anterior lip of the cervix is caught by a double tenaculum and pulled down. This straightens the axis of the uterus, makes access to its cavity easier and lessens the danger of perforation of the posterior wall. The uterine cavity is then irrigated through a two-way catheter, and an Emmett curettement forceps is inserted and any masses of tissue contained in the cavity or hanging like stalactites from its walls are removed. The instrument usually sold under the name of placental forceps makes a first-class club, but as a surgical instrument it has its limitations. It is much too long, heavy and clumsy. If any curetting at all is done, a dull, broad-bladed curet should be used, and not a sharp one, and under no circumstances should any force be used. The so-called placental augers are outrageous instruments and should never be used. In the vast majority of cases complete evacuation can be secured by the placental forceps alone, and any curetting is unnecessary. The proper type of placental forceps is much more effective than the finger, and should be used in preference. When the operator is satisfied that the cavity is empty, a second intra-uterine douche is given, and the uterine cavity is not packed unless there is bleeding sufficient to warrant it.

Should the temperature not subside, or having subsided rise again, there is no need or justification for a second evacuation or, to use the abused term, curettagé of the uterine cavity. Intra-uterine douching alone is advisable, and the best solution for this douche is one of tincture of iodine 2 drams, 95 per cent. alcohol 8 ounces, and sterile water sufficient to make two quarts. This douche given once daily is sufficient. Nothing is gained by douching more frequently. It is needless to add that the two-way catheter should have ample provision for return flow, to prevent any fluid passing out through the fallopian tubes.

To the form of treatment just described there is only one contra-indication—phlebitis; but as it is impossible to know in the early stages that the pelvic veins are infected and to be sure that the uterine cavity is empty, the lesser of two risks is taken by proceeding with the disinfection. Should, however, a sharp rise of temperature follow the disinfection, no further local treatment, even an intra-uterine douche should be countenanced.

The routine use of vaginal or uterine douches, in the absence of symptoms justifying their use, and purely as a preventive of infection, is not to be recommended. The douches destroy Doederlein's bacilli normally resident in the vagina, and by thus preventing the action of the acid vaginal secretion, remove one of the dependable barriers to infection.

In the general treatment the diet is of great importance. An easily digested, largely liquid diet should be given in quantities as great as the patient can assimilate. Alcohol should be given to the point of tolerance, from 8 to 10 ounces of whisky a day being an unusual dose.

Stimulants are often required, as indicated by feeble heart-action. A patient with a pulse of under 100 does not ordinarily require stimulation. If it passes this limit, digitalin and strychnin are the most reliable drugs to be used. Artificial leukocytosis, theoretically beneficial, can be produced in one of several ways, by hypodermic injection of 2 drams of 2 per cent

watery nuclein solution twice daily, or the formation of a fixation abscess.

The latter recommendation is based on the fact that if a general infection becomes localized, improvement frequently results. Two drams of turpentine injected under the skin of the abdominal wall will produce an abscess which is all that can be desired. What success this treatment has had is probably due to an increase of leukocytes, but my results with it have not made me enthusiastic as to its advantages over less painful methods.

Hypodermoclysis or enteroclysis, on the principle of increasing the body-fluids and washing the blood, are worth a trial but not too much to be depended on. Enteroclysis seems to give as good results as hypodermoclysis, and is much more convenient. Two quarts of salt or sugar (1 dram to the pint) solution are given at a time.

The use of serums and bacterins is at present the subject of as much discussion as any single point in the treatment of sepsis. When the serum was first marketed it was hailed as a specific cure; too much was expected of it and naturally the results were disappointing. This much we have found as to its availability: When it is given early and in sufficient doses, beneficial and sometimes brilliant results can be expected. When it is given late, the results are disappointing. The minimum dose is 80 c.c., given hypodermically every six hours; 100 c.c. is better, but the small doses of 10 or 20 c.c. are waste of time and material. The serum must be fresh, and it will not stand transportation for great distances. It is an expensive form of treatment, because of the large doses required. In desperate cases it can be given intravenously, and by this method I have secured immediate improvement in a case when the hypodermic method of administration for forty-eight hours had produced no effect whatever. I have not seen anaphylaxis from these large doses, or any other untoward effects. Occasionally patients seem benefited by the injection, in addition to the antistreptococcic serum, of from 5 to 7 ounces of normal human blood-serum, secured from a healthy donor, once daily. This is worth trying when the results from the antistreptococcic serum have not been satisfactory. Much of the criticism against the use of serum has been based on insufficient dosage and late administration, either or both. When it is given in doses of from 20 to 400 c.c. in twenty-four hours, it is a valuable aid in the treatment of sepsis, though it cannot be hailed as a cure for sepsis *per se*.

The use of bacterins has not been so satisfactory even as the serum. They are chiefly indicated in localized infections, and are nearly if not quite useless in the general blood-current infection. The best results have been obtained in gonorrheal arthritis complicating the puerperium. Here again large doses, from 50 to 500 million or more, must be used, and either autogenous or polyvalent cultures may be employed.

Colloidal silver has been largely used abroad, but is of doubtful utility. It can be used as an inunction of from 5 to 10 per cent. argyrol ointment, or the intravenous injection of from 3 to 5 c.c. of a 2 per cent. collargol solution, repeated at twenty-four-hour intervals for three or four doses. The inunctions, though they may not prove beneficial, are at least harmless; the same cannot be said for the intravenous injections,

as alarming collapse has followed their use. There is still a great deal of doubt as to the favorable action of either plan.

There is no purpose in this paper of discussing the surgical treatment or the complications of puerperal sepsis, with one exception (phlegmasia alba dolens), as this falls more in the line of specialism and hospital treatment. Every physician should, however, be familiar with the indications requiring abdominal section, in a case of sepsis. Briefly stated, continued septic symptoms, plus the development of an abdominal mass, palpable above the symphysis or Poupart's ligament, demand surgical interference. Infiltration of the bases of the broad ligaments does not require abdominal section, as 90 per cent. of these cases undergo spontaneous resolution, and the rest can be opened, if needed, through Douglas' pouch. The explanation of this abdominal mass is found to be almost always a cornual abscess, pointing toward the peritoneum. I wish to emphasize the advisability of operation for these cases. I am aware that in many places surgical intervention is deprecated, as these cases are said to be hopeless. Without operation they are indeed doomed, as the abscess will rupture into the peritoneal cavity. With operation and proper drainage (which is the main factor in success), 90 per cent. of them can be saved. In the last ten years, at the Maternity of the University of Pennsylvania, the mortality in 165 of these operations was fifteen, or 9.6 per cent., and this in a class of cases that without operation are hopeless. Rapidity of operation, removal of only what is diseased, putting in only enough ligatures to stop the bleeding, leaving the broad ligaments gape, drainage by a glass tube in Douglas' pouch out through the lower end of the abdominal incision, with the pelvis packed full of gauze and the end of the gauze emerging alongside the glass tube, and active stimulation are the factors influencing success. The glass tube is sucked out every twenty-four hours and removed in five days; the gauze is slowly removed over the next five days, and the sinus then drained by a rubber tube. Vaginal drainage is useless in these cases and will reverse the mortality figures. The whole subject of the surgical treatment of puerperal sepsis is a most complicated one and it is not my purpose to touch on it further in this paper.

The commonest complication which the general practitioner meets is phlegmasia alba dolens, or milk-leg, and because of its relative frequency deserves some discussion. It begins late, from ten to thirty days post partum, with pain in the calf, usually the left, and some swelling. A moderate fever lasts for a short time, and the swelling extends until the whole lower leg and not infrequently the thigh are greatly increased in size. The vein can often be felt as a tender cord down the inner surface of the thigh.

Treatment consists in elevation, applications of equal parts of lead-water and alcohol, painting ichthyol over the course of the vein, or application of a saturated solution of magnesium sulphate, and the patient must be kept as quiet as possible, in bed, until the temperature has been uninterruptedly normal for at least ten days. The greatest danger is pulmonary embolism, and prognosis must therefore be guarded. The danger of embolism is greatly increased by too early activity or by massage, which should never be used. Often considerable stimulation is required, as the disease is depressing and asthenic in tendency.

A much rarer form is cellulitis of the thigh, which tends to suppuration of the connective tissue, and is treated like cellulitis in any other part of the body.

Abscesses in the phlebitic variety are not unknown, occurring most often in the popliteal space, but it is the tendency to embolism that must make our prognosis guarded, and make us forbid the patient to leave her bed until the fever and local tenderness have entirely subsided, and limit her activities, when up, until the swelling has practically disappeared.

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THE PSYCHANALYST AND THE COMMUNITY *

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In the midst of the current discussion of psychoanalysis, many aspects of the psychoanalytic trend have been brought into view. The aspect, however, which to me seems by far the most vital but which has as yet received the least consideration is the relation of psychoanalysis, and therefore of the psychoanalyst, to the community.

There still persists, not alone in the lay, but also, unfortunately, in the medical mind, a wide-spread misapprehension in regard to the larger social and ethical implications of psychoanalysis. It cannot be said that this misapprehension is due altogether to the mistaken interpretation of the dissenters; to a large extent it is due to the tendency of certain of the accepted adherents of the Freudian school of psychology. But wherever the blame should be placed for this misconception of the position of psychoanalysis in relation to the ethical values of the community, it seems to me that it should now be the privilege, if not the obligation, of the psychoanalyst to make clear the significance of his position to the body social, and to state in no disputable terms on what grounds he bases it.

The sphere of the psychoanalyst is restricted for the most part to the study and relief of disorders embraced under the unhappy designation of functional nervous diseases or psychic disorders. It is, of course, justly acknowledged that the psychic equation of a patient enters more or less within the reckoning of every physician. Certainly it pertains conspicuously to the province of the specialist in nervous diseases—the neurologist, the medical psychologist. What is of momentous significance, however, in a comparison between the positions of these general trends of psychotherapy and the specific trend of Freud, is the wide difference in their fundamental method of procedure as determined by the essential disparity of the basic conceptions underlying these differing schools.

Of the numerous measures which human ingenuity has devised for successfully coping with nervous disorders, the aim hitherto of all of them has been essentially a remedial aim, that is to say the removal of discomfort. Relief, alleviation, cure is the exclusive idea. The underlying purpose of the conventional therapeutic regimen is conciliation, concession, propitiation. Thus, of the general schools of psychotherapy, the central idea is ease, palliation, support. The con-

dition being one of discomfort, it must be replaced by one of comfort; and as the primary remedial object is easement, this must be sought with a view to the minimum incommmodity to the patient. Hence conspicuous features of the more popular psychotherapeutic equipment are a quiet and remote domicile, conditions of isolation, rest in bed, attendant nurses, soporifics, and incidentally an occasional visit from the physician whose chief resources consist of a persuasive optimism combined with a gentle sympathy and a tactful evasion of aught that might in the least savor of unpleasantness to the patient.

I do not wish to disparage such a method. It possesses an undoubted therapeutic value. But whatever its remedial virtue, the fact is not to be blinked that in the main, the method is designed with a view to the delectation of the patient. It is largely a program of concession. It is parleying and indirect. It temporizes and conforms, is diplomatic, cautious. It is a program that is encumbered with considerations of etiquette, rather than a direct and untrammelled scientific approach to the understanding and adjustment of the disorders at which it aims. The physician makes no real demand on the patient, but on the contrary directs all his ingenuity toward making him comfortable; thus the aid which a patient receives through such a mode of treatment is to a large extent rendered to him on his own terms.

The position of the psychoanalyst demands a directly contrary course of procedure. Here the situation admits of no compromise, no evasion, no attitude of indulgence. The policy of the psychoanalyst is a robust one, and he outlines it without mitigation or cavil. Simply and directly, however considerately, he explains to the patient the psychologic meaning of his disorder in accordance with the psychoanalytic interpretation and informs him of the bearing of faulty mental habits and adaptations on the causation of nervous processes. The physician explains the essential disharmony at the root of these disorders; the irreconcilability of contending mental and emotional influences within the personality, pointing out the inherent conflict thus embodied in neurotic disorders. He further explains that a true adjustment may be made only through an honest recognition of the vital unconscious trends with which his personality is now blind and inadequately contending. At the same time he frankly tells the patient that the process through which the requisite adjustment is to be made entails difficult discomfort and personal sacrifice on his part, and he does not disguise from the patient *his* responsibility in this effort of readjustment.

While not unsympathetic to the suffering of his patient, the psychoanalyst makes clear that his is not a maudlin or sentimental sympathy, such as would surround the patient with the soft and ineffective ministrations of external attentions, but that his sympathy is virile and adult and allied to what there is within the man of courage and honest purpose. And so the psychoanalyst makes clear his position that for him "cure" means a thorough and unflinching acquaintance with one's innermost self, that cure is the attainment of an undistorted vision of life without regard to personal comfort or edification, and that the mind which is torn with inner doubt and discord is prepared to accept terms of peace with itself only when it has been brought to see things in their unembellished truth.

* Read before the fifth annual meeting of the American Psychopathological Association, Albany, N. Y., May 6, 1914.

Such is the position of the psychoanalyst, and from this position he does not stir.

Realizing then that the symptoms of the neurotic patient are but the social gossamers beneath which he seeks to hide his natural outline, the psychoanalyst proceeds to strip away these artificial draperies and address himself to the naked inner man. This is not an easy task. It is not easy by reason of its very nature. As the symptoms of the neurosis have been devised by an ingenious unconscious as a measure of defense against the bugbear of reality, the patient will seek no less ingeniously to maintain this defense against all encroachments.

So, from the outset, it is understood that patient and physician are entering earnestly and resolutely on an endeavor involving mutual responsibility and sacrifice.

When the psychoanalyst has at last divested the personality of its artificial mantle, and views the natural man; when we have stripped away the husks of pretense and have dared to look unafraid on the contour of the actual; what we find universally to be the purpose, the real motive of all this elaborate and painstaking mechanism of insincerity and disguise is an ancient and indigenous *egotism*. Egotism is the effort to see things as we would have them, rather than as they are. Egotism is therefore no respecter of truth. The *wish* is its sole criterion, for egotism is allied with the unconscious, with the primary, pleasure-principle, the original phase of psychic life with its immediate, hallucinated satisfactions.² It is egotism which leads us to choose what is pleasant in preference to what is true. It has been wisely said, "the truth hurts." It is so much easier to be beguiled with flattery and blandishments than to subject oneself to the searching light of self-criticism.

Thus it is egotism that lures men into the rosy path of irresponsibility. To follow it, however, is to take the path that leads finally beyond the bounds of organized society toward disintegration and madness, for *insanity is nothing else than the unmeasured sway within the personality of this disorganizing principle of egotism*. A recent writer, in a penetrating essay on Cervantes' classic portrayal of the mad Don Quixote, acutely discerns this underlying motive of the hero's sane delusions. "It is", the author says, "Don Quixote's irrational determination to believe as he wants to believe, rather than as the facts warrant," that is the cause of all his madness. "As Don Quixote more and more indulges his delusions and further departs from strict intellectual and moral integrity and truth, more and more he is alienated from his kind, more and more he is a lonely figure, less and less can any one help him. There is no longer any exchange of opinions between himself and others, only his own exaggerated opinions asserted dogmatically. He resents every dispute, every assertion which differs from his own, so that by and by his companions withdraw their converse."

It is this same egotism — this obstinate "determination to see the world *as it is not*, but only as he wishes to be" which is the besetting fallacy of the neurotic personality. We maintain, however, that while not so deep-seated and obdurate, the egotism of the

neurotic individual is somehow incompatible with something better within him. He seems imbued with a finer intellectual insight, a deeper sensitiveness to life's values. Some innate truth endows him with a higher moral criticism, so that instinctively he opposes a barrier to egotism's sensuous appeal, and so the insincerity and untruth into which his native egotism has decoyed him is to such a personality wholly intolerable, and he experiences the intensest mental suffering in consequence of the moral conflict which an enforced resort to such artificial protections has occasioned him. He can no longer find satisfaction in the popular appeasements of the body-social, but becomes more and more deeply introverted, withdrawn and inhibited, until at last his life has become so crippled and confined as to be no longer livable.

This description offers a rough character-interpretation of a frequent type of neurotic personality.³

It is the aim of the psychoanalyst to lead such a personality out of his prison of repression and ineffectiveness by means of a patient and honest study of himself. With consideration and respect the psychoanalyst traces one by one the causes which have led to his isolation and repression. He leads the patient to a gradual realization of the inherent egotism—the latent unconscious *wish*—that has lain back of his symbolic disguises. Thus the personality is led little by little to an ever-deepening renunciation of the immediate pleasure-satisfactions and to the gradual attainment of a correspondingly broad conscious adaptation.

Let it not be thought, however, that we can inculcate on the charge of egotism the neurotic alone. After all we are of one tissue. We have but to look about us at the so-called normal persons composing the community to see that life masquerades no less under the disguise of social make-believes than under the symbolic subterfuges of the neurotic individual. The difference is that the artifices of the social community, being collective, unite its members, so to speak, by a common language, while the neurotic isolates himself through the extravagance of his metaphors. For the usages which commonly pass current are unacceptable to him. He refuses to accept life on the terms of popular indorsement. Rejecting the criteria of the majority, he stands on a life-and-death principle, and from his self-immolating choice popular subscription cannot swerve him.

What is the difference here? What is it that thus differentiates the neurotic, in his gloominess and withdrawal, from the average good fellow with his cheery complacency? The difference is merely that the neurotic assumes a deeper disguise. His concealment is more subtle. The symbols to which he resorts possess an organic antiquity. They are esoteric, elemental. It is thus that he separates himself from his normal social congeners.

Observe, however, that the policy which leads to the neurotic's self-imposed ostracism differs only in degree from the policy of the community. For society is hysterical, too. Society too has its elaborate system of defense-mechanisms, its equivocations and metonymies, its infantile make-shifts and illusions. The difference is that society's counterfeits possess the advantage of universal currency, and so the record of its frailties is set down under the name of custom rather than of pathology. The psychoanalyst well knows

2. Freud, S.: Formulierungen über die zwei Prinzipien des psychischen Geschehens, Jahrb. f. psychoanalyt. u. psychopathol. Forschungen, 1, iii, 1. Burrow, Trigant: Conscious and Unconscious Mentation from the Psycho-Analytic Viewpoint, Psychol. Bull., 1912, ix, No. 4, 154.

3. Burrow, Trigant: Character and the Neuroses, Psychoanalytic Review, 1914, i, 121.

though that inherently the situation is the same here as with the neurotic individual. For in whatsoever way it is sought to soften the stern aspect of reality, whether through the artificial appeasements and irrationalities of the social polity, with its phantastic mythological beliefs and superstitions, or through the yet subtler assuagements of the neurotic personality with his vicarious conversions and distortions, back of it all and actuating it all is, as I have said, an inveterate and inherent egotism.

I have said that egotism is the more comforting course. If we would judge how much more comforting is the course of egotism, we need only reflect on the part it plays in the complex of activities which we call life. Consider for a moment to what extent the criteria by which we live are colored by egotism. Consider the part that egotism plays in our restless social, commercial and political activities. Consider to what extent the aspiration which we call religion is imbued with the egoistic hope of ultimate rewards and satisfactions.

And more tragic still, consider how often the activities we call scientific—that is, the supposedly sincere inquiry into truth—are actuated by an egotistic spirit of pride and self-assertion. Think how even here this organic and inveterate pleasure-principle asserts itself in human affairs to the detriment or undoing of honest purpose!

When we regard the deeper, more biologic aspects of human life—the interests and demands which arise from the sphere of the sex instincts and emotions—we find that here egotism is at its source, for it is one with the primary pleasure-affects in which the impulse of sex has its genesis.

Egotism is precisely the enemy of human progress against which the psychanalyst levels his aim. Under whatsoever sham egotism thinks itself most safely concealed, it is here that the psychanalyst directs his attack.

The task of the psychanalyst, therefore, is the readjustment of the neurotic patient through a process of self-elimination. It is his task to replace caprice with logic, emotion with reason, temporary satisfaction with permanent truth. The psychanalyst then takes his stand on adult characterologic ground. He recognizes that the abnegation of immediate selfhood is the highest attainment within the ethical nature of man, that the subversion of the primary, infantile pleasure-mode is the supreme renunciation.

We contend that since a great part of the beliefs and customs of the community have at heart the same underlying motive as actuates the symptoms of the neurotic patient with his organic evasions and substitutions, namely, an inherent egotism, the trend of the psychanalyst not only aids, in its reeducative influence, the individual, but also makes for a better and a healthier community. For the psychanalyst would utilize this force resident in the onward effort of mental evolution. He would direct to better uses this impulse of self-attainment which lies at the source of the manifestations which we call life, for with the attainment of consciousness the possibility is opened for converting this genetic life-force into a constructive and a purposive principle. With the gradual enlarging of consciousness it has become more and more adapted to social and ethical ends. Thus through the sublimating process of mental growth, egotism becomes diverted into self-devotion.

Life is wrought of aspiration; conduct is begotten of desire. Back of the restless energies of men lies this elemental instinct of attainment which constitutes the driving force of humanity itself—"humanity old, untruthful, deluded, wandering among a thousand cheats, clinging to outworn customs and beliefs, pretending to nobilities not its own, lending itself here, everywhere among a thousand falsehoods, to humanity with its ineffectual virtues, its imperfections; vision;" and yet for all its frailty and folly, for all its silly self-delusion and pitiful egotism, the deeper the psychanalyst applies himself to the study of human motives and to the interpretation of human life, the more clearly he discerns within this same humanity the deeper forces, making for order and continuity which lie at the heart of life's processes.

The psychanalyst, therefore, who rightly appraises his work cannot but be deeply sensible of the honesty and the dignity of his endeavor, and of its wide social usefulness, for his efforts are allied with the forward progress of the race.

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ANEURYSM OF THE SINUS OF VALSALVA

WITH REPORT OF TWO CASES

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Although a search through the literature does not seem to substantiate the fact that aneurysm in this situation is common, it undoubtedly impresses one that the lesion is sufficiently frequent for the clinician to keep in mind.

FREQUENCY

The frequency of this aneurysm is difficult to compute accurately. Among the "special features" pointed out by Osler¹ are the statements: "It is often late, causing sudden death by rupture into the pericardium. It is a medicolegal aneurysm met with in coronary cases." Possibly because of this a large percentage of cases do not get into the records.

Cattell and Steele,² in reporting a case of aneurysm of the sinus of Valsalva, state that it is a very rare pathologic lesion, their case being the first in 2,000 necropsies. In 3,108 necropsies Bosdorff reports to have found it. In the Middlesex Hospital Reports, containing protocols of 3,030 cases, there were two of aneurysm in this situation. Thus in 8,138 post-mortems only seven were found.

In 1840 Thurman collected twenty-two aneurysms affecting the aortic sinuses. In 1874 Durand reported twenty-two. Cattell and Steele, from whose monograph many of these data were obtained, collected twenty-one reports of cases up to 1898. I have found in the literature but seventeen cases between 1840 and 1903. It is impossible, too, to be sure whether or not some of them were not included by the authors mentioned above.

Sibbs collected 632 reports of cases of aneurysm of the arch, eighty-seven of which involved the sinus of Valsalva. This was quite the largest percentage of occurrences found and is not generally borne out by other observers. In 120 cases of aneurysm of

1. Osler: System of Medicine, Ed. 8, p. 851.

2. Cattell and Steele: Tr. Philadelphia Path. Soc., 1898.

arch reviewed by Cattell and Steele, only seven were found in this situation.

Recent literature on the subject is very meager. There is a record of but three cases between 1905 and 1912.

These data would tend to confirm the view of the infrequency of this lesion, but it is entirely possible that the record, although the best we have, is not a true index of its real occurrence.

The sinus most often affected seems to be the right anterior; this is explained by Gray by the fact that the regurgitation of the blood takes place chiefly against the anterior aspects of the vessel.

Sinusal aneurysm may terminate in one of several ways. It may rupture into the pericardium. It may rupture into one or more of the cavities of the heart, the vena cava or the pulmonary artery. Of the twenty reports of cases collected by me, in two the aneurysm perforated the right auricle, in one the left ventricle and pulmonary artery, in one the pericardium and in five the pulmonary artery.

It has been stated that rupture does not lead to immediately fatal results, but death occurs most often from fatty degeneration of the hypertrophied myocardium. The aneurysm not rarely causes a relative dilatation of the aortic ring and leads to death from cardiac failure.

ETIOLOGY

The lesion occurs according to most authorities in young adults; as Osler puts it, "most frequently among young syphilitics." Of my cases, in only eleven were ages stated; four were in the third decade, four in the fourth, one in the fifth and two in the sixth. The lesion predominates in the male. In only one case in the literature could I find a woman affected. This is rather striking in view of the fact that the two cases, the report of which follows, were in young women.

Krzywicki states that the causes of aneurysm of the Valsalvian sinus are atheroma, increased pressure affecting points of least resistance, and syphilis. Roubier and Bouget concur, but they are "certain that syphilitic aortitis presides in these ectasias." "Peacock thought that certain of these aneurysms were due to congenital malformations which observations by Devic and Savy seem to confirm."

The majority of observers, however, recognize syphilis as the most potent etiologic factor.

REPORT OF CASES

Before considering the symptoms and signs of this lesion, I would first report the two cases coming under my observation, as they illustrate fairly well the usual manifestation of this condition.

Both of these cases occurred at the Roper Hospital under the service of Dr. Robert Wilson, Jr. Both patients were young negroes, aged 17 and 26, respectively, and both showed evidences of syphilis. The cause of death in both instances was venous stasis. In the first case there was dilatation of the aortic ring; in the second, perforation into the pulmonary artery. These cases, added to those previously collected, make twenty-two in all, six of which perforated the pulmonary artery.

CASE 1.—L. W., colored girl, aged 17, was admitted to hospital, Oct. 24, 1913, complaining of cough which began in the previous summer and persisted to the present; shortness of breath, weakness, pain under left nipple and edema of feet and legs. Latter symptoms began two weeks before and

grew progressively worse up to the time of entrance. Past history negative. Physical examination revealed scars over tibiae, swelling of feet and legs, hurried and difficult respiration, rapid irregular pulse, wavy pulsations over precordium, especially at base. Thrill at base was most distinct over second and third intercostal spaces on the left of the sternum. It was impossible to decide whether this thrill occurred during systole or diastole, but it probably occurred during both. Apex was displaced downward and to the left. Cardiac dulness was increased to right and left of sternum. A loud humming "saw-like" murmur was heard over precordium, but with greatest intensity in third left interspace about 2 inches from sternum. In this location the bruit was extremely loud, of a high pitched rasping quality, and distinctly to-and-fro in character. At this site could also be heard a rather sharp snap, resembling a very accentuated closure sound. Because of the irregular heart-action and the peculiar murmur, it was impossible to determine during what part of the cardiac cycle it occurred. Roentgenoscopy revealed a great hypertrophy of both chambers, especially of the right ventricle.

The patient died November 19, with gradual rupture of compensation.

Necropsy.—General anasarca. Ascites, 750 c.c. Right pleural effusion, 500 c.c. Hydropericardium, 200 c.c. Chronic mitral valvulitis with dilatation of orifice and insufficiency. Dilatation of tricuspid orifice. Chronic aortic valvulitis with contraction of leaflets, dilatation of orifice and insufficiency. Sclerosis and atheroma of aorta with dilatation of atheromatous patch in right sinus of Valsalva, producing a saccular aneurysm of the sinus large enough to admit the end of the thumb and causing further dilatation of the aortic ring. General cardiac hypertrophy with chronic interstitial myocarditis, sclerosis of coronaries, parenchymatous and fatty degeneration of myocardium with general dilatation. Chronic passive congestion in other parenchymatous organs.

CASE 2.—B. L., colored woman, aged 26, was admitted to hospital, Feb. 27, 1914. Hysterectomy had been performed one year ago. Since then patient has been well except for occasional headache and feeling of dizziness, until Jan. 1, 1914, when symptoms of present trouble appeared. These consisted of cough, feeling of fulness in chest, dyspnea and edema of ascending type. The physical findings in this case were very similar to those in the preceding one. There was a greater degree of respiratory distress, more marked edema and the pulse was regular, but the most important difference was the absence of the loud closure sound which was so well marked in Case 1.

Roentgenoscopy revealed a large heart with pronounced distention of the right side.

Necropsy.—General anasarca. Papular eruption on forehead. Scars of old ulcer on right leg. Operative cicatrix in midline of abdomen. Excess of pericardial fluid. Mitral valves thickened but sufficient; atheroma and sclerosis of aorta with dilatation of atheromatous patch in right sinus of Valsalva producing aneurysm which projects through septum into pulmonary artery, perforating by two small openings behind the corresponding pulmonary valve. The sac admits the index-finger. General dilatation and hypertrophy of heart with fatty and parenchymatous degeneration of the myocardium.

DISCUSSION

It is not always possible to explain physical signs from the point of view of pathology, but we should try to do so, that our observations may be of value in future experiences. In the first case the striking signs were the loud to-and-fro "saw-like" murmur and thrill, the cardiac hypertrophy, especially of the right ventricle, the precordial pulsations and the so-called "closure" sound. There were probably several conditions responsible for the murmur, for, besides the aneurysm, there was an aortic insufficiency and a valvulitis of the mitral orifice causing insufficiency there. The cause of the cardiac hypertrophy is therefore

obvious. The closure sound was probably diastolic and due to congestion in the lesser circulation.

The murmur in Case 2, in which there was perforation, can be accounted for by the to-and-fro passage of blood during the two phases of the cardiac cycle from aorta to pulmonary artery. It is easily conceivable that the churning of the blood caused thereby would produce the thrill. The hypertrophy of the right ventricle was caused by the increased quantity of blood in the pulmonary circulation due to the leak from the aorta.

The majority of other symptoms exhibited by these patients were simply those of failing compensation. It should be recalled that death in both cases was due to the effects of the aneurysm, namely, myocardial degeneration, and not to rupture.

DIAGNOSIS

In neither case cited was the diagnosis made ante mortem. In the first the youth of the patient, the peculiar murmur, the pulsations and thrill, with the valve-sound heard loudest over the pulmonary area and the right ventricular hypertrophy shown by the Roentgen ray were strongly suggestive of patulous duct of Botalli. In fact, we did not feel that this condition could be thrown out in spite of its rarity. We felt reasonably certain that mitral stenosis was present even if there was no persistent ductus to account for part of the signs. This proved incorrect.

In the perforating case we felt that here too there was a strong possibility of mitral stenosis playing a part in the findings. This was suggested by the hypertrophied right ventricle. Aneurysm of the heart wall was considered by one of the observers because of the precordial pulsations, the thrill and murmur.

It will readily be seen that the diagnosis of aneurysm of the sinus of Valsalva, perforating or otherwise, presents almost insurmountable difficulties. In fact, I have found no case on record in which it was stated that the correct conclusion was reached ante mortem. W. F. Wade in 1861 reported a case of aneurysm of the aorta arising above the valves and perforating the pulmonary artery and right ventricle in which the diagnosis was made before death. This is the nearest approach to the condition rightly interpreted.

There are no signs particularly peculiar to the lesion. The aneurysm may remain latent until rupture. In a case reported by Ralfe the signs were increased precordial dulness, double bruit at base and a faint systolic murmur at the apex. In a case by Stokes in which the sac ruptured into the conus arteriosus of the pulmonary artery, there was a thrill over the sternum and a double murmur heard best over the left base, but heard all over the chest even by the patient himself. In F. P. Henry's case, in which the aneurysm also opened into the pulmonary artery, the signs were dulness in left infraclavicular region, pulsation and thrill in the second left interspace, and a rasping systolic murmur over the same area. These findings and the findings in the two cases observed by me, although varying in many respects, are fairly constant in one particular: nearly all signs are referable to the pulmonary area or, rather, they are more marked in that situation.

In none of the cases contained in the literature was the Roentgen ray used as an aid to the diagnosis of this condition. This is important, as by means of

roentgenoscopy any ectasias of the arch which might give identical signs could be discerned.

In conclusion it might be stated that aneurysm of the sinus of Valsalva, although comparatively uncommon, is not so rare as to be altogether devoid of clinical interest, and, although the diagnosis is infrequently justified, the lesion cannot be excluded in the face of the finding, in a young syphilitic, of a saw-like bruit and thrill most marked in the pulmonary area and a negative roentgenogram.

THE TREATMENT OF GALL-BLADDER INFECTIONS

WITH A REPORT OF TWENTY-SIX RECENT CASES *

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Although asked to discuss the "treatment of gall-stones," I have preferred to substitute the word "infections" for "gall-stones," as we now know that the primary cause of these stones is a microbic infection reaching the gall-bladder either through the blood or directly through the bile-passages from the intestine.

It is not my intention to deal minutely with the various operations which may be required in gall-bladder diseases, but rather to consider the indications for operative interference in these diseases and to present some of the pathologic complications which may arise when these indications are not heeded. I shall also say something about the mortality following operative treatment and its causes.

As a basis for my remarks I have taken the gall-bladder cases in which I have operated during the past six months and shall give a brief synopsis of each case. They number twenty-six, fourteen patients having been operated on at the Jefferson Hospital and twelve at the Pennsylvania Hospital. My figures might be more convincing if they were larger, but they represent a season's work and sufficiently illustrate every point I would like to make.

In considering the indications for operation, I would say that if one feels warranted in making a diagnosis of gall-stones or gall-bladder infection, he should also feel warranted in advising operation, unless there is some definite contra-indication. I am sure we all agree that if stones are present, no medicinal agent can dissolve them or make them pass through the duct into the intestine. If the passage of stones does occur it is Nature and not medicine that brings it about, and the passage of a few or many stones does not mean that all have passed or will pass. Case 12 illustrates this point well. While we are waiting and watching for our medicines to do the impossible, or while we are helping our patients to bear the repeated attacks of colic, the stones are increasing in number and size, and the patient is running the risk of developing one of the serious complications to which gall-stones give rise and which are amply illustrated in the accompanying cases. When the stones are in the gall-bladder only and the drainage of that organ is not disturbed, an operation is a simple matter; but when

* Because of lack of space, this article is here abbreviated by omission of the case-reports. These, however, will appear in the author's reprints, a copy of which will be sent by the author on receipt of a stamped, addressed envelope.

the stones have passed into the common duct, when they are ulcerating through into the duodenum or colon, when they have blocked the cystic duct and given rise to an empyema, when the smaller bile-passages of the liver have become infected and jaundice is present, when the patient has developed an acute or even a chronic pancreatitis, or when the stones have by their constant irritation caused a cancer of the gall-bladder, the operation becomes at once more serious and sometimes hopeless. If we could cure only a few cases of gall-stones by medicinal means, there might be some excuse for postponing what is in most cases inevitable. Such postponement is not fair to the patient, and it is more honest to state the case fairly to him and let him decide what line of treatment he will have. He would be a fool who chose operation if told that by medical treatment he could be cured but cure by such means is not possible, and any sensible man or woman convinced of his medical adviser's honesty and ability will follow the advice of the latter. When the crisis or complication comes, the patients who may have suffered for years from sufficient symptoms to warrant surgical intervention, are often keener for operation than the surgeon is. What we need is to understand that to await serious symptoms—for instance, chills, fever and jaundice—is comparable to waiting glandular metastasis and malignant cachexia before making a diagnosis of cancer. The time to look for and extinguish a fire is when we see the smoke and not when the house is wrapped in flames; then a mild can make the diagnosis.

I have had in mind while making the foregoing remarks the cases in which the medical attendant has but little or no doubt in his diagnosis. In these cases it would seem that his duty was clear, but any surgeon's experience goes to show that the large majority of the patients are not operated on until some marked pathologic complication has developed. In most of the cases here reported some such complication was present, and the average duration of symptoms was over six years. The patients operated on during the most favorable period are usually those who come into the hospital wards—patients who can't afford to be invalids or to pay for medicinal treatment.

But what of the cases that do not show unmistakable signs of gall-bladder disease? Many can be diagnosed by obtaining a careful history and making an examination of the abdomen, especially at a time when the patient is having his greatest discomfort. The most constant, the earliest and the most persistent symptom of gall-bladder infection is what the patient calls "indigestion," which is manifested by a sense of "fullness" or "distention" in the upper abdomen, coming especially at night and without any definite relation to the taking of food. He is apt to eructate quantities of gas and, if his discomfort increases to actual pain, he may vomit. The prompt relief which vomiting gives in these cases is of great diagnostic value. When the patient complains of gastric symptoms which are not characteristic of ulcer of the stomach or duodenum, the gall-bladder is often the cause of the trouble. An infected gall-bladder is nearly always tender and if tenderness is present, in connection with the type of indigestion referred to, then in the absence of symptoms suggestive of some other lesion, one is justified in holding the gall-bladder under suspicion and watching the patient carefully. If the gastric

symptoms are persistent and if the tenderness is marked a diagnosis of gall-stones is warranted and operation indicated. If, in addition, the patient has sharp attacks of upper abdominal pain, referred or not to the back or right shoulder-blade, and accompanied and relieved by vomiting, one can feel more certain of the diagnosis. A transient jaundice following such an attack completes the picture. But jaundice is not essential for a correct diagnosis, it having been estimated that about 80 per cent. of the gall-stone patients operated on have never had jaundice. In the twenty-six cases here reported it had occurred or was present in fifteen. It seems unnecessary to repeat that if the patient has typical attacks of severe gall-stone colic, operation should be done, and the same applies to cases presenting evidences of serious infection of the gall-bladder or ducts. These are the cases of which I spoke in the beginning in which there is no doubt whatever as to the seat of the trouble.

Can we rely on the less typical symptoms given above? I believe if one is careful to eliminate other conditions, such as gastric or duodenal ulcer, chronic appendicitis, etc., the gall-bladder will be found to be the seat of the trouble. Is it not a fact that when one operates on these suggestive symptoms he often finds nothing? This has been my experience in some cases. I have studied very carefully my mistakes in diagnosis and with more care before operation and more experience, they are becoming much less frequent. The twenty-six cases reported here are all in which I have operated since Sept. 1, 1913, and I have felt that in none has the operation failed to develop the cause of the symptoms in the gall-passages.¹ I have previously discussed my errors in diagnosis. In one of the malignant cases here reported (Case 14) I made the mistake of first exploring the kidney, and in another (Case 19) the symptoms pointed to the kidney and the correct diagnosis was based on the Roentgen-ray findings alone. This was a case of calcareous gall-bladder with stones.

One point which I made in the former paper and should like to repeat here is that the gall-bladder can easily be the cause of very definite symptoms and still not contain stones, and that physicians often make the mistake of telling the patient he has gall-stones and are then unable to produce them. Although there may be diseased conditions in the gall-bladder and ducts amply sufficient to account for the symptoms, he is never quite satisfied because the expected stones were not found. He must be told that gall-bladder symptoms may result from other causes which demand operation just as much as the presence of stones. In this series there were two cases of acute cholecystitis without stone and three of chronic cholecystitis without stone. In my opinion these patients would have later developed stones had they recovered without operation.

This brief series of cases shows a variety of pathologic conditions which give some idea of what may be found in gall-bladder surgery. I regret that it does not contain a case of acute pancreatitis, which is so commonly caused by infection from the bile passages, and a case of rupture of the gall-bladder from over-distention, but I feel that what these cases do show is sufficient to teach the lesson that it is undesirable to

1. In a paper read before the Massachusetts Medical Society, June 11, 1913; Boston Med. and Surg. Jour., Dec. 4, 1913.

allow patients with gall-bladder symptoms to drag along until some complication renders an operation imperative and often dangerous.

There are 3 cases of acute gangrenous cholecystitis, in all of which the patients recovered; 2 cases of acute cholecystitis without stone, one developing two weeks after typhoid fever; 8 cases of stones in the common duct; 1 of stone in the ampulla of Vater requiring duodenotomy; 1 of calcification of the gall-bladder; 1 of abscess formation in the liver and spleen; 1 of subdiaphragmatic abscess two weeks after operation in a case of acute cholangitis due to stones in the common duct; 1 of cirrhosis of the liver; one of stones ulcerating into the colon; 20 cases of stones in the gall-bladder alone or associated with some of the enumerated complications, and 2 cases of cancer of the gall-bladder. The greatest number of stones (771) was found in one of the malignant cases.

In addition to the findings at operation the following points in the history of these cases may be of interest: In 5 cases there was a definite history of typhoid fever; in 12 it was definitely stated that there had been no typhoid fever, and in 9 cases no mention of typhoid is made in the history. Jaundice was present or there was a history of jaundice in 15 cases; no jaundice or history of it in 11 cases. The duration of the gall-bladder symptoms varied from one week to thirty-three years in 21 cases, was not given in 1 and given as "many years" in 4 cases. In the 21 cases in which the duration is definitely stated, the average is over six years. The youngest patient was 19 years old and the oldest 69 years; there were four patients between 19 and 30 years of age; four between 30 and 40; nine between 40 and 50; three between 50 and 60, and six between 60 and 70 years. There were eleven men and fifteen women.

There were five deaths as follows:

In Case 7 I drained an abscess of the liver and overlooked a large abscess in the spleen, which was found at necropsy. The patient was extremely ill and a diagnosis of stone in the common duct with suppurative cholangitis had been made. After removing a number of stones from the gall-bladder and draining a small abscess in adjacent portion of the liver, I thought I had found all the trouble. The patient died a few hours later.

In Case 8 there were about thirty stones in the gall-bladder and cancer of the gall-bladder with extensive involvement of the liver and glands was present. The patient died about a month after the operation.

In Case 18, a woman, aged 69, had declined operation when she was in good condition and did not consent until she had a severe attack of pain followed by jaundice, fever and a high leukocytosis. She was a dangerous risk, but I thought she would die if not operated on. I might have saved her by waiting for these acute symptoms of sepsis to subside, but my judgment was in favor of operation. She had stones in the gall-bladder and common duct and a quantity of sand and debris in the hepatic duct. She had had her first typical attack of gall-stone colic twenty-five years before and for two years had had frequent attacks.

Case 22 is similar in many ways to the preceding. The patient was 65 years old. I saw her when she was jaundiced and advised operation when she had improved. Before the jaundice had entirely disappeared she began to have chills and fever and I was

obliged to operate when she was very septic. She had stones in the gall-bladder and common duct. She died from complete suppression of urine on the second day after operation without any abdominal symptoms and with a free drainage of bile. She had been having attacks of gall-stone colic for many years.

In Case 24, a man aged 45 was operated on when jaundiced but when acute pain and fever had subsided. He died seventeen days after the removal of stones from the common duct and gall-bladder, from an undiagnosed subdiaphragmatic abscess, which gave rise to no fever and no other evidences of its existence. At the necropsy the gall-bladder and ducts were in good condition.

It will be noticed that all of these deaths occurred in very ill patients; one with malignancy a month after operation; one with an abscess in the spleen and three with acute cholangitis from stones in the common duct. With one exception, the malignant case, they were all jaundiced at the time of the operation.

In the uncomplicated case the risk of the operation is no greater than in any clean abdominal operation. In the cases of common-duct stone with cholangitis there is always the risk of death from sepsis, but the risk is greater without than with operation. Postoperative bleeding in the jaundiced case can usually be prevented by the use of horse-serum. In all such cases the coagulation time should be taken and, if it is beyond the normal limit, it should be reduced by the injection of the serum. In this series of cases there was but one instance of bleeding, and this was not marked; it came on two weeks after operation when the patient was dying from a subdiaphragmatic abscess.

One is often asked what the chances are of gall-stones reforming after operation. My own conviction is that when all stones are removed and the gall-passages properly drained for about two weeks, recurrence is extremely rare. I can recall but two secondary operations in my own cases. In one case, I removed a stone from the common duct two years after my first operation, but here I felt it had been overlooked at the first operation, when I had removed 137 stones from the gall-bladder and 7 from the common duct. In the second case, that of a physician, there was a return of symptoms four years after the removal of 69 stones from the gall-bladder and I felt I might have left a stone which was causing the trouble. I was relieved to find 21 stones in the gall-bladder, for although I might have failed to obtain a stone from the ducts, I could hardly have overlooked 21 stones in the gall-bladder. This, I think, was clearly a case of redevelopment of stones. I removed the gall-bladder at the second operation.

I believe that this experience of six months in gall-bladder surgery represents pretty well what surgeons everywhere are finding and doing and that it teaches lessons by which we all may profit.

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A Suggestion for Applicator.—Because of the bulk of the applicator and the minuteness of the sinus, it is at times inconvenient to apply fluids with the ordinary cotton applicator. The so-called "sanitary pipe-cleaner"—everywhere obtainable, inexpensive and easily sterilized—is suggested to replace the cotton applicator. It is especially useful for fistulas and sinuses of the long bones.—CHARLES ROTHSCHILD, M.D., Fort Wayne, Ind.

GASTRIC HYPERTONY AND GASTRO-ENTEROSTOMY

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Every one is familiar with the brilliant results which usually follow a gastro-enterostomy for the relief of gastric ulcer. The patient makes a good recovery from the operation, the pain is relieved, vomiting ceases, weight is gained and the patient is clinically cured.

Occasionally, however, the operation is only a partial success or even an absolute failure. Vomiting occurs either while the patient is in the hospital or when the usual mode of life is resumed. Pain reappears and the patient may be as miserable as before. Indeed, the condition may be more serious, because of the stress of the operation, and the mental depression felt, as a result of what seems a failure of the most energetic measures to relieve the suffering.

This unusual course of events sometimes occurs when a correct diagnosis has been made, and the operation performed by a skilled and experienced surgeon. The following case-abstract will serve to illustrate:

A married woman, aged 28, who had one child in good health, was well until November, 1911, when she had a "cold." While recovering from this she drank some coffee one evening, this being the first food she had taken for two days. She became nauseated and vomited without pain, and without relief. This recurred after every meal for three weeks; then there was an interval of two weeks during which she ate what she pleased without nausea or pain, but she "did not feel herself." Following this, the vomiting recurred and continued constantly, that is, some food was vomited daily, until August, 1912, when she had an operation (gastro-enterostomy) performed. Vomiting again occurred while she was still in the hospital, and in September, 1912, she was worse than before the operation.

In August, 1913, a second operation was performed (adhesions broken up), which was followed by relief for about seven weeks. In October, 1913, vomiting again recurred most daily. Roentgenoscopy revealed both the pylorus and the gastro-enterostoma functioning, but a bismuth residue after eight hours.

Obstruction was diagnosed, and at operation adhesions were found partly constricting the small intestine just below the gastro-enterostomy. These were severed and the patient did well until about two weeks after the operation; then one day before leaving the hospital she began vomiting again.

Four other cases of this character might be reported, but this would be unnecessary repetition. That my experience is not unique is shown by the report of Veig¹ of Vienna, who records twenty-seven such cases. That the unfavorable results are not necessarily due to faulty surgical technic has been repeatedly demonstrated by roentgenographic examination and actual inspection at a second operation. What, then, is the explanation?

The answer will be found in an understanding of the physiology of gastric motility and the disturbances of this function, which often precede and accompany gastric ulcer, that is, the *Vagotonie* of Eppinger and Hess,² hyperkynesis or spasticity of the stomach.

While this reference opens the whole subject of visceral neurology, for present purposes it is sufficient to recall briefly the innervation of the stomach.

This organ receives nervous influences from three sources: it receives tonic or motor impulses through the vagus and inhibitory impulses through the sympathetic, and it may perform its functions fairly well when both splanchnics and both vagi are severed, being controlled under these circumstances by the local ganglionic plexuses of Auerbach and Meissner.³

In the condition described by Eppinger and Hess, there exists a state of affairs corresponding to excessive vagus stimulation, or a stimulative vagus neurosis, and while this manifests itself in other regions corresponding to the wide distribution of the nerve, our present concern is with the effects on the stomach. As one might suppose, both the motor and the secretory functions are increased. There is usually hyperacidity, pylorospasm and increased muscle tone with occasional spastic contraction. These patients say that they cannot take much food, the stomach feels full after even a meal, and there is a knot in the throat, cramp in the epigastrium, a feeling of tightness and constriction in the thorax, cardiac disturbance and the eructation of gas. Vomiting often occurs soon after eating, and is especially apt to be produced by excitement and anxiety.

Roentgenoscopy reveals a small stomach which fills with bismuth slowly, a mere thread trickling down toward the pyloric region, the stomach wall is tightly contracted around the contents, and the gas bubble in the fundus is small. Antiperistalsis and vomiting sometimes occur during examination.

The association of hyperacidity and pylorospasm with gastric ulcer is well known and needs no discussion here, but the effect of excessive tonicity and spastic contraction on the functioning of the stomach—after a gastro-enterostomy—is not so generally recognized. It is to this, therefore, that attention is especially invited.

Whatever may be the state of the stomach-muscle at other times, it is usually found relaxed at the time of operation; if it is not, relaxation is usually produced before the anastomosis is made. Now if the stoma is made of the usual size and in the correct location, it will functionate properly while the gastric motility is normal or even weakened; but if the neuromuscular mechanism is hypertonic and hypersensitive, this condition is not removed by an operation, and therefore as soon as the patient is in a position to receive the usual stimuli, that is, to take a full meal and resume the cares and annoyances which were present before the operation, spastic contraction of the stomach recurs. Not only is there pylorospasm as before, closing that outlet, but the contraction of all the muscle fibers in every direction greatly reduces the size of the surgical orifice and will at times close it entirely. Cramp, reverse peristalsis and vomiting recur, and clinically the patient is as ill as before the operation.

These symptoms often suggest obstruction, and a roentgenographic examination is made which may show both the pylorus and surgical orifice patent unless the examination is made when the stomach is contracted, that is, during an attack, when it will show

1. Zweig, Walter: Die Misserfolge der Gastroenterostomie bei Pylorostenose infolge spastischen Verschlusses der Magen fistel, Arch. f. Verdauungskr., 1913, xix, 740.

2. Eppinger, H., and Hess, L.: Die Vagotonie, Samml. klin. Abhandl. f. Path. in Therap. d. Stoff u. Ernährungsstörungen, Berlin, 1910, s. 9 and 10.

3. Carlson, A. J.: Contributions to the Physiology of the Stomach: vi, A Study of the Mechanism of the Hunger Contractions of the Empty Stomach by Experiments on Dogs, Am. Jour. Physiol., 1913-1914, xxxii, 369.

a hypertonic stomach with no trace of bismuth passing through the new opening. A secondary operation will show the surgical opening patent and reveal nothing except a few minor adhesions such as occur after any operation.

If this explanation is the correct one, what is the remedy?

All ulcer cases should be examined for signs of vagotomy, and if these are present, such cases should be regarded as unsuitable for surgical treatment; or if operation is imperative, as it sometimes is, suitable medicinal and hygienic remedies should be combined with the usual postoperative management.

The recognition of vagotomy is not difficult if one will remember that there is such a syndrome, and examine the patient for the signs pointed out by Eppinger and Hess. These are the gastric symptoms already given, to which must be added either a few or all of the following: bradycardia, disturbances in the respiratory rhythm, a tendency to bronchial asthma, dermatography, urticaria, local sweating, demonstrable "Head zones," low blood-pressure, pigmentation of the skin, eosinophilia, spastic constipation alternating with nervous diarrhea, and other minor signs of disturbances in the autonomous nervous system.

In vagotonic patients with gastric ulcer, it is not sufficient to perform a gastro-enterostomy and discharge the patients with advice to be careful about the diet; for although the operation may render local conditions more favorable for the healing of an ulcer, by providing for a more prompt discharge of food and the neutralization of the acid gastric contents by the bile, the important conditions underlying the formation of ulcer have not been removed, and if neglected may again annoy the patient and thus embarrass the physician.

Reference is again made to the irritable vagus. A surgeon, von Bergmann,⁴ in his researches, has demonstrated that disturbances of innervation involved in secretion, motor and sensory function of the stomach constantly accompany both duodenal and gastric ulcer, and also that in the majority of cases, abnormal functioning in other organs dependent on the vegetative nervous system is plainly evident.

The conclusion follows that a neurotic general constitution and neurotic phenomena in the stomach and duodenum seem to be responsible for primary erosions, and also tend to prevent healing, thus establishing a vicious circle. Therefore drugs and other therapeutic measures acting on the vegetative nervous system are indicated in the treatment of gastric and duodenal ulcer *after* as well as *before* operation.

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4. Bergmann, G. von: *Ulcus duodeni und vegetatives Nervensystem*, Berl. klin. Wchnschr., Dec. 22, 1913, p. 2374.

Infant Mortality in New York City.—According to a tabulation of W. H. Guifoy, registrar of records of the Department of Health, New York City, the death-rate per annum of children under five years has fallen from 96.5 per 1,000 in 1891, to 61.3 in 1901, 43.8 in 1911 and 37.3 in 1913. For the summer months—June, July and August—the death-rate of children under five years of age during the same period was 125.1 per 1,000 in 1891, 76.2 in 1901, 46.3 in 1911 and 38.8 in 1913. This reduction is believed to be due largely to the use of pasteurized milk, but doubtless also to other hygienic and sanitary measures adopted as the result of a constant agitation, legislation and the efforts of the health authorities.

THE NON-SPECIFIC ACTION OF A SERUM PREPARED ACCORDING TO THE METHOD OF BEEBE *

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AND

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The treatment of exophthalmic goiter with a specific thyrotoxic serum, so that just the required amount of thyroid could be destroyed *in situ*, is desirable. Ten years ago, one of us (Portis) produced such a serum by injecting dogs' thyroids into goats. The cytotoxic serum so produced, although strongly thyrotoxic, was unfortunately also cytotoxic for the various viscera, especially the liver and kidney, and was markedly hemolytic. Stimulated by the reports from both the laboratory and the clinic, in the use of nucleoproteins derived from tissue cells as antigens, and the assertions that such serums are specific, we undertook the following work in December, 1912:

Normal human thyroid glands were obtained shortly after death and nucleoproteins were prepared according to the method of Beebe. These were injected into Belgian hares and rams in doses recommended by Beebe. Considerable difficulty was experienced in immunizing our earlier animals, for most of them died after repeated injections, with a severely toxic picture simulating anaphylaxis. After repeated failure, we at last succeeded in immunizing a ram. The technic of the preparation of the nucleoprotein material used, and the manner of its injection are given in detail.

At the beginning of the work the material for injection was prepared as follows:

The normal glands were obtained as fresh as possible from necropsy cases and kept in normal salt solution, with a small amount of chloroform, in the ice-box until they were further prepared. No glands were used which stood longer than over night in such condition. They were then ground to a fine pulp in a food-chopper and then macerated with chemically pure sand in a mortar, after which the glands were extracted with from three to four times their volume of normal salt solution made faintly alkaline with sodium hydroxid (from 3 to 4 drops of 10 per cent sodium hydroxid to 1 liter of sodium chlorid solution). Before the salt solution was added, all blood was strained off through gauze, so that only the solid part was used. The mixture was then shaken vigorously for about an hour, after which it was transferred to the refrigerator for from twelve to eighteen hours, a small amount of chloroform being added to keep down any possible contaminating bacterial growth. At the end of from twelve to eighteen hours the material was filtered through gauze and then fine filter-paper. The filtrate was weakly acidified with acetic acid and heated at 44 C. (111.2 F.) for ten minutes or longer according to the time necessary to bring down the precipitate. This precipitate was washed repeatedly with normal salt solution, until the washings no longer gave the biuret reaction. It was then dissolved by rendering the precipitate faintly alkaline with 10 per cent sodium hydroxid and filtered through heavy filter-paper. In every preparation made, this procedure was repeated to insure a perfectly pure product. It

* From the Pathological Laboratory of St. Luke's Hospital.

* Read before the Chicago Pathological Society, April 13, 1914.

needless to say that this was all done in as sterile a manner as possible. Cultures were made from the end-product, and if bacterial growth appeared, this was discarded. This is the method of Beebe.¹

In each of the preparations the gross material was weighed and the solution measured, so that the equivalent of a certain amount of gross thyroid might be estimated by measuring out certain amounts for injection.

With this material the following animal inoculation experiments were carried out:

BELGIAN HARE 1.—Dec. 23, 1912: Injected intraperitoneally with the equivalent of 15 gm. human thyroid.

December 30: Injected with the equivalent of 20 gm. thyroid.

December 31: That morning the hare was found dead. The necropsy revealed no peritonitis or any gross pathologic changes. Cultures were sterile.

HARE 2.—Jan. 2, 1913: Injected intraperitoneally with the equivalent of 10 gm. thyroid.

January 8: Injected with equivalent of 15 gm. thyroid. The hare died some time during the night. The necropsy showed no gross pathologic changes, but the symptoms seemed to be rather anaphylactic in type. Cultures were sterile.

HARE 3.—Jan. 14, 1913: Injected intraperitoneally with the equivalent of 7 gm. thyroid.

January 19: Injected with the equivalent of 12 gm. thyroid. The hare died about four hours later from what appeared to be anaphylactic shock. There were no gross pathologic findings, and cultures were sterile.

RAM 1.—Dec. 23, 1912: Injected intraperitoneally with the equivalent of 85 gm. thyroid.

December 30: Injected with the equivalent of 100 gm. thyroid. On injection gas bubbles having a strong odor of hydrogen sulphid escaped through needle. The ram appeared well.

Jan. 7, 1913: Injected with the equivalent of 120 gm. thyroid. About five minutes after injection the ram had marked defecation and was very unsteady on its feet. In the afternoon it appeared to have recovered.

January 16: Injected with the equivalent of 90 gm. thyroid.

January 18: The ram died some time during the night. The heart's blood gave almost pure growth of staphylococcus. There was slight inflammation of the omentum at the point of injection. No peritonitis was seen. The left lung showed consolidation, and a purulent material could be squeezed out of the small bronchioles. The intestines were very much dilated. The thyroid gland was very small and of hard consistency. No other gross pathologic changes were found.

RAM 2.—Jan. 27, 1913: Ram injected intraperitoneally with the equivalent of 100 gm. thyroid.

February 1: Injected with the equivalent of 95 gm. thyroid.

February 8: Injected with the equivalent of 125 gm. thyroid.

February 13: Injected with the equivalent of 120 gm. thyroid. On the morning of Feb. 16, 1913, the ram was found dead. No necropsy was held, but during the course of the injections the animal showed almost typical signs and symptoms of hyperthyroidism.

Following these experiments a change was made in the immunization. The method of preparation was the same, but 1 gm. of thyroid to 100 c.c. of normal salt solution was used. This 1 per cent. solution was injected in smaller doses than in the previous experiments.

One hare and one ram were inoculated, the date and results being as follows:

BELGIAN HARE.—May 16, 1913: Injected intraperitoneally with 5 c.c. of this 1 per cent. solution.

May 22: Injected with 10 c.c. of 1 per cent. solution.

May 28: Died toxic death; cultures were sterile.

RAM.—May 17, 1913: Injected intraperitoneally with 10 c.c. of 1 per cent. solution.

May 22: Injected intraperitoneally with 20 c.c. of 1 per cent. solution.

June 2: Injected intraperitoneally with 40 c.c. of 1 per cent. solution.

June 9: Injected intraperitoneally with 45 c.c. of 1 per cent. solution.

June 20: Injected intraperitoneally with 75 c.c. of 1 per cent. solution.

July 14: Injected intraperitoneally with 65 c.c. of 1 per cent. solution.

July 3 the ram was bled and 600 c.c. of blood removed.

July 20 the ram was bled to death and about 4.5 liters of blood were obtained.

July 14 a healthy ram was bled to have normal blood for purposes of control.

The serum obtained from the immunized ram was studied for the presence of agglutinins. This is taken as an indication of the presence of specific antibodies and also determines their strength. We standardized ours according to the method of Beebe as follows:

Fresh human thyroid was ground very fine and extracted with normal salt solution. The mixture was then strained through gauze to remove the coarser particles and then centrifuged in a high-power machine. The upper layer of the sediment, together with a small amount of the supernatant liquid, was thoroughly shaken, a small amount of normal salt solution was added and the shaking repeated. This was placed in 1 c.c. amounts in small tubes. To each tube, 1 c.c. of various dilutions of the immune serum was added. For control, 1 c.c. of similarly diluted normal ram's serum was added to another set of tubes. The contact method was used and the serum floated on the emulsion. This method brings about the reaction more distinctly. In the dilutions of 1:2 and 1:10 the agglutination ring was observed within a few minutes, and in higher dilutions of 1:100 after standing for several hours.

The normal serum gave no reaction at all, and we were quite enthusiastic. Dr. Wells suggested that we make similar tests, using emulsions of other human viscera. In exactly the same manner described, emulsions were prepared from the kidney, liver and spleen and these all gave as marked and as prompt a reaction with the immune serum, as did the emulsion of the thyroid.

The method used by Beebe and followed by us does not, according to Wells, produce nucleoproteins, but rather salts of protein and nucleic acids. He says:

It seems probable that in the living cell the nucleic acids must exist bound to protein molecules, but that these compounds are the same as those which are precipitated from either neutral or alkaline extracts of the cells or tissues, is highly doubtful, a fact universally recognized by physiological chemists. With an abundance of proteins of all sorts and conditions present in such extracts and in view of the easy dissociation of the compounds of nucleic acid and proteins, it is to be supposed that the nature and proportion of the protein which is thrown down with the nucleic acid will depend entirely on the conditions existing at the time. Variations in the concentration and character of the proteins, in the proportion of nucleic acid, of the concentration of salts and other solutes, of the degree of acidity and alkalinity of the solution, and perhaps even of the temperature, will all serve to cause variations in the composition of the precipitate which contains the nucleic acid.

1. Beebe: Am. Jour. Pharm., 1911, lxxxiii, 56.

Pearce and Jackson, after a number of carefully conducted experiments, in 1906, could not confirm the work of Beebe. They did not find any evidence that injections of nucleoproteins produced a specific cytotoxic serum.

Taylor, in 1911, published his experiences with a serum produced according to the earlier methods of Beebe. He used thyroid glands removed by operation from exophthalmic goiter patients, and injected their nucleoproteins into hares. The serum did not show beneficial action in any of the cases in which it was used.

CONCLUSIONS

Nucleoproteins, so-called, of human thyroid glands do not act as specific antigens.

The antibodies produced are probably due to the small amount of protein contained in the injected material.

The action of the serum, so produced, is not specific for the thyroid gland alone, but has a similar action on other organs, especially the liver, kidney and spleen.

We wish to express our thanks to the authorities of St. Luke's Hospital for the privilege of conducting these experiments at their laboratory, and to acknowledge our indebtedness to Drs. Hektoen, Le Count, Wells, Davis and Moody for frequent advice and courtesies.

122 South Michigan Avenue.

AN AID TO PROGNOSIS IN PULMONARY TUBERCULOSIS

A SIMPLE URINARY TEST: THE UROCHROMOGEN REACTION OF WEISZ

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AND

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TUCSON, ARIZ.

We think that all physicians who have had any considerable experience in the treatment of patients with pulmonary tuberculosis will agree that in many cases it is difficult to make an accurate prognosis. Will this patient recover? Will that patient succumb? These are questions that cannot always be answered correctly. Because of these facts, any test or procedure which will in the slightest degree assist in making more accurate prognoses, especially if simple and easily applied, demands careful attention. We have, therefore, felt justified in outlining our experience with Weisz' urochromogen reaction in the urine of patients sick with pulmonary tuberculosis.

For several years we have considered the presence of a diazo-reaction in the urine (if more than transient) as an unfavorable prognostic sign,¹ but unfortunately the actual practical value of the diazo-reaction is limited, for its absence is not necessarily a favorable prognostic sign, many cases with a hopeless prognosis failing to show it. We have often thought how valuable might be some test or reaction having the same significance as the diazo but more uniformity in its appearance in the urine, if it could be found. It was with considerable satisfaction, then, that a little more than two years ago we noted the publication of a

paper by Lieutenant Heflebower,² pathologist to the United States Army Tuberculosis Sanatorium, Fort Bayard, N. Mex., describing just such a reaction and his experience with it. We at once determined to add this test to our routine urinary examinations. While two years is too short a time to establish definitely the full value of any test in such a chronic disease as tuberculosis, still, as our experience with it tends to confirm the views held by both Weisz,³ its originator and Heflebower, who, so far as our knowledge is concerned, first called attention to it in this country, we have been tempted to report our results, mainly in the hope that others may be induced to use it, so that after several years enough independent reports may be available, covering a sufficiently long period of time, to establish its value fully.

Weisz, after nearly six years of experimental work found that urochromogen is the principal substance which causes the diazo-reaction, urochromogen itself being a low oxidation product of urochrome, the normal yellow coloring-matter of the urine. He found that one reason for the lack of uniformity in the appearance of the diazo-reaction is that urochromogen has an antecedent which does not react with the diazo-reagent. He furthermore found that a potassium permanganate solution, added to urine, demonstrated the presence of both urochromogen and its antecedent. It will thus be readily seen that this reaction would be expected to be more constant and uniform in its appearance than the diazo, and Weisz and Heflebower have both found this to be so. According to Weisz urochromogen, being a low oxidation product of urochrome, occurs in the urine only when there is a condition of faulty oxidation. This condition of metabolism is present only when catabolism is affected by some toxin circulating in the blood, and such a condition is present in pulmonary tuberculosis, so he says only when the focus in the lung is so active or extensive as to surcharge the blood with toxins or battle down the defensive forces of the body, which would otherwise neutralize the effect of these toxins.

As to the value of the test in actual practice, Weisz' personal views, as quoted by Heflebower, are the following:

1. Patients who at the beginning of a course of treatment do not show a disappearance of urochromogen from their urine have a hopeless prognosis.
2. The transient appearance of urochromogen can be found in acute exacerbations of the disease, and is to be regarded as a symptom of progression of the tuberculous process.
3. A distinction between continuous and transient constant or occasional appearance of urochromogen should be made only as to the prospective duration of the disease.
4. Patients with transient excretion of urochromogen may, if external conditions are favorable, continue to live for several years, while the constant appearance of the reaction, especially when it is plainly becoming more intense, shows a rapid progress of the disease in the lungs and a hopeless prognosis.

Heflebower concludes that:

1. The frequency and constancy of the appearance of diazo and urochromogen reactions in the urines in cases of pulmonary tuberculosis constitute an index to the severity of the condition, a constant negative

1. Provided always that certain drugs have not been administered for some time before the sample of urine is collected for examination.

2. Heflebower, Roy C.: Am. Jour. Med. Sc., February, 1912, p. 221.
3. Weisz, Moriz: München. med. Wchnschr., 1911, lviii, 1348.

result pointing to a case that is progressing favorably, while a constant positive result indicates a progressively downward case.

2. The urochromogen test occurs more frequently and is more constant than the diazo-reaction. It is, therefore, a better index to the condition of the patient than the diazo-reaction.

3. The intensity of both the diazo and urochromogen reactions is of great import as an index to the severity of the condition, especially as a method of determining the difference in prognosis in cases which show the reactions constantly.

Heflebower also says that "cases showing urochromogen more constantly are for the most part those cases that are having the greatest temperature elevations and loss of weight." This would be expected, for the majority of patients who are not doing well and who do not recover are of that type, but many times this type of case does not show a urochromogen reaction, and it is just here that it is of most value; for by its absence it shows that that particular patient, in spite of seeming and being seriously sick, has a resistance to the disease which the one showing urochromogen has not, and for the time being at least, a more hopeful prognosis may be made. On the other hand, patients not having great temperature elevation, loss of weight, or much lung involvement — patients who, in other words, do not seem to be very sick, and in whom one would ordinarily be tempted to make a favorable prognosis — occasionally show a persistent urochromogen, and in our experience, the great majority of these do not improve. The latter are the cases Weisz means when he says:

There are some cases whose condition of the lungs is not such that you would be persuaded to give a bad prognosis and who through the presence of urochromogen in the urine first reveal the serious nature of their illness. Parallel with the development of the disease, you find an apparent increase in the excretion of urochromogen.

While we do not make any final conclusions in connection with this report from a prognostic point of view, on account of the reasons stated above, we cannot, on the other hand, help but believe from a study of our observations that the urochromogen reaction does bear a fairly constant relation to the clinical condition of a patient.

Of 113 cases included in this report, 5 were classified as incipient, 28 as moderately advanced and 80 as far advanced. Of the cases of incipient tuberculosis, the urochromogen reaction was negative in 100 per cent., and all of these patients have either recovered or are progressing to recovery. Of the 28 moderately advanced cases, the urochromogen reaction was positive in 32 per cent., and negative in 68 per cent. Of the 32 per cent. positive reactions, comprising 9 cases, 2 patients, or 22 per cent., showed a continuous positive urochromogen reaction and showed no clinical improvement while under observation. In 7 cases, or 78 per cent., the urochromogen reaction was changed from a positive to a negative during treatment, and this change from positive to negative was coincident with a clinical improvement. Of the 68 per cent. negative reactions, comprising 19 cases, 18 cases, or 95 per cent., showed a continuous negative reaction, and of these, 17 patients showed pronounced clinical improvement, and in 1 the condition remained stationary. In 1 case, or 5 per cent., the urochromogen

reaction was changed from a negative to a positive, and this change was without any clinical change for the worse in the patient.

Of the 80 far-advanced cases, the urochromogen reaction was positive in 55 per cent. and negative in 45 per cent.; of the 55 per cent. positive reactions, comprising 44 cases, 34 cases, or 77 per cent., showed a continuous positive reaction, and of these, 28 patients became clinically worse and 6 showed clinical improvement. In 10 cases, or 23 per cent., the urochromogen reaction was changed from positive to negative during treatment; 7 of these patients showed coincident clinical improvement, while 3 became worse. Of the 45 per cent. negative reactions, comprising 36 cases, 28 patients, or 78 per cent., showed a continuous negative reaction, and of these, 20 patients showed clinical improvement and 8 became worse. In 8 cases, or 22 per cent., the urochromogen reaction was changed from a negative to a positive, and in 7 of these, the patients became coincidentally worse, while 1 showed improvement.

Heflebower used a control-tube of urine in all of his tests; and because we found, as he says, that "it enables one to distinguish very slight changes of color," we have done the same, performing the test as follows:

Into each of two small test-tubes is put 1 c.c. of urine, and 2 c.c. of distilled water are added; now, to one tube which is to be tested for urochromogen, 3 drops of 1:1,000 solution of potassium permanganate are added, the tube is shaken thoroughly and compared with the control tube. The appearance of the faintest yellow color shows the presence of urochromogen and is easily detected by comparing with the control-tube, to which no potassium permanganate is added. The test is read positive, however, only when the solution stays clear.

Our experience with the urochromogen reaction covers over two years in 113 patients. Some individual patients were observed as long a time as two years, the presence or absence of urochromogen being determined every month, the average length of time the entire number of patients were under constant observation being about four months for each patient.

SUMMARY OF TESTS

| Type of Case | Number of Cases | Urochromogen Reaction Positive Per Cent. | Urochromogen Reaction Negative Per Cent. |
|--------------------------|-----------------|--|--|
| Incipient | 5 | 0 | 100 |
| Moderately advanced..... | 28 | 32 | 68 |
| Far advanced | 80 | 55 | 45 |

In the light of our experience with the urochromogen reaction, in these patients, it appears to us that the following statements seem at the present time permissible:

1. The presence of a urochromogen reaction in the urine of a patient sick with pulmonary tuberculosis is for the time being of unfavorable prognostic import.
2. The persistent presence of a urochromogen reaction in the urine, in spite of proper treatment, probably means a hopeless prognosis.
3. Its absence is generally, though not invariably (regardless of how sick the patient seems), of good prognostic import.
4. Its prompt and continued disappearance soon after treatment is instituted, in a patient who showed it before treatment, so far as our experience goes, is a favorable prognostic sign; but it will take several

years' observation of these particular patients to determine this point conclusively.

5. Finally, it is not an invariable guide to prognosis, but in the majority of cases is of much value, and as all prognoses must be good, bad or doubtful, it will, if judiciously used, help materially to reduce the number in the doubtful class.

JUVENILE PARESIS TREATED BY THE INTRASPINAL INJECTION OF SALVARSANIZED SERUM *

REPORT OF A CASE

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ST. PAUL

Thirty-seven years ago Dr. Clouston reported the first case of juvenile paresis under the name of developmental general paralysis. Until that time paresis was believed to be essentially a disease of the adult. I have found in medical literature to date records of 228 cases of this disease, and there are other references to which I have been unable to gain access. Clouston made it clear that the symptoms presented by his patient, a boy of 16, differed in no way clinically or pathologically from those of the generally recognized type. The investigations of Noguchi and his co-workers have clearly established the truth of this contention. The real significance of the term "juvenile" is that of *time incidence*; the fact that in one case we are dealing with a congenital and in another with an acquired syphilis is a matter of no moment. In either instance the symptoms are the direct results of the activities of the *Spirochaeta pallida* on the brain cortex. One fact is clearly apparent, that any young congenital syphilitic is potentially a juvenile paretic, and Abraham states that all children of syphilitic parents, giving a positive Wassermann, whether or not they show any evidence of congenital syphilis, should be treated as carefully as if they were adults with definite symptoms of the disease.

The clinical syndrome of the juvenile form varies with the time of onset. Delusions of a sexual nature and grandiose ideas of wealth, strength and ambition do not occur until after puberty. About one-half of the cases develop after adolescence, although the disease may occur in the very young, showing itself by mental retardation or feeble-mindedness.

According to Fennell, 5 per cent. of imbecile children are congenital general paretics. Optic atrophy is an early symptom. Juvenile paresis develops about equally in the two sexes, perhaps slightly more frequently in the female. The cases usually fall under the demented type, but one of Mott's patients and five of Kleinberger's showed grandiose ideas.

The clinical symptoms are so variable and uncertain, however, that often it is only by the serobiologic findings that one can arrive at a diagnosis.

The report of the following case is of interest not because of the rarity of the disease, for it is comparatively frequent, or of anything unusual or distinctive

in the clinical syndrome, but rather because of the use of salvarsanized serum intraspinally in this patient.

C., a boy aged 8½ years, was the second child in a family of five, the first having been still-born. The father contracted lues at 17, and according to his statement infected his wife. The blood-serum in his case gave a positive reaction while his wife, on the other hand, presented a negative Wassermann in both blood-serum and spinal fluid. The pressure of the latter was increased. Both the Noguchi and the Nonne tests were negative, as was the Lange colloidal gold reaction. There were twenty-six lymphocytes to the cubic millimeter. Physicians who had seen this woman at the time of her supposed infection were of the opinion that it was luetic. The blood-serum in two younger children aged 5½ years and 5 months, respectively, reacted negatively, while a third, 2½ years of age, gave a positive Wassermann in the blood-serum. The entire family, aside from the patient, gave no clinical evidence of syphilitic infection of the central nervous system, nor were there any symptoms of congenital syphilis in the other children.

Nothing abnormal was observed in C. until the fourth year, when it was noticed that his memory was failing and his face had a vacuous expression. He was sent to school in his seventh year but was unable to learn the simplest things. He was severely punished by his teacher because of his being so unruly and difficult to control. At this time also his walking became difficult and he used his hands in a clumsy manner. The father stated that the deterioration, both mental and physical, had been very rapid during the past year. When I saw him first he acted in a silly manner; he could not feed himself and needed constant oversight, and he talked like a young child.

Examination showed Argyll Robertson pupils, exaggerated knee-jerks, with ankle-clonus and Babinski in both feet. There was marked Rombergism. There was no nystagmus or epileptiform seizures; the background of the eye was normal. There were no signs of congenital syphilis. Serobiologic findings were increased pressure in the spinal fluid and positive Wassermann in both blood-serum and spinal fluid, the latter in all dilutions down to 0.05 c.c. Lange's colloidal gold test gave the characteristic curve of paresis. Noguchi positive; Fehling's normal; lymphocytosis seventy-two to a cubic millimeter.

Before the introduction by Swift and Ellis of the intraspinal method for the injection of salvarsanized serum, few physicians considered juvenile paresis as worthy of treatment because of its being so utterly hopeless. In 1910 Abraham treated a case with intramuscular injections of salvarsan without benefit. In April, 1913, Cotton used salvarsanized serum intraspinally in a case of juvenile paralysis with decided benefit clinically and serobiologically. "It is fair to assume," says Swift, "that arsenic or other drugs introduced into the spinal canal by means of lumbar puncture reach all points of the cerebrospinal system (at least the larger cavities) which are bathed by the cerebrospinal fluid."

The experiments at the Rockefeller Institute with the direct injection of neosalvarsan into the spinal canal, as well as the unfortunate experience at Los Angeles, should be sufficient warning to prevent its further use in this manner, notwithstanding the brilliant work being done by Ravaut and Marinesco with the *in vitro* method. Whatever the anatomic facts may be, the superiority, clinically and serobiologically of the intraspinal use of salvarsanized serum over all other methods, is beyond cavil or question.

C. has received eight intravenous injections, each of 0.25 gm. of salvarsan followed the next day by an intraspinal injection of 30 c.c. of 40 per cent. solution of salvarsanized serum. The serobiologic reduction

* Read before the American Neurological Association, Albany, N. Y., May 8, 1914.

has been very slight. The pressure of the spinal fluid is normal; lymphocytes three to the cubic millimeter. Blood-serum is less positive, spinal fluid unchanged. The paretic curve of Lange's colloidal gold test remains unchanged.

Clinically, improvement has been more noticeable. C. can now feed himself; his silly actions and vacuous expression have disappeared; he is much brighter mentally, requires less oversight, observes things much more than formerly, shows some interest in games and talks much more normally. His gait is greatly improved. His parents and all others who have come in contact with him notice the difference; yet notwithstanding all this apparent improvement he has just had his first epileptiform seizure.

It will be observed that Lange's colloidal gold test, which I believe has a real corroborative value, gave the curve of paresis in this patient. In every case of paresis or taboparesis in which we have employed it, it has given the typical reaction of this disease.

In two cases of multiple sclerosis Kaplan observed that one gave the curve of paresis and the other reacted negatively; one case of multiple sclerosis which we examined with this test also gave the latter reaction. A case of tabes without any mental symptoms in a professional man of unusual mentality gave the curve of paresis, while two other tabetics gave that of tabes. According to Jelliffe, if the four reactions are positive, small amounts of spinal fluid being used (from 0.05 to 0.2 c.c.), the diagnosis is almost certainly paresis. In one of our cases in which there were no mental symptoms whatever, nothing except an Argyll Robertson pupil and a left hemiplegia, due to a luetic endarteritis, the serobiologic findings being as above, the Lange test gave the typical paretic curve.

Does this mean that in both these cases with no paretic indications paresis will ultimately develop? In several cases in which there have been serobiologic reductions there have been no changes in the paretic curves. Much further observation will be necessary to determine the real significance of this reaction.

In three cases of paresis, in all of which six or more injections of salvarsanized serum have been given, there have occurred two remissions, one of which lasted about two months, while the other one still persists. The third case, belonging to the demented type, has shown no improvement. In the cases which emitted there were very decided serobiologic reductions; in the unimproved patient these were very slight. Our experience has been that clinical betterment and serobiologic reductions go hand in hand. Nothing can be hoped for from the intraspinal method in advanced paresis, yet as Cotton states, there are no contra-indications to its use.

The reaction following the intraspinal injection of salvarsanized serum is as a rule negligible. The temperature seldom reaches 100; usually it is about 99, and the increase lasts from twenty-four to forty-eight hours. Formerly we observed higher temperatures, but with an improved technic they have disappeared. There is a marked increase in the lightning pains of tabetics for twenty-four or forty-eight hours after injection, but aside from the period of the injection these appear to be greatly benefited. The relief of trembling and retained urine is sometimes truly remarkable.

In only one instance have we observed any untoward symptoms. This was a case of acute luetic meningo-

myelitis developing on a tabetic base. Twenty-four hours after the fourth intraspinal injection (there was practically no reaction following the three preceding ones), the patient became restless, anxious, and developed slight muscular twitchings. Temperature and pulse were normal. Within four hours the former had risen to 104.2, and the pulse was 100. The patient was absolutely unconscious and remained so for three days. The neck and back were rigid, the Kernig sign was marked and there was every indication of a suppurative meningitis, but the spinal fluid was sterile. The patient gradually improved and is now much better than before he received the injection. Without doubt this is an instance of aseptic chemical meningitis due to the intraspinal use of salvarsanized serum. Swift and Ellis call attention to the fact that the intraspinal injection of salvarsanized monkey-serum in the normal monkey may cause a large increase of cells in the spinal fluid, chiefly polymorphonuclears. In our more than seventy-five injections we have never seen any increase of the polymorphonuclear leukocytes following an injection of salvarsanized serum except in the case above mentioned and in one paretic, when a lumbar puncture caused an intraspinal hemorrhage which cleared up in about four weeks.

There can be little doubt that an aseptic, chemical meningitis presenting all the manifestations, clinical and pathologic, of an acute suppurative meningitis without the infecting organism, may arise from the introduction into the spinal canal of a foreign serum (Sicard, Sophian, Sladen, Brem). My case demonstrates that the same alarming symptoms may follow the injection of the salvarsanized serum.

Endicott Arcade.

Accidental Electrocution by a Weak Current.—Mr. S. was employed in handling pickled fish on a fish wharf. The immense fish-storage shed in which he worked was lighted by electricity in sections, the system being a part of that which operated the plant of the electric light company on the next wharf, the transformer serving for both lighting systems. The small switch-room was in the corner of the lower floor of an adjacent wooden building. At about 11 a. m., Oct. 2, 1913, a dark, misty day with occasional rain, S. desired to work in another part of the shed and therefore went over to the switch-room to adjust the switches. As those who used the switch were generally workers in pickle, salt was present on the damp floor and woodwork. S. did not at the time have rubber boots on. He touched the switch and then leaned against the wall in a crouching position, which was observed by another workman who seized him and threw him out of the switch-room on the asphalt walk, receiving as he did so a violent electric shock. When I arrived a few minutes later, I found no pulsation at the wrist and no heart-beat, but efforts at resuscitation were continued for about one hour when the patient was pronounced dead. The necropsy, made by Medical Examiner S. F. Quimby and witnessed by several physicians, was delayed by legal formalities; it revealed no previously existing pathologic conditions which could have produced death at that time. No method of preservation had been used and it was observed that post-mortem rigidity was less than normal and the skin color more life-like than is usual. The possibility of crossed wire having been eliminated and a test having shown that the voltage of the current which passed through the body of S. did not exceed 111, it was decided that he had been electrocuted by a current not exceeding this strength, which passed through him while his clothes and body were damp from being in pickle and the switch-room also damp with pickle.—C. H. MORROW, M.D., Gloucester, Mass.

New Instruments and Suggestions

A NEW SUPRAPUBIC BLADDER RETRACTOR

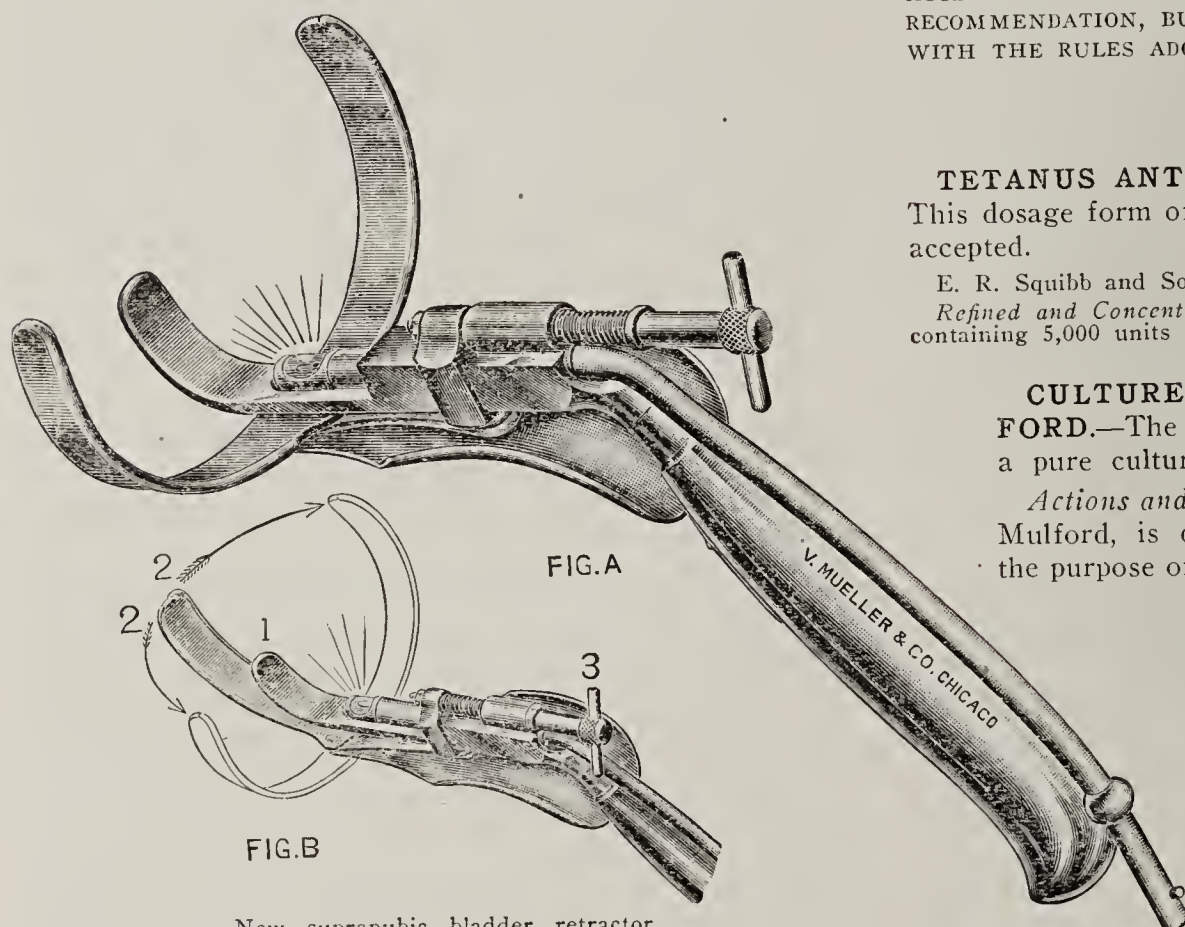
B. C. CORBUS, M.D., CHICAGO

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For descriptive purposes, this instrument can be divided into three parts, (1) the shaft, (2) retracting blades, and (3) the light-carrier. The shaft is again subdivided into (1) the vertical handle, and (2) the horizontal main section.

The vertical section is merely a rounded shaft, shaped so as to be easily held in the hand, while retracting. At the lower end is a hole to admit the peg of the light-staff, thus preventing any free play of the light apparatus after its adjustment.

The main or horizontal section of the shaft with its connections serves as a posterior abdominal and bladder-wall retractor, admits the light-staff, serves as a post for the sliding square connecting the screw (3) and the small arms of the bladder blades and carries a pivot-peg for the attachment of the main retracting arms. Through its center is the canal admitting the light-staff. On the upper surface is the screw (3) attached to the sliding square, and so threaded that after the insertion of the closed blades, as seen in Figure B, four complete revolutions open the blades widely. Protruding from the under aspect of the main section, immediately behind the light, is placed the pivot-peg. At the opposite end a strip



New suprapubic bladder retractor.

(not shown in the illustration) is attached, serving to fix firmly the wide posterior abdominal retracting blade. The latter, by the adjustment of the bladder blades to the pivot-peg, is at this point also anchored.

The true bladder-blades are of two sizes, small and large, according to the size and contractility of the bladder. Each set of blades consists essentially of two separate arms with rounded edges to avoid injury to the bladder mucosa on opening, and are jointed separately to the pivot-peg. The blades are also connected by two small arms to the sliding square, whose upward or downward passage controls the opening or closing of the retracting blades. The connections are all slip-on joints, so as to permit expeditious adjustments of the blades in changing, the whole making a unique combination of abdominal and bladder-wall retractor.

The lighting apparatus completes the instrument and is rather unique in the brightness of its cold tungsten bulb, the ease of its admission and removal for cleansing in case

of obscuring the lamp by blood, and finally the surety of good electrical contact at the end of the staff by the spring-bayonet contact points.

The instrument on introduction through the suprapubic incision occupies no more space than the index-finger.

As the bladder is capable of being distended to a greater degree in the transverse diameter, this instrument is particularly advantageous in examining the internal urethral orifice, both before and after prostatectomy, in suturing over the cut surfaces of the mucosa after prostatic enucleation, in excising tumors and all operations on the ureter that are made intravesically.

32 North State Street.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

TETANUS ANTITOXIN.—(See N. N. R., 1914, p. 243). This dosage form of an accepted proprietary article has been accepted.

E. R. Squibb and Sons, New York.

Refined and Concentrated Tetanus Antitoxin.—Marketed in packages containing 5,000 units (curative dose) put up in syringe containers.

CULTURE OF BULGARIAN BACILLUS, MULFORD.—The Mulford culture of Bulgarian bacillus is a pure culture in tubes of the *Bacillus bulgaricus*.

Actions and Uses.—The culture of Bulgarian bacillus, Mulford, is designed for internal administration for the purpose of establishing lactic-acid-producing bacilli in the intestines. It is claimed that these bacilli are of value in diseases and toxic conditions due to putrefaction in the intestines and are of service in arresting putrefaction in wounds, abscesses and in the various body cavities. Thus it is said to be beneficial in chronic suppurative processes of the nasal passages, and the accessory sinuses, the middle ear, the endometrium and of the vagina.

Dosage.—One tube of the culture in 3 tablespoonfuls of water containing a lump of sugar or taken in a half or full glass of milk. This dose should be repeated morning and evening after meals. The tubes must be kept in a cold place and should not be used after the date stamped on the package.

Manufactured by H. K. Mulford Company, Philadelphia. No U. S. patent or trademark.

LACTOBACILLINE TABLETS.—Tablets containing a pure culture of the *Bacillus bulgaricus*.

Actions and Uses.—The bacilli contained in lactobacilline tablets give rise to the production of considerable quantities of lactic acid, which tends to restrain the growth of putrefactive organisms. They are said to be useful in diseases of the alimentary tract and in such general diseases as are believed to depend on putrefaction in the intestines.

Dosage.—One or two tablets after meals. Lactobacilline tablets are marketed in boxes containing eight tubes of six

tablets each, with an expiring date stamped on the label. They should be kept in a cold place.

Manufactured by the Ferment Company, New York (The Franco-American Ferment Company, New York).

Lactobacilline tablets are prepared from the pure cultures of the *B. bulgaricus* which is mixed with lactose and a suitable non-potent mechanical vehicle, slowly dried and compressed. Each tablet contains an abundance of viable *B. bulgaricus* in pure culture and should coagulate 1 liter of sterilized milk in from thirty-six to forty-eight hours when incubated at from 40° to 44° C.

LACTOBACILLINE LIQUIDE, CULTURE A.—Lactobacilline liquide, Culture A, is a pure culture in tubes of the *Bacillus bulgaricus* grown in a neutralized sugar bouillon, each tube containing from 5 to 6 Cc.

Actions and Uses.—See Lactobacilline Tablets.

Dosage.—One or two tubes of the culture are taken twice a day in a small quantity of sweetened water before meals. The tubes should be kept in a cold place, and should not be used after the date stamped on the package.

Manufactured by the Ferment Company, New York (The Franco-American Ferment Company, New York).

One Cc. should coagulate 1 liter of sterile milk in from twelve to twenty-four hours when incubated at from 37.5° to 40° C.

The object of this liquid culture is to secure the maximum quantity of virile and active organisms in a nutrient medium for direct administration.

LACTOBACILLINE LIQUIDE, CULTURE D.—Lactobacilline liquide, Culture D, is a pure culture in tubes of the *Bacillus bulgaricus* grown in a neutralized bouillon.

Actions and Uses.—See Lactobacilline Tablets.

Dosage.—One or two tubes of the culture are taken four times a day in a small quantity of water. The tubes should be kept in a cold place and should not be used after the date stamped on the package.

Manufactured by the Ferment Company, New York (The Franco-American Ferment Company, New York).

Lactobacilline Liquide, Culture D, Small.—Tubes containing 5 Cc. of pure cultures of the *Bacillus bulgaricus* grown in a neutralized bouillon.

Lactobacilline Liquide, Culture D, Large.—Tubes containing 16 Cc. of pure cultures of the *Bacillus bulgaricus* grown in a neutralized bouillon.

This culture contains a minimum amount of sugar and a heavy growth of virile and active organisms. One Cc. should coagulate 1 liter of sterile milk in from twelve to twenty-four hours when incubated at from 37.5° to 40° C.

LACTOBACILLINE LIQUIDE, INFANT'S CULTURE.—Lactobacilline liquide, infant's culture is a pure culture in tubes of the *Bacillus bulgaricus* in a whey medium.

Actions and Uses.—This preparation is employed in the treatment of diarrhea or dysentery in nursing infants or young children.

Dosage.—One or two tubes a day, administered in an equal quantity of sterile water.

Manufactured by the Ferment Company, New York (The Franco-American Ferment Company, New York).

One Cc. of this culture should coagulate 1 liter of sterilized milk in from twelve to twenty-four hours when incubated at from 37.5° to 44° C.

LACTOBACILLINE GLYCOGENE TABLETS.—Tablets containing pure cultures of the *Bacillus bulgaricus* and the *Glycobacter peptolyticus*.

Actions and Uses.—The *Glycobacter peptolyticus* transforms into sugar the amylaceous substances in the diet, thereby furnishing a pabulum for the *B. bulgaricus*, which in turn transforms the sugar into lactic acid. These tablets are designed as a prophylactic against intestinal diseases, as well as a remedial agent in the treatment of ailments due to intestinal putrefactions, auto-intoxications, etc.

Dosage.—One or two tablets two hours after each meal.

Manufactured by the Ferment Company, New York (The Franco-American Ferment Company, New York).

Lactobacilline glycogene tablets are prepared from the pure cultures of the *B. bulgaricus* and the *Glycobacter peptolyticus* which are mixed with lactose and a suitable non-potent mechanical vehicle, slowly dried and compressed. Each tablet contains an abundance of viable bacilli and of glycobacter spores. Each tablet should coagulate 1 liter of sterilized milk in forty-eight hours when incubated at from 40° to 44° C. The characteristic film of the *Glycobacter peptolyticus* should be produced on nutrient bouillon in from twenty-four to thirty-six hours.

LACTOBACILLINE GLYCOGENE LIQUIDE.—Lactobacilline glycogene liquide is a pure culture in tubes of the *Bacillus bulgaricus* and the *Glycobacter peptolyticus*.

Actions and Uses.—See Lactobacilline Glycogene Tablets.

Dosage.—One tube in a wineglassful of water two hours after each meal. The tubes should be kept in a cold place and should not be used after the date stamped on the package.

Manufactured by the Ferment Company, New York (The Franco-American Ferment Company, New York).

Lactobacilline Glycogene Liquide, Small.—Tubes containing 5 Cc. of pure cultures of the *Bacillus bulgaricus* and the *Glycobacter peptolyticus*.

Lactobacilline Glycogene Liquide, Large.—Tubes containing 16 Cc. of pure cultures of the *Bacillus bulgaricus* and the *Glycobacter peptolyticus*.

One Cc. should coagulate 1 liter of sterile milk in twenty-four hours when incubated at from 37.5° to 40° C., and should produce the typical film of the *Glycobacter peptolyticus* when grown on nutrient bouillon.

LACTOBACILLINE MILK TABLETS.—Tablets containing pure cultures of the *Bacillus bulgaricus* and *Bacillus paralacticus*.

Actions and Uses.—Lactobacilline milk tablets are used in the preparation of scientifically soured milk which serves as a means of administration of the *B. bulgaricus* and also possesses a nutritive value. It is used as a palatable nourishing drink, and in cases of intestinal indigestion and auto-intoxication.

Dosage.—One tablet should be placed in 1 liter (quart) of sterilized milk and incubated for twenty-four hours at 40° C.

Manufactured by the Ferment Company, New York (The Franco-American Ferment Company, New York).

Lactobacilline milk tablets are prepared from pure cultures of *B. bulgaricus* and *B. paralacticus* which are mixed with lactose and a suitable non-potent vehicle, slowly dried and compressed.

LACTOBACILLINE SUSPENSION.—Lactobacilline suspension is a pure culture in tubes of the *Bacillus bulgaricus* grown in a neutralized bouillon medium.

Actions and Uses.—This culture tends to inhibit the growth of deodorant, putrefactive and pathogenic organisms. It acts as an antiseptic and has been found beneficial in chronic suppurative conditions of the nasal passages, antrum, middle ear, in chronic abscesses, and in puerperal putrefactive processes of the endometrium and vagina.

Dosage.—The parts to be treated should be thoroughly cleansed with sterile water or a warm saline solution. The amount of culture to be applied depends on the extent and condition of the involved area, one or several tubes being necessary. The culture should be kept in a cold place, and should not be used after the date stamped on the package.

Manufactured by the Ferment Company, New York (The Franco-American Ferment Company, New York).

Lactobacilline Suspension.—Tubes containing 5 Cc. of pure cultures of the *Bacillus bulgaricus*.

Lactobacilline Suspension Surgical.—Tubes containing 20 Cc. of pure cultures of the *Bacillus bulgaricus*.

One Cc. of this culture should coagulate 1 liter of sterilized milk in from twelve to twenty-four hours when incubated at from 37.5° to 44° C.

LACTOBACILLINE MILK FERMENT.—Lactobacilline milk ferment is a pure culture in tubes of the *Bacillus bulgaricus* and *Bacillus paralacticus*.

Actions and Uses.—See Lactobacilline Milk Tablets.

Dosage.—One tube should be placed in a liter (quart) of sterilized milk and incubated for twenty-four hours at 40° C.

Manufactured by the Ferment Company, New York (The Franco-American Ferment Company, New York).

The organisms in this ferment are grown in a neutral sugar bouillon.

Typhoid Death-Rate and the Army.—The death-rate from typhoid fever per hundred thousand population in the registration area of the United States during the year 1912 (the last report available) was 16.5. The absence of a single death from typhoid in the nearly 100,000 officers and men of the Army who were protected by vaccination contrasts favorably with the 16.5 deaths per an equal number of the general population.—C. C. Bass, M.D., in *Am. Jour. Trop. Dis. and Prev. Med.*

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SATURDAY, JUNE 13, 1914

THE CONSTANCY OF ENDOGENOUS URIC- ACID EXCRETION

Among those who helped to overthrow the older notion that the urea and uric acid excreted in the urine have a common origin was the Bohemian physiologist, Professor Mares of Prague. As early as 1887¹ he formulated the hypothesis that uric acid is the product of the activity of cell protoplasm, whereas urea arises directly from the disintegration of proteins ingested as food. In the divorce of these two nitrogenous substances, urea and uric acid, which were long believed to have a direct genetic interrelationship, uric acid was accordingly made a derivative of that chemical process which forms the basis of cellular activity. The quantity of urea formed in a given time was clearly seen to depend above all on the amount of nitrogenous matter absorbed. When the possible relation of nucleoproteins and purins to uric acid began to be appreciated, Mares insisted that not only the nucleoproteins of the leukocytes (as had been previously maintained), but likewise those of any body-cells may give rise to uric acid.

To-day it is believed that both food-purins and tissue-purins and their precursors can give rise to the excretion of uric acid in man; and the physiologist distinguishes accordingly between the uric acid of endogenous and that of exogenous origin. The idea that the former can be derived in the human body by direct synthetic processes is not commonly accepted. It was Mares in particular who early advanced the conclusion that although the urea output of an individual on a purin-free diet may vary within very wide limits, the excretion of uric acid under these conditions approaches a constant which is fixed for the individual. So long as the view was sustained that uric acid is both formed and destroyed in the organism of man² it was not easy to understand how the remarkable fixity of the endogenous quota of uric acid could be maintained. For this reason, in part, the work of

Mares was neglected and ceased to attract much recognition. Now that uric acid appears to be a true end-product of human purin metabolism³ rather than an intermediate stage, the fixed character of the amount excreted when no purins are found in the diet may be viewed in a new light. Constancy in output can thus be interpreted as the expression of some definite function in the body, such as the routine activity of tissue-cells. It does not apply to those found in the muscles; for vigorous exercise does not markedly alter the endogenous output of uric acid. The secretory glands have been suggested as a more probable source of the latter.

If further evidence is needed to emphasize the often observed constancy in the quantity of endogenous uric acid eliminated by one person—a feature substantiated by many investigators in different parts of the world—it may be found in the latest contribution from Mares' laboratory. His assistant, Dr. Faustka,⁴ has reinvestigated quantitatively the output of uric acid in some of Mares' earlier subjects, under the original conditions of diet—in one case after an interval of twenty-five years, the age of the subject at the second trial being 70. The variations in the output at the two periods of life were not more than a few milligrams. In 1886 the output was 8.11 mg. per kilogram of body weight in twenty-four hours, as compared with the figure 8.2 mg. for 1911. Other comparable cases have enforced a similar lesson, namely, that the quantity of uric acid excreted by the adult human organism in definite periods under fixed conditions is a physiologic constant.

It must not be assumed, however, that no importance attaches to an estimation of uric acid in the urine unless the endogenous constant is known. The dietary or exogenous sources of this urinary component are so varied and large in comparison with the quota furnished by the body itself, independent of the food intake, that the total daily output, under the usual conditions of feeding, is not significantly modified by incidental variations in the endogenous output. The essential importance of a study of the latter feature lies in obtaining one more constant, like endogenous creatinin, from which to estimate variations incidental to disease when suitable conditions arise.

SANITATION ON THE ISTHMUS OF PANAMA AND ON THE RAND

The report by Surgeon-General Gorgas¹ on the health of the mine laborers of the Rand which appears in this issue contains data and conclusions of the

1. Mares, F.: Sur l'origine de l'acide urique chez l'homme, Arch. slaves de biol., 1887, iii, 207; Sborn. lék., 1888, ii, 1.

2. The exposition of this view will be found in a series of editorials entitled Truth and Poetry Concerning Uric Acid, THE JOURNAL A. M. A., Jan. 14 to May 13, 1905.

3. Uric Acid, editorial, THE JOURNAL A. M. A., Aug. 17, 1912, p. 545.

4. Faustka, O.: Ein experimenteller Beitrag zur Lehre von der individuellen Konstanz der Harnsäure beim Menschen, Arch. f. d. ges. Physiol., 1914, clv, 523.

1. Gorgas, W. C.: Recommendation as to Sanitation Concerning Employees of the Mines on the Rand Made to the Transvaal Chamber of Mines, p. 1855, this issue.

highest importance. The excessive death-rate from pneumonia among the imported or "recruited" native laborers is the central theme of the report, and Gorgas' valuable and unique Panama experience has been freely drawn on for comparison. It seems that for some time the pneumonia-rate on the Rand has been very high, ranging in 1912, for example, from 26.3 in the 21,000 tropical natives to 8 in the 199,000 non-tropical. Apart from the differences associated with race or origin, the suggestive fact is noted that the newly arrived native is by far the greatest sufferer from pneumonia. In 1912, out of 2,031 deaths from pneumonia among the Rand laborers, 1,199 were deaths of men who had been at the mines less than six months. The difference between the tropical and non-tropical natives may be at bottom of the same character since, according to Gorgas, "in general, the tropical is the non-civilized native who has had little contact with the white man's diseases, and the non-tropical, the native who has had more or less contact with civilization and the white man's diseases."

Taking this fact, which seems to be the only significant epidemiologic fact shown by the Rand statistics, as a starting point, Gorgas proceeds with a masterly analysis of the pneumonia situation as observed on the Isthmus of Panama. In the construction of the Panama Canal the conditions with regard to pneumonia were at the outset very similar to those found on the Rand. In 1906 the pneumonia death-rate among the negroes brought from the West Indies to the Canal Zone was 18.74 per thousand. With the aim of reducing this very high rate a careful study was made of a number of factors that might influence pneumonia. Altitude, ventilation and the effect of sleeping in wet clothes were in turn examined as possible predisposing causes, but in each instance with negative results. "The only difference in susceptibility was shown to be governed by the length of time that the laborer had been on the Isthmus." Pneumonia was four and one-half times as frequent among the men who had been on the Isthmus less than three months as among the men who had been on the Isthmus more than three months. In the Panama Canal Zone, however, the pneumonia-rate did not remain high. The pneumonia death-rate figures are: 1906, 18.74; 1907, 0.61; 1908, 2.60; 1909, 1.60; 1910, 1.66; 1911, 2.24; 1912, 1.30. Now the significant fact is that the sudden and remarkable drop after 1907 was coincident with a radical change in the manner of living. In 1907 the negro laborers were allowed to scatter out along the line of the Canal to "build each man his hut, with a small cultivable piece of land, and bring over his family." It is evident that under such conditions the opportunities for the transfer of pneumococci from carriers to non-immunes are much less favorable than under the barrack system. Gorgas definitely attributes the sudden and permanent drop in pneumonia on the

Isthmus to the scattering of the negroes in independent dwellings.

Applying these facts to the Rand situation, the conclusion is drawn that the high pneumonia-rate on the Rand is due to the same factor of barrack overcrowding which was apparently responsible for the initial high pneumonia-rate on the Isthmus of Panama. In accordance with the Panama experience the recommendation is made that so far as possible the negro laborers be allowed to bring in their families and live with them in individual buildings. Where this is not possible much roomier native quarters should be provided. The present allowance (about 14 feet of floor-space!) is much too limited.

Gorgas' conviction that under the conditions described pneumonia is a disease spread largely by contact does not seem likely to pass unchallenged, to judge from the opinion recently expressed by Maynard,² who deals with the same body of Rand data reviewed by Gorgas. Maynard declares that "a study of these figures shows definitely that if infections from case to case play any part in determining the prevalence of this disease among 'tropical natives,' it can be, at most, but a very small one." Nevertheless, in view of the striking course of events at Panama, it is hard to see a way of escape from the conclusions reached in Gorgas' investigation.

Gorgas' article is full of details of an unusually interesting character. In Gorgas' opinion, vaccination against pneumonia is worth considering as a protective measure. In 1912 at the Premier Mine, 17,500 inoculated had a pneumonia death-rate of 6.89, and 6,700 uninoculated a death-rate of 17.72.

Those who believe that housing is a matter of real sanitary importance³ will find support for their views in Gorgas' opinion as to the influence of the crowded quarters on the Rand. "The general objection to such crowding is that it causes the respired air to become vitiated. My great objection to such crowding is that it forces the occupants into close personal contact, and therefore largely increases the spread of any infectious disease."

The advocates of the restriction of liquor-selling will find comfort in Gorgas' views as to the value of even localized prohibition. "Alcohol for the natives, I believe, is an unmitigated evil. It is in no way necessary for his health; in fact it is always hurtful. . . . The two Panama towns of Colon and Panama, at the northern and southern end of the Canal, are not under the jurisdiction of the commission as far as regards liquor-selling. There is no restriction on an employee going to these towns and getting liquor as he wishes and bringing it out into the Zone to his own

2. Maynard, G. D.: An Enquiry into the Etiology, Manifestations and Prevention of Pneumonia Amongst Natives on the Rand, Recruited from Tropical Areas, South African Institute for Medical Research, Memoir 1, Nov. 1, 1913.

3. Housing and Sanitation, editorial, THE JOURNAL A. M. A., May 9, 1914, p. 1479.

home. The only prohibition is that it must not be sold in the Zone. But to get liquor he has to make a longer or shorter railroad trip and go to considerable effort. Our experience has shown that there are a considerable number of men who do not care enough for liquor to make the effort, and therefore do without. Of course there are a large number who bring liquor out and drink as much as ever; but on the whole our prohibition of its sale has largely decreased drunkenness. It has increased the efficiency of our working force so much that generally the men in charge of the laborers in the different districts have asked to have their districts included within the prohibited area. I believe that it would be best for the native on the Rand to have no alcohol at all."

EXPERIMENTAL PERNICIOUS ANEMIA AND ALIMENTARY INTOXICATION

The causes of pernicious anemia still remain a problem. Many have inclined to the hypothesis that gastro-intestinal sepsis may be concerned in the pathologically increased hemolysis of which all modern writers find convincing evidence. The belief that the disintegration of red blood-corpuscles is connected in some way with the toxic effect of substances generated in the alimentary tract is reflected in some of the current modes of treatment. By some clinicians active measures are employed to clear the intestinal canal more promptly and effectively than is ordinarily done. The daily washing out of the large bowel through a high rectal tube, combined with dietary measures calculated to reduce bacterial decompositions in the digestive tube, has been advocated; and beneficial results following the liberal use of laxatives have been reported. In discussing them Richard Cabot has conservatively remarked that it is not possible as yet to distinguish between *post hoc* and *propter hoc* with regard to the improvements noted.

There is little doubt that certain known intestinal parasites are capable of giving rise to severe types of anemia. Faust and Tallquist¹ isolated a hemolysin from the bodies of *Bothriocephalus*, for example; and in this case they believed that they could actually identify as oleic acid the hemolytic agent obtained from the parasites. Findings of this sort have suggested that other hemolytic anemias of man may be caused by chemical compounds which reach the blood-current via the alimentary tract. In the case just cited these hemolysins have their origin in the bodies of animal intestinal parasites. In view of the fact that in the bowel there occur at times profound bacterial changes which result in the formation of substances quite unlike those produced in normal aseptic digestion, it is a short step to charge some of these

largely unknown derivatives of microbial activity with hemolytic propensities. Such vague hypotheses, however, must be substantiated or disproved by experiment.

The amins have long been recognized as products of bacterial changes wrought in the proteins and their derivatives under conditions which may obtain in the gastro-intestinal tract. Many years ago Brieger of Berlin directed attention to such compounds; and two of them, putrescin and cadaverin—which are respectively, tetramethylenediamin and pentamethylenediamin, and are genetically related to familiar protein digestion products—rank as typical so-called ptomains. Among the newer compounds of this group oxyphenylethylamin (tyramin) has become especially conspicuous of late. It has been isolated from putrid meat,² from certain types of cheese,³ and—what is of especial medical interest—from ergot (*Secale cornutum*). Oxyphenylethylamin is produced from the amino-acid tyrosin by various races of bacteria, among them *Bacillus coli communis*,⁴ a known inhabitant of the alimentary tract of man. It is easy to conceive that disturbances in the antagonism between the micro-organisms developed in the bowel might lead to a preponderance of groups which easily produce amins of the sort represented by oxyphenylethylamin. Imidazolyethylamin (histamin) is an added case in point.

These amins are known to be endowed with pronounced pharmacologic potencies and have already found their way into therapeutics. The effects should now be ascertained not only of the heroic doses occasionally necessary in medication, but also of the far smaller quantities comparable with those which might be gradually formed and slowly absorbed under the conditions actually obtaining in the gastro-intestinal tract. An interesting beginning has been made in the medical clinic at the University of Kyoto, Japan, in Professor Sasaki's laboratory. Iwao⁵ has subjected animals to repeated daily subcutaneous injections of very small doses of oxyphenylethylamin. Severe anemia of the pernicious type was thereby developed. The blood-pictures deviated strikingly from the normal.

The salts of oxyphenylethylamin do not cause hemolysis *in vitro*. The explanation of the profoundly destructive effects exerted on erythrocytes by the continued administration of this compound must lie in some process in which the damage to the blood cells is an indirect or secondary consequence.

1. Faust, E. S., and Tallquist, F. W.: Arch. f. exper. Path. u. Pharmacol., 1912, lvii, 375. The Toxic Properties of Familiar Intestinal Parasites, editorial, THE JOURNAL A. M. A., May 4, 1912, p. 1377.

2. Barger and Walpole: Jour. Physiol., 1909, xxxviii, 343.

3. Winterstein and Küng: Ztschr. f. physiol. Chem., 1909, lix, 1.

4. Barger and Dale: Arch. f. exper. Path. u. Pharmacol., 1909, 113.

5. Sasaki, T.: Ueber die biochemische Umwandlung primärer weissspaltprodukte durch Bakterien, I, Das Verhalten von Tyrosin gegen Bact. coli commune, Biochem. Ztschr., 1914, lix, 429.

6. Iwao, T.: Beiträge zur Kenntnis der intestinalen Autointoxikation, I, Ueber den Einfluss von p-Oxyphenyläthylamin auf das Mäuschenblut, Biochem. Ztschr., 1914, lix, 436.

isolated group of experiments of this sort, however notable, is far from solving the etiology of pernicious anemia; but it represents a rational sort of experimental attack on the problem. The results show the actual production of an experimental anemia by the agency of a recognizable chemical compound of a type which can, and undoubtedly does at times, arise in the alimentary tract. The thorough study of such well-defined substances represents an intelligent way to approach the phenomena of so-called auto-intoxication.

SUGAR IN CARDIAC METABOLISM

An age of specialization has been reached in the field of metabolism. A few years ago it was the body as a whole that commanded the attention of the student of nutrition; but to-day we are learning to differentiate and recognize the special demands of individual organs and tissues. Each has its own physiologic function to perform and it is possible that each develops a special requirement for energy or the individual nutrients.

Little is known as yet regarding the gaseous metabolism of isolated organs, or of the extent to which various foodstuffs are used by them as sources of energy. It has been clearly demonstrated that incident to their physiologic work the lungs, the kidneys and other glands, skeletal muscles, heart, etc., generate carbon dioxide and require oxygen. Of late the heart in particular has been the subject of detailed investigation because it can readily be made to continue its usual action when detached from the rest of the body and perfused with circulating mediums that can be altered at will. The determination of the respiratory quotient, that is, the ratio between the carbon dioxide produced and the oxygen consumed in a given period, is an excellent index to the character of the metabolism in progress. When carbohydrates alone are burned up in the organism, the respiratory quotient

$$\frac{\text{CO}_2}{\text{O}_2}$$

is 1; for the other foodstuffs it is lower.

The modern observations on the respiratory quotient of the isolated heart have shown it to vary within the same limits as those for the entire organism, for example, from 0.65 to 0.95 or more. This indicates that the metabolism of such an isolated organ is qualitatively closely allied to that of the body taken as a whole, or is even identical with it. In other words, the isolated heart has to a great extent the power to oxidize fully to their gaseous end-products the same cell or plasma constituents as the whole array of organs in the body has when they are working together in the normal way.

An interesting immediate confirmation of this has been furnished by Dr. C. Lovatt Evans¹ at the Insti-

tute of Physiology in University College, London. It is well known that the respiratory quotient of the entire organism is raised when carbohydrate food is taken in quantity; for this material is promptly burned in preference to other nutritive pabulum. So Evans has found that when glucose is added to the circulating blood of an isolated heart-lung preparation, the respiratory quotient of the preparation is raised. The respiratory quotient of the isolated heart is also markedly increased by previous carbohydrate diet, and it is then often decidedly higher (above 0.9) than that which is obtained after the addition of glucose to the blood. How important this dietary factor may be is indicated by the calculation that the normal heart of the dog, for example, obtains about one-third of its energy supply by the oxidation of carbohydrate. But in animals deprived of this foodstuff for some time the amount may be, and usually is, much less than this. Possibly the time may come when running expenses, so to speak, of the body's different departments can be itemized.

THE PRICE OF LABOR EXPRESSED IN TERMS OF FOOD-FUEL

As man is a fuel-consuming machine, it requires no argument to emphasize the importance of knowledge concerning the food-fuel which he needs. It matters little whether instinct is an unerring guide in providing a suitable supply of nutriment for the individual. Unless food is available at a cost within the reach of those concerned, the possibility of inadequate maintenance at once arises. The question of the under-nutrition of the masses or the underfeeding of any group in society, whether it be schoolchildren, the indigent sick or the poorest laborers in the community, cannot be solved permanently before the actual nutritive needs of all of these classes are ascertained on an indisputable scientific basis. Only then is it possible to determine if the failure to obtain adequate nourishment is due, in each case, to poverty, or to the lack of suitable food-supplies or to ignorance and perverted judgment in the purchase of the day's ration.

For this reason various "standards" have been proposed by physiologists and chemists for daily dietaries of persons of differing age, sex and occupation, and in different conditions of life. In general these estimates have been based on two distinct methods of ascertaining the suitability of a ration. By the one, the quantities of food actually consumed by individuals or known groups of persons have been noted. The other method consists in determining, by special metabolism experiments, the actual physiologic demand for food. This furnishes information concerning the needs of man in maintaining a nutritive equilibrium under selected conditions of activity rather than what he would eat if given the freedom of choice. This

1. Evans, C. L.: The Effect of Glucose on the Gaseous Metabolism of the Isolated Mammalian Heart, *Jour. Physiol.*, 1914, xlvii, 407.

method, being the more laborious and difficult mode of investigating dietary needs, has hitherto been employed less frequently in experimental inquiry than has the statistical method.

On the basis of the former procedure, in which the proportions of foodstuffs assumed to be needed are inferred empirically from those consumed in observed cases, nearly all of the widely quoted dietary standards have been established. Any one who hopes to interpret or employ them rationally must bear certain fundamental principles of nutrition in mind. The requirements of the body in terms of food-fuel or energy depend on the way in which food is used to build the organism and repair its waste, and above all on its heat- and power-yielding quality, particularly through the activity of the musculature. Bearing these facts in mind, it is obvious that the size of an individual is one of the factors which determine the need of food. If vigorous growth is still in progress, the demand of nutrients for new tissue construction may become noteworthy. Chief, however, stand the variations of demand caused by the unlike expenditure of energy in different occupations. The sedentary book-keeper or seamstress requires a far smaller supply of energy than the wood-chopper or the washerwoman. It is a customary assumption that, because of her smaller average stature and lesser muscular performance, a woman requires on the average eight-tenths as much food as a man for corresponding muscular activity. It has also been assumed that children of different ages consume from three-tenths to eight-tenths as much as the man of the family. Such generalizations have become necessary whenever the food habits of people have been investigated by the observation of food purchase or consumption in entire families.

We shall not go far amiss if we express the current dietary standards, so far as they are based on the preceding mode of estimating them for conditions prevailing in the United States, in terms of the results compiled by Dr. Langworthy of the United States Department of Agriculture, as follows:

| Occupation of Head of Family | Fuel Value of Food per Man per Day, in Calories |
|--|---|
| Man at very hard work..... | 6,000 |
| Farmers, mechanics, etc..... | 3,425 |
| Business men, students..... | 3,285 |
| Inmates of institutions, little or no work.... | 2,600 |
| Very poor persons, usually out of work.... | 2,100 |

Without denying in any way the importance and great value of such indirect data, one may frankly designate them as rather inexact. For this reason it is still desirable to check up their indications, whenever possible, by direct measurements of the energy transformations. Numerous results already collected by this method of investigation have given no occasion to question the general validity of the "standards" set by the less accurate statistical method. The latest of

such metabolism studies is of particular interest because it was conducted under the conditions of work that represent in some adequate way the daily muscular performances of the persons concerned.¹ The experiments were conducted in the large respiration apparatus of the physiologic institute at the University of Helsingfors in Finland, the carbon dioxide output of the subjects being determined during periods of rest and characteristic activity, and calculated into terms of energy consumed. Making an allowance of 10 per cent. for the alimentary waste of food the gross results were as follows:

| Men | Calories per Day |
|---------------------------------|------------------|
| Tailor | 2,600-2,800 |
| Bookbinder | 3,000 |
| Shoemaker | 3,100 |
| Metal-worker | 3,400-3,500 |
| Painter | 3,500-3,600 |
| Cabinetmaker | 3,500-3,600 |
| Stone-cutter | 4,700-5,200 |
| Wood-cutter | 5,500-6,000 |
| Women | |
| Seamstress (by hand)..... | 2,000 |
| Seamstress (sewing machine).... | 2,100-2,300 |
| Bookbinder | 2,100-2,300 |
| Housemaid | 2,500-3,200 |
| Washerwoman | 2,900-3,700 |

These interesting figures not only give an impressive confirmation of the energy standard derived by the direct methods of investigation, but also bring immediately, clear relief the great differences that the various trades and occupations entail. Such facts need to be taken into consideration in institutions in which the inmates are assigned to work as unlike as bookkeeping or sewing on the one hand, and wood-chopping or other forms of hard manual labor on the other. Such figures show the obvious physiologic injustice of doling out equal portions of the same ration to all of these persons, especially when free choice is restricted or practically impossible. Furthermore, it should be noted that the data of the Finnish physiologists are based on an eight-hour working day. Any lengthening of this period must affect the expenditure here represented.

It is impossible to determine from the cursory studies that have been made whether the scale of living or "standard of life" is actually much higher here, as has been asserted by some, than it is in Europe. One American authority, the late Professor Atwater, frankly believed that, considering the body as a machine, the American workingman is more strongly built and has a larger fuel-supply than his European brother. While it is not absolutely proved it seems in the highest degree probable that the high standard of living, the better nutrition, the large product of labor and the higher wages go together. The justification for any propaganda in favor of more liberal standards for dietaries rests in a measure on

1. Becker, G., and Hämäläinen, J. W.: Untersuchungen über die Kohlensäureabgabe bei gewerblicher Arbeit, Skandin. Arch. f. Physiologie, 1914, xxxi, 198.

the truth of this belief. And, speaking aside for the moment, a glance at the figures which we have quoted shows that the proverbial advice to "mind one's business and saw wood" entails no mediocre performance in terms of calories per day.

SOME CONDITIONS INDUCING EXCESSIVE RESPIRATION

It has been pointed out by several investigators¹ that voluntary forced breathing in man may give rise to unpleasant and even alarming symptoms. The outcome apparently depends on a number of modifying factors. As a rule, in a short time after the forced breathing the subject either stops breathing altogether if his respiration is allowed to act involuntarily or he breathes in a very shallow and ineffective manner. Numbness and tingling in the hands and feet are reported to occur; and if the forced breathing has been of considerable duration—two or three minutes or longer—many subjects experience an oxygen want when the subsequent apnea sets in. The lips may turn blue; Cheyne-Stokes breathing may be initiated; and Henderson has called attention further to the occurrence of "light-headedness," polyuria, shivering, muscular weakness and other functional disturbances induced by prolonged forced breathing. He maintains that the symptoms evoked are similar to those of shock, and suggests that death from failure of respiration would probably result from vigorous voluntary hyperpnea for fifteen or twenty minutes.

There are various ways in which excessive respiration—hyperpnea—can be induced in man aside from the purely voluntary manner that has just been referred to. Pain is one of the natural stimuli calling forth hyperpnea. Anger, sorrow, fear and ether-excitement may induce a similar result. All of these phenomena may be attended or followed by what is sometimes spoken of as shock. Henderson, as is well known, has argued that the condition of shock which results in man from extreme physical suffering is, to a large extent, caused by the reduction of the carbon dioxid content of the blood and tissues as the result of the violent and prolonged hyperpnea caused by stimulation of afferent nerves. In contrast with this is the view that the ill effects produced by suffering are the expression of fatigue of the nervous system and of the heart, resulting from the intensity of the sensory irritations. This theory of the etiology of shock has been vigorously combated. We have no desire at this time to enter into a discussion of the nature of this much-debated subject. The underlying facts with respect to the physiologic effects of pain and ether, for example, on the respiration in man ought to be demonstrable quite independent of the

interpretation which is put on the consequences thereof.

Hitherto much of the experimental work has been conducted on animals under conditions which approached extremes rarely found in man; or in the case of experiments on man the voluntary forced respiration has been somewhat unlike that which might arise in the exigencies of practice. Dr. A. L. Meyer of the University of Pennsylvania has approached the problem of hyperpnea and acapnia in its possible relation to "one of the most important symptom-complexes in medicine" by a direct study of the effect of moderate pain and of the incipient stage of anesthesia in man. In Haldane's laboratory at Oxford he determined the volume of air breathed, the respiratory exchange, and the alveolar carbon dioxid pressure on human subjects.² The device for securing experimentally the effect of moderate pain, the duration of which could be controlled, consisted in placing a clamp on the end of the little finger. This apparatus could be screwed down firmly and then released. The average pain was, according to the investigator, probably such as might be caused by a severe felon.

Pain of moderate intensity and short duration (two to three minutes) actually produces hyperpnea that can easily be measured. The alveolar carbon dioxid is diminished and the respiratory quotient increased. Ether in suitable low concentration produces hyperpnea in one minute. How vigorous it may become is illustrated by one case in which an air mixture containing 3.3 per cent. of ether produced an increase of 92 per cent. in the air respired; and on another occasion a mixture of 2.8 per cent. produced an augmentation of 66 per cent. The degree of excessive ventilation of the lungs varies in different persons; and with higher concentrations of ether the breathing is diminished. The alleged possibilities of inducing acapnic conditions in man are accordingly established.

Current Comment

GOING TO ATLANTIC CITY?

THE JOURNAL for May 16 contained a preliminary announcement of the program for the Scientific Assembly and detailed information with regard to hotel accommodations at that city of hotels—Atlantic City. Before the next issue of THE JOURNAL reaches its readers, many members and Fellows will be on their way to the meeting-place. If arrangements have not already been made there is still time to complete them and to take advantage of the session. The usual large attendance undoubtedly will be increased because of the hot weather which prevails, making Atlantic City especially attractive. Even apart from the interesting scientific program of the Sections, Fellows who

1. Haldane and Poulton: *Jour. Physiol.*, 1908, xxxvii, 390. Henderson, Yandell: *Am. Jour. Physiol.*, 1909-10, xxv, 310; *Respiratory Experiments on Man*, THE JOURNAL A. M. A., April 11, 1914, p. 1133.

2. Meyer, A. L.: *Hyperpnoea as a Result of Pain and Ether in Man*, *Jour. Physiol.*, 1914, xlviii, 47.

go will be well repaid by meeting and exchanging ideas with professional brethren from all over the country, including the leaders and men in the forefront of investigation and research. Then, too, the setting of the meeting will be ideal: abundant comfortable hotel accommodations managed by men who are past masters in the art of providing for the comfort and pleasure of their guests, and the local profession who have always proved themselves gracious hosts and who have solved the problem of caring for heavy professional duties and at the same time greeting visiting physicians with a heartiness that assures all a welcome—all this has been the experience in the past, and Atlantic City improves every time the Association pays it a visit. It requires no gift of prophecy to foretell a delightful social good time, as well as a scientific treat. The Fellows who go to Atlantic City will work the better throughout the year for having thrown aside the routine and the demands of a busy practice for this short breathing-space.

THE SPREAD OF THE "SANE FOURTH" MOVEMENT

Probably at no time in the eleven years since *THE JOURNAL* began its agitation for a safe and sane Fourth has so much interest been manifest in such a number of cities so far in advance of our national holiday. Information from all over the country indicates that those cities in which our last year's report showed a high death- and accident-rate are bestirring themselves in the hope of preventing the repetition of last year's experience. As has been frequently pointed out, the city is directly responsible for the regulation of the Fourth and the prevention of the needless slaughter, maiming and blinding of children. Municipal ordinances are the only method by which this problem can be solved. In the report issued last August, *THE JOURNAL* showed that the total price in human life and suffering paid for the celebration of the Fourth of July during the past eleven years was 1,792 deaths and 39,488 injuries; that, although the number of injuries and fatalities had decreased during the past four years, the cities in which the old and barbarous methods of celebrating the Fourth were still followed, were maintaining or were even exceeding the records of previous years in the quota of deaths and injuries. Thus, while New York had reduced its record from 22 killed and 422 injured in 1907 to none killed and 65 injured in 1913, and Chicago during the same period had fallen from 16 killed and 151 injured in 1907 to 1 killed and 12 injured in 1913, Philadelphia, which had 7 killed and 248 injured in 1907, had 3 killed and 340 injured in 1913. What New York and Chicago have done; Philadelphia can do if she will. The death or injury of her children from Fourth of July accidents is a matter for which each city government is directly responsible. Other cities in which the number of killed and injured is still far too high are Pittsburgh, Cincinnati, Providence, R. I., Worcester, Mass., Syracuse, N. Y., Omaha, Neb., Grand Rapids, Mich., Hartford, Conn., Reading, Pa.,

Wilmington, Del., and Des Moines, Ia. The citizens of these cities would do well to demand from the city government, for the protection of their children, the passage of ordinances that will prohibit the sale of fireworks, and substitute for the former barbarous methods of celebration plans more in keeping with the day and the occasion which it commemorates.

TEACHING IN MUNICIPAL HOSPITALS

As we have remarked before,¹ a large hospital which does no more than care for the sick fulfils only a part of the function it owes to the community. It should contribute its share to medical education and research, and should therefore stand in such relation to a teaching institution as will permit the best possible use of the clinical material it affords. Many private hospitals and the state hospitals of Virginia, Michigan and Iowa have arranged such connections. We mentioned last week² that Yale Medical School, according to the terms of a gift made by the General Education Board of the Rockefeller Foundation, is called on to acquire control of the New Haven Hospital with its 260 beds. If the conditions of the gift are fulfilled, Yale will be the fifth medical school in this country to acquire control, by definite agreement, of the municipal hospital facilities in the community in which it is located. The Cincinnati Hospital with its 500 beds is utilized for clinical instruction by the College of Medicine of the University of Cincinnati. The medical department of the University of Georgia, by contract with the city of Augusta, has control in perpetuity of all the municipal hospitals now in existence or hereafter to be erected in that city. The medical department of the University of Louisville is able to make use of the clinical material afforded by the Louisville City Hospital with its 500 beds. The School of Medicine of Western Reserve University has control of the clinical facilities of the Cleveland City Hospital and St. Vincent's Charity Hospital, in addition to those afforded by private hospitals—in all, over 1,300 beds. In various other cities, the municipal hospital facilities are utilized for instruction to a greater or less extent under less formal arrangements. In marked contrast with such arrangements with hospitals elsewhere is the withholding from use in medical teaching of the abundance of splendid clinical material in the 1,700 beds in the great Cook County Hospital in Chicago. That the best interests of hospital patients are thus sacrificed is clear, since it has long been recognized that the highest standards of efficiency are found in those hospitals which are most closely related with high-grade medical schools. It is only through such relationships that the hospitals are kept in touch with the latest and best methods of diagnosis and treatment, since they aid in and get the benefits of the research work of the medical school. The public interests are likewise sacrificed in the lack of such a relationship, since one of the main functions of the hospital is not being exercised, namely,

1. *The Educational Function of Hospitals*, editorial, *THE JOURNAL A. M. A.*, May 27, 1911, p. 1581.
2. *Medical News*, *THE JOURNAL A. M. A.*, June 6, 1914, p. 1816.

that of supplying material for the training of future nurses and doctors, who in turn would be stimulated to greater zeal in the recognition, treatment and prevention of diseases. It has repeatedly been shown that physicians are invariably more careful in their methods of diagnosis and treatment if they are being watched by a few bright, intelligent medical students. It is to be hoped that the closer relationships being established between private and municipal hospitals and leading medical schools elsewhere may point the way to similar relationships in Chicago and our other large cities.

THE DOCTOR'S DILEMMA

The other day a physician of Duquoin, Ill., was shot to death because he refused to answer a call to the family of the murderer. Such, at least, is the newspaper report, and it is probably correct. The following morning the *Chicago Tribune*, under the caption "The Doctor's Dilemma," contained an editorial that is so sensible and recognizes the situation so well that we quote it entire:

When a child becomes sick at night the first thing the anxious parents think of is the doctor. They have no hesitancy to wake him up before dawn. They will drag him out of the house before breakfast. The few minutes he takes to dress seem ages to them. If they could they would transport him on wings to their sick child's bedside.

But just as the doctor is thought of first in illness, he is thought of last after the patient has recovered. Doctor bills are postponed to the last. In no profession or business is the amount of unpaid bills as great as in the medical profession. It is not surprising that a doctor now and then scorns a call from a family he has down on his list as "dead beats."

For scorning a call from a family that had not paid him for services previously rendered, a physician was killed the other day by the irate head of this family. No doubt the slayer of the physician will try to defend his action on the ground of having been crazed by the sufferings of his child. But it will be a false defense. It was murder pure and simple. And the unreasonable attitude which the public takes toward the physician is in part responsible for it. We are too apt to forget that the doctor has rent to pay and grocer bills to meet.

OXFORD HONORS SURGEON-GENERAL GORGAS

By a peculiarly happy coincidence we are able to present, in connection with Surgeon-General Gorgas' paper, "Recommendation as to Sanitation Concerning Employees of the Mines on the Rand," facsimiles of two interesting documents. These are the copies, which Sir William Osler caused to be engrossed and illuminated on parchment, of the addresses made at Oxford when the honorary degree of Doctor of Science was conferred on Dr. Gorgas. The beautiful colors of the originals, however, must be left to the imagination. On page 1864 is a facsimile of the address of the public orator of Magdalen College, Oxford, on the presentation of Dr. Gorgas for the degree, together with an exact transcript of the translation which is engrossed on the same parchment. The latter, by the way, contains in the beautifully executed original, and hence in the transcript, a few easily recognizable typographical errors, evidently made by the artist who did the engrossing. On the

opposite page is a facsimile of the address of the acting vice-chancellor, who, in admitting Surgeon-General Gorgas to the degree of Doctor of Science, addressed him as:

Preeminently distinguished, sagacious, health-bringing, the modern Machaon of the American Army, whom indeed I should wish to salute not only in Latin prose but also in Greek verse thus:

"Hail Router of the Plague of Flies! Hail Isthmian Conqueror true!

Gorgas, to that wise Goddess dear, the Gorgon death who slew!"

There was a time, as these addresses remind us, when mighty works like those done at Panama would have been celebrated in heroic legend and epic verse; when the hero who freed one of the gateways of the world from a subtle and myriad-winged death would have been deemed to be directly inspired by the Goddess of Wisdom herself. Nay, more, his very name, as the acting vice-chancellor's charming Greek verses suggest, would have enshrined a mystery for the philologists of later days, who would have gravely shaken their puzzled heads as they endeavored to trace the undoubted connection or identity of the Isthmian Gorgas with the earlier Gorgon-slayer, the hero Perseus! To-day the "Epic of the Isthmus" waits for the poet who shall arise

Chanting of order and right, and of foresight, warden of nations,

Chanting of labor and craft and of wealth in the port and the garner.

Meanwhile, it is a source of national satisfaction to Americans to see the knowledge and skill that made possible the Panama Canal employed on similar tasks in Africa and honored in one of the great universities of England.

THE PSYCHOLOGY OF MARINE DISASTERS

With the great increase in size and speed of passenger steamers there has come no such diminution of risk of life as some of us perhaps anticipated. Indeed, when the carrying capacity is increased, the loss of life in each wreck or disaster is necessarily greater. Cellular sides and other ship-building safeguards are evidently no real insurance for ships against mortal injury, even when the perils of storm and speed are eliminated as they apparently were from the late St. Lawrence River disaster. Study of the personal factors in and the possible psychologic causes for these shipwrecks is therefore of chief importance. The rules of the road at sea are simple, and when two vessels, each pursuing a correct course, sight each other and a few minutes later, cut off by fog, come into collision, the inference is that some one has made a serious blunder. A wrong order or a right one misunderstood under such circumstances may have terrible consequences. Sometimes the order is unaccountably wrong, as in the case of the British battleship *Victoria* about ten years ago, but the disaster may also be the result of the careless or thoughtless misinterpretation of a correct order by the wheelsman, to whose hand the modern steering-gear so quickly and accurately responds. As the collision between the

Empress of Ireland and the collier *Storstad* occurred during a fog, the question of color-blindness does not come into consideration. It would seem that a thorough investigation by experts might reveal personal defects aside from the purely mental factor responsible for such occurrences. The question is not a new one; it has been generally and extensively discussed many times, but these repeated disasters should arouse a demand for a specific and thorough investigation of every possible factor.

Medical News

COLORADO

New Officers.—El Paso County Medical Society at Colorado Springs, May 17: president, Dr. Beverley Tucker; secretary-treasurer, Dr. Elmer L. Timmons, both of Colorado Springs.

After the Quacks.—The *Rocky Mountain News* is conducting a campaign against the quacks that infest Denver. It not only refuses their advertisements, but has been investigating their methods of doing business. As a counter proposition the quacks, it is stated, have been attempting to secure information on which to base charges of irregular practice against the members of the State Board of Medical Examiners. The plan was to hire a detective to go to the physicians of the state board soliciting treatment for diseases which he did not have. It is believed the publicity will act disastrously on the fraudulent business of the quacks. It is believed there is still room for improvement in the advertising matter carried by the *News*. The *Denver Express* has also announced its purpose to refuse medical advertisements of all kinds at the expiration of present contracts.

CONNECTICUT

Refuge for Cardiac Convalescents.—In July of last year a convalescent home was opened at Sharon, intended exclusively for patients suffering from heart disease or convalescing from acute attacks. In connection with this institution there is established a trade school for cardiac convalescents. The object of this philanthropic work is to provide an industry whereby these convalescents may earn a living, without incurring grave risk. Each workman is graded in accordance with the amount of work he may safely do, and this is increased as the crippled heart recovers. Rest rooms are provided, and there is constant medical supervision. The industry established at Sharon is the making of concrete flower-pots.

Yale Centennial.—At the commencement of Yale University, June 15-17, Yale Medical School will celebrate the one-hundredth anniversary of the first conferring of degrees. The occasion will be observed by special exercises at which addresses will be presented by Prof. William H. Howell of Johns Hopkins University and Dr. Walter R. Steiner of Hartford. On commencement day a number of honorary degrees will be conferred to commemorate the occasion. A life of Nathan Smith, one of the founders of the school, will be issued from the Yale University Press at about commencement time, and a memorial volume of medical papers, prepared under the editorship of Dr. Horst Oertel, and containing contributions from Drs. Graham Lusk, E. R. Baldwin, John Hartwell, C. W. Field, W. W. Herrick, Charles F. Craig, Samuel W. Williston and Horst Oertel, will appear as a special number of the *Archives of Internal Medicine*. It is hoped that the university will be able to announce at this time the consummation of the plan for affiliation with the New Haven Hospital and gifts to the endowment of the school.

ILLINOIS

Murdered by Non-Paying Patient.—Dr. D. Winton Dunn, formerly mayor of Duquoin, was shot six times by a coal-miner, June 6, and died as a result of his wounds while being taken to a hospital in St. Louis. The murderer is said to have stated his reason for the act was he owed Dr. Dunn a bill for professional services, and that Dr. Dunn had refused to make further calls until the bill was paid.

Alumni Elect.—At the annual meeting of the Alumni Association of the Northwestern University Medical School, held in Chicago, June 8, the following officers were elected: president, Dr. Frederic A. Besley, Chicago; vice-presidents, Drs. William H. Fitch, Rockford, and Edward Von Hess, Chicago; secretary, Dr. Arthur B. Eustace (reelected); treasurer, Dr. Leo G. Gwan (reelected); and necrologist, Dr. Samuel C. Stanton.

State to Make Wassermann Test.—The governor has approved plans laid before him by Dr. C. St. Clair Drake, secretary of the State Board of Health, for the material extension of the laboratory department of the board. It is announced that the Wassermann blood-test will be made free of charge for indigent patients, and that microscopic examinations of cultures in cases of diphtheria will also be made under the same conditions.

Personal.—Dr. Lee O. Scott, Rockford, is reported to be critically ill.—Dr. Charles E. Cole, Jacksonville, sailed for Europe June 9.—Dr. Charles H. Bacon, Lockport, is reported to be critically ill in St. Joseph's Hospital, Joliet.—Drs. Frederick E. Roberg, Joliet, and Oscar T. Roberg, Chicago, have sailed for Europe, for a tour of the world.—Dr. Walter C. Jones has been reelected president, and Dr. Ernest J. Ford reelected treasurer of the Evanston Tuberculosis Institute.—Dr. Oscar P. Harris, Mendota, has opened a hospital in that city.—Dr. Gustav F. Ruediger has been elected health commissioner, and Dr. Orie C. Yoder, Peru, assistant health commissioner, of La Salle.

Chicago

Memorial to Fenger.—The Danes of Chicago, at a meeting, June 7, adopted a resolution endorsed by the Danish National Committee, requesting that a memorial tablet to Dr. Christian Fenger, for many years chief of the surgical staff of the Cook County Hospital, be placed in the new County Hospital.

Personal.—Dr. Lewis L. McArthur, who has been seriously ill at his home, is reported to be convalescing.—Dr. Peter S. Winner has been appointed physician of the State Penitentiary at Joliet, vice Dr. John P. Benson.—Drs. Peter J. Latz and Adolph Hartung have sailed for Europe.—Dr. Isaac J. K. Golden fractured his left arm and sustained other injuries, June 3, in a collision between his motor-car and an auto-truck.—Dr. Francis W. McNamara has been appointed county jail physician, vice Dr. Thomas J. Hogan.

KANSAS

Summer School.—The School of Medicine of the University of Kansas held its fourth annual summer school for physicians and health officers, under the auspices of the Kansas State Board of Health and the School of Medicine, at Bell Memorial Hospital, Rosedale, June 8-13, inclusive. The work of the school included clinical and laboratory work, and discussions of public health problems. Each day a round-table conference for health officers was conducted by Dr. R. J. Crumrine, secretary of the State Board of Health. The entire course was free to any licensed physician, student of medicine, or legal practitioner of the state.

MARYLAND

Anniversary of John Hopkins Hospital.—The twenty-fifth anniversary of the opening of Johns Hopkins Hospital, Baltimore, will be celebrated with appropriate exercises the first week in October. The preliminary program provides for addresses and papers by a number of well-known clinicians and teachers, as well as by graduates of the Johns Hopkins Medical School.

Personal.—Dr. Philip Briscoe, Mutual, has been elected president of the State Board of Aids and Charities. The board has named a committee to study the question of cooperative purchasing by the institutions which receive state aid, of which Dr. J. H. Mason Knox, Baltimore, is a member.—Dr. Nathan R. Gorter, the Commissioner of Health, has appointed Dr. Alexander J. Gillis assistant superintendent of Sydenham Hospital, to succeed Dr. Walter W. Point, Jr., Baltimore.—Dr. Gustav H. Wolterreck has been appointed throat inspector in place of Dr. Wilbur P. Stubbs, recently named as a medical examiner of schools.—Dr. Adolf Meyer, Baltimore, has been appointed a member of the board of managers of the Maryland Training School for Girls.—Dr. Ralph R. Browning, Myersville, has been elected health officer of Frederick County, vice Dr. James M. Goodman, Frederick.—Dr. A. Lee Hichew has been appointed medical supervisor of the Franklin Square Hospital, Baltimore, to succeed Dr. G. S. La Wall.

MASSACHUSETTS

Trachoma in Boston.—Two steerage passengers suffering from trachoma were found on the steamship *Caledonia* which arrived in Boston from Manchester, May 28, and three passengers with the same disease were found on the steamship *Michigan* which arrived at Boston from Liverpool on the same day. All the afflicted passengers were Syrians.

Tufts Alumni Elect.—At the twenty-first annual meeting and banquet of the Alumni Association of Tufts Medical School, Boston, the dean, Dr. Charles F. Painter, was the guest of honor and principal speaker. The following officers were elected: president, Dr. Herbert A. Donnell, Medford; vice-presidents, Drs. Bessie D. Davis, Cambridge, Russell B. Sprague, Boston, Anna O. Sullivan, and Isador H. Coriat, Boston; secretary, Dr. Andrew P. Cornwall, Boston, and treasurer, Dr. James F. Coupal, Boston.

MICHIGAN

New Officers.—Detroit Oto-Laryngological Society, May 26: president, Dr. Emil Amberg; secretary-treasurer, Dr. Charles L. Chambers.

Automobile Manufacturer to Build Hospital.—In a letter to the directors of the Detroit General Hospital, Henry Ford announces his willingness to take over the property on West Grand Boulevard, to complete the work, and to provide Detroit with a first-class hospital. This entails an expenditure of \$3,000,000, and Mr. Ford agrees to repay every subscription that has been made toward the building fund of the hospital.

Half a Million for Hospital.—On May 18, in the presence of the members of the medical fraternity and the board of directors of the Union Benevolent Association Hospital, Mr. John W. Blodgett turned the first spadeful of earth for the excavations of the new U. B. A. Hospital, the gift of Mr. Blodgett. The specifications call for a concrete building, and the contract has been awarded for \$559,000, the building to be completed by December 15.

New Medical Society.—At a banquet given by the Bay County Medical Society, May 18, the first steps were taken toward the formation of the Saginaw Valley Academy of Medicine, and a committee consisting of Drs. James W. McMeekin, James D. Bruce and Henry J. Meyer, Saginaw; John W. Hauxhurst, Frank E. Ruggles and W. G. Kelley, Bay City; and Knapp, Herbert E. Randall and Robert D. Scott Flint, was appointed to work out plans for organization.

Personal.—Dr. Joseph J. Noeker, Detroit, is reported to be seriously ill with tuberculosis at his home.—Dr. Charles E. Boys, Kalamazoo, left for Europe, June 1.—Dr. James T. Case, Battle Creek, has been made a member of the X-Ray Society of Germany.—Dr. John H. Kellogg, Battle Creek, has received a gold medal and diploma from the University of Italy, Palermo.—Jackson County Medical Association gave an informal reception and supper at Jackson in honor of Dr. Nathan H. Williams, who is moving to California.—Dr. Harry W. Long, Escanaba, sails for Europe this month.

To Celebrate Semi-Centennial.—Medical men of Detroit met in the Wayne County Medical Society's banquet hall, May 19, to commemorate the half-century of professional life of Dr. Charles Douglas. Dr. J. Henry Carstens was toastmaster and speeches were given on the various phases of the personal and professional life of Dr. Douglas. Dr. Angus McLean spoke on Dr. Douglas as "The Man," Dr. Arthur D. Holmes as "The Pediatrician," Dr. John E. Clark as "The Teacher," Dr. Daniel La Ferte as "The Colleague," Dr. Eugene Smith as "The Family Doctor." Dr. N. L. Hooker responded to the toast: "Dr. Douglas and the Young Doctor," and Dr. Douglas spoke on "Our Guest, By Himself." After the banquet, Dr. Douglas was presented with a gilt-ivory clock, suitably inscribed.

NEVADA

Hospital Opens.—Mount Rose Hospital, Reno, was opened May 22. The building is well located and fully equipped, and is under the charge of Miss Higerty, formerly nurse in St. Mary's Hospital, Reno.

Personal.—Dr. and Mrs. John E. Pickard, Reno, have started for Europe.—Dr. Harry G. Knapp, Fairview, has located at Wonder.—Dr. John C. Kitchen, Aurora, has severed his relations with the Aurora Mining Company, and has been succeeded by Dr. John B. Edwards, Mason.—Dr. William N. Burdick, Goldfield, has moved to Arizona.—Dr. Ora B. Dunham, Goldfield, has moved to San Diego, Cal.—Dr. Henry D. Hargrave, Reno, has returned to his old home in Toronto, Ont.—Dr. John L. Robison, Reno, has started for Europe.

NEW YORK

New Officers.—Washington County Medical Society at Whitehall, May 20: president, Dr. Willis A. Tenney, Granville; secretary, Dr. Silas J. Banker, Fort Edward.—Saratoga Springs Medical Society at Saratoga Lake, May 23: president, Dr. Fred J. Resseguie; secretary-treasurer, Dr. Miles E. Van Aernem.

Buffalo Alumni Meet.—The thirty-ninth annual meeting of the Alumni Association of the University of Buffalo was held June 2-5. On June 2, 3 and 4, the Harrington lectures on "Recent Advances in Pathological Anatomy" were delivered by Prof. Ludwig Pick, of the University of Berlin, Germany. On June 4, the first hour was given to memorial exercises in honor of Drs. Roswell Park and Frederick C. Busch. On June 5, the commencement exercises were held.

Scarlet Fever Epidemic at Auburn.—The epidemic of scarlet fever in the Auburn prison has reached large proportions. It is said that thus far in the inspection more than 1,000 inmates have shown signs of infection. The epidemic started in the women's prison but has spread to the men's as well. There are very few ill enough to be confined to bed. The prison contains no hospital accommodations for a general epidemic and the isolation of suspects is impossible.

Personal.—Dr. Harry S. Bernstein, director of the Bender Hygienic Laboratory at Albany has been appointed pathologist and bacteriologist to the Rhode Island Board of Health and will assume his new duties September 1.—Dean Willis G. Tucker, at the annual dinner of the alumni of Albany Medical College, held May 26, was presented with a silver loving-cup in recognition of his services as registrar of the college for 32 years, from which position he retired on January 1 last.

Club House for Physicians.—The Rochester Medical Society has purchased the property at 33 Chester Street and will alter it and fit it up for a club-house. The purchase price was \$35,000, of which \$18,000 has already been subscribed by local practitioners. It is expected that the building will be ready by September. Dr. William B. Jones is president; Dr. Frank F. Dow, vice-president; Dr. David B. Jewett, secretary, and Dr. Wesley T. Mulligan, treasurer of the board of directors.

New York City

Personal.—Dr. Robert Abrahams has been elected president of the board of managers of the Manhattan State Hospital, Ward's Island.—Dr. Charles F. Bolduan has been appointed head of the new Bureau of Public Health Education, of the Department of Health.—Dr. L. Emmett Holt has been appointed consulting pediatrician of the Department of Health.

Baby Week Planned.—The Department of Health, with the approval of Mayor Mitchel, is laying plans to keep one week in June as "Baby Week." It is proposed during that time to interest everyone in the public and private agencies which care for babies during the summer months and are assisting in the effort to lower the infant mortality. It is pointed out that the death-rate of infants in New York City has been reduced during the last seven years from 135.8 per 1,000 to 101.9 and that a still lower rate is possible.

Annual Memorial Meeting.—The memorial meeting of the Kings County Medical Society was held at their headquarters, May 31. The roll-call of the deceased members was as follows: Drs. George R. Westbrook, Robert E. Moore, John R. Stivers, Albert T. Birdsall, George Drury, Stanley MacGillvary, George McNaughton, Eugene F. Pearce, Edward W. Carhart, Jesse W. Henry, M. J. Leland, William H. Clowmizer, James L. Watt, Henry C. Turner, Norman E. Farewell, Francis M. Burke, Francis S. Kennedy, Annie M. Brown, and Daniel W. Woolley.

Vaccination Law Upheld.—Some time since Haghard Eckerbold, a resident of the Bronx, was fined five dollars for violation of the compulsory education law, as he had refused to have his child vaccinated and the authorities would not permit the child to attend school under those circumstances. The court of appeals has affirmed the judgment of the lower courts holding that the laws requiring vaccination as a condition of attending public schools were not so unusual or oppressive as to excuse the defendant's act. The court also referred to the fact that the United States supreme court recently held constitutional a statute compelling vaccination.

Mikveh Baths.—A conference was recently called by Dr. Sigismund S. Goldwater, Commissioner of Health, to consider the matter of the "Mikveh" baths or cleansing pools

whose regular use is required by the Jewish faith. An independent bacteriologic investigation conducted by Dr. George Mannheimer of Columbia University has shown that as at present conducted these baths are a menace to the health of those using them and points out the need of steps to render them sanitary. The problem has been presented to the Board of Authoritative Rabbis with the request that they suggest plans for making the baths sanitary to the Health Department in the near future.

New Appointments at Columbia.—The trustees of Columbia University at their meeting, June 1, appointed Dr. Warfield T. Longcope Bard, professor of the practice of medicine to succeed Dr. Theodore C. Janeway. Professor Longcope was also nominated medical director of the Presbyterian Hospital. The department of therapeutics has been merged with that of clinical medicine and Dean Samuel W. Lambert, formerly professor of therapeutics, has been appointed professor of clinical medicine. Dr. Charles C. Lieb has been appointed assistant professor of a new department of pharmacology and Dr. William Darrach has been appointed assistant professor of surgery. A gift of \$2,400 from various donors has been presented for a scholarship at the College of Physicians and Surgeons in memory of the late Frank A. Hartley.

Urges Health Work on Life Insurance Companies.—At the meeting of the Association of Life Insurance presidents held in this city, June 5, Dr. Louis I. Dublin, statistician of the Metropolitan Life Insurance Company, presented figures showing that while the death-rate throughout the country has been lowered, the amount of illness has not been lessened to any appreciable degree. He estimates that the annual losses from preventable illness in the United States is \$1,000,000,000 annually. The next twenty years must see our efforts directed to the control of disease and for this reason he urged the passage of a bill drafted by the state health officers at a conference in 1913 to insure complete reports of diseases. It was urged that the life insurance companies should assist by having this bill put on the statute books of the states by cooperating with committees appointed for the purpose by the American Medical Association and the American Public Health Association.

NORTH CAROLINA

Personal.—Dr. William E. Earley, Marietta, has been appointed United States Consul to Leicester, England.—Dr. Hugh E. Bowman, Biscoe, has moved to Aberdeen.

District Society Meeting.—At the semi-annual meeting of the Second District Medical Society at New Berne, N. C., May 26, Dr. William E. Warren, Winston, was reelected president, and Dr. Kemp P. B. Bonner, Morehead, secretary.

Medical School will No Longer Confer Degrees.—At the commencement of Shaw University Medical School (Leonard Medical School, Raleigh), May 13, the announcement was made that, beginning with the next session, the university would give only the first two years of the medical course and would cease to confer medical degrees.

State Association Meeting.—The sixty-first annual meeting of the Medical Society of the State of North Carolina will be held in Raleigh, June 16-18, under the presidency of Dr. J. James M. Parrott, Kinston.—The North Carolina Public Health Officers Association will hold its fourth annual meeting at Raleigh, June 15, under the presidency of Dr. J. M. Cooper, Clinton.

Hospital Notes.—Plans have been completed and construction work will shortly begin on the new Catholic hospital in Charlotte. The central portion will accommodate forty patients, but the plans call for the construction of additional units which will afford space for 100 patients.—A 10-acre site in Gastonia has been offered the directors of the recently chartered Orthopedic Hospital as a site for the proposed institution by the Rev. A. T. Lindsay, president of Linwood College, Gastonia.

OKLAHOMA

Meeting of Colored Physicians.—The Oklahoma Medical, Dental and Pharmaceutical Association, an organization of colored men, held its annual meeting at Tulsa, recently. Dr. W. B. Humphrey, Sapulpa, was elected president. The next meeting will be held in Wewoka.

Personal.—Dr. Dumont W. Howell, Nowata, who recently sustained a fracture of the thigh, is convalescent and will soon leave the hospital at Kansas City.—Dr. Franklin G. Trigg, Lovell, was assaulted recently, and his left index finger

bitten off.—Dr. Robert L. Rhodes, Tulsa, has been appointed physician of Tulsa County, vice Dr. James E. Webb, resigned, to become city physician of Tulsa.—Dr. Roy K. Goddard, Supply, has been appointed assistant superintendent of the Supply State Hospital.

OREGON

New Officers.—Clackamas County Medical Association at Oregon City, May 28: president, Dr. John W. Norris; secretary-treasurer, Dr. Carl H. Meissner, both of Oregon City.

Alumni Reunion.—At the alumni reunion of the University of Oregon, clinics and laboratory demonstrations were held on June 2, 3 and 4. The annual business meeting and banquet of the association were held June 2 at the Multnomah Hotel, Portland.

Personal.—Dr. David N. Roberg, Portland, as a representative of the State Board of Health, is making a study of plague conditions in the Orient.—Dr. Charles W. Tidball, Portland, has been awarded a bronze medal and \$1,000 in money by the Carnegie Hero Foundation, for his rescue of a woman from drowning in Independence River, Mo., in 1911.—Dr. Thomas J. Higgins, Baker, has been appointed as a member of the State Board of Health, vice Dr. Charles J. Smith, Portland.

PENNSYLVANIA

Hospital Dedicated.—The new building of the Monongahela Memorial Hospital was dedicated, May 30, with appropriate ceremonies.

New Officers.—At the meeting of the Pittsburgh College of Physicians, held May 27, the following officers were elected: president, Dr. Thomas W. Grayson, Pittsburgh; vice-president, Dr. Dewitt B. Nettleton, Sewickley; secretary, Dr. George A. Holliday, Pittsburgh, and treasurer, Dr. Curtis C. Mechling, Pittsburgh.

Commencement Week Clinic.—The School of Medicine of the University of Pittsburgh has arranged a clinical program in connection with the exercises of commencement week. Special clinics will be held in hospitals affiliated with the university, and laboratory demonstrations in the buildings on the university campus.

Save Children's Eyes.—Under a new state law all cases of ophthalmia neonatorum must be reported to the Bureau of Health. The law requires that any midwife or nurse, or any other person having the care of an infant whose eyes become inflamed or swollen, or reddened any time after two weeks after birth, shall report the same in writing to the health authorities within six hours.

Personal.—Dr. W. Knowles Evans, Chester, has been appointed superintendent of the new Health Department made possible by the Clark act.—Dr. George G. Gill, assistant physician at the Hillside Home, Scranton, has resigned and will practice at Butler, N. J.—Dr. Gregg A. Dillinger, Pittsburgh, has been appointed chairman of the Public Safety Committee of Council as a member of the Public Morals Bureau.—Dr. W. Knowles Evans has been elected supervisor of the Health Department of Chester.

Railroad Accidents.—The accidents division of the public service commission, issued its report for the first quarter of 1914, May 31, which shows that 262 persons were killed on the steam railroads of the state and 2,480 injured. This is a decrease of 18 in the number of fatalities compared with the same period of last year, and a decrease of 2 as to the number injured. There were 29 killed on street railways and 725 injured. Those fatally injured on the railroads were 98 employees, 2 passengers and 146 trespassers. Those killed on street railways were 4 employees, 1 passenger, 3 trespassers and 21 others.

Philadelphia

Alumni Reunion.—The annual reunion of the Alumni Society of Philadelphia of the Medical Department of the University of Pennsylvania, was held at Glenrock Park N. J., June 4.

Alumni Elect.—At the annual meeting of the Alumni Association of the Jefferson Medical College, June 5, the following officers were elected: president, Dr. Francis T. Stewart; vice-presidents, Drs. J. Coles Brick, John H. Gibson, E. Q. Thornton, P. Brooke Bland; corresponding secretary, Dr. Elmer H. Funk; recording secretary, Dr. Walter S. Lucas, and treasurer, Dr. Warren B. Davis, all of Philadelphia.

Model Homes.—Plans for the erection of a group of model dwellings in Kensington, were announced June 4, by the Octavia Hill Association. The new dwellings will be built of brick, two stories high and will be so arranged that families will be able to rent two rooms for \$6.50, three rooms and a bath for \$10 and a separate house of four rooms for \$13 a month. These houses will be arranged around an area of nearly one-third of an acre, and this open space will be filled up as a playground.

College Commencements.—The sixty-second annual commencement of the Women's Medical College of Pennsylvania was held June 2, eighteen women receiving the degree of Doctor of Medicine.—The thirty-fourth annual commencement of the Medico-Chirurgical College was held June 5, and seventy-five men received the degree of Doctor of Medicine.—The eighty-ninth annual commencement of Jefferson Medical College was held at the Academy of Music, June 6, when 147 men received the degree of Doctor of Medicine.

Personal.—Dr. Henry W. Rihl celebrated his 91st birthday anniversary at his home in Germantown, June 2.—Dr. S. W. Newmayer has been appointed assistant to the chief medical inspector of the Department of Health, to succeed Dr. Charles A. Groff, resigned.—Dr. James M. Anders has been appointed a member of the Board of Health of Philadelphia, to succeed Dr. Charles H. Andrus, Chestnut Hill.—Drs. William H. Walsh and Leonard D. Frescoln have qualified for the \$4,000 post of resident physician of the Philadelphia General Hospital.

Alumnae Association Meeting.—The thirty-ninth annual meeting of the Alumnae Association of the Women's Medical College of Pennsylvania, was held June 2. Dr. Elizabeth L. Peck was elected president, Drs. Marie L. Bauer and Frances C. Vangaskin were elected vice-presidents, and the following officers were reelected: Dr. Jacobina S. Reddie, recording secretary; Dr. Mary Buchanan, corresponding secretary, and Dr. Ella C. Potter, treasurer. Announcement was made of a number of special gifts to the college, including a fellowship fund of \$500 to be awarded annually for postgraduate work to a student showing special ability in teaching. The reception and banquet were held at the Bellevue Stratford in the evening.

Babies Emergency Bureau.—A central bureau has been established at City Hall by the Public Health Association, which affords advice, aid and directs personal relief to all mothers who wish to call on it. If the baby is sick, if it needs physician's attention, if a trained nurse's services are required, the mother has only to call up Electrical Bureau, 91, day or night and consult the child experts in charge. The office is in Room 714 of City Hall, and Miss Gertrude Rhoads is the executive secretary. Every nurse, every dispensary, every asylum, every hospital, every charity and welfare association in the city that has anything to do with babies, even clubs, churches, insurance companies have banded together in the Babies' Welfare Association, and place their resources at its command.

TENNESSEE

Hospital Opens.—The new Children's Hospital, on the grounds of the City Hospital, Memphis, which was recently built at a cost of \$15,000, was formally opened for a public reception, May 25.

New Officers of State Board.—Dr. Rufus E. Fort, Nashville, was reelected president, and Dr. Andrew M. Gamble, Maryville, was elected vice-president of the board, which also elected Dr. Vincent A. Biggs, Martin, a member of the State Board of Embalmers.

Personal.—Dr. J. McChesney Hogshead has been appointed chief of staff of Erlanger Hospital, Chattanooga, succeeding Dr. John S. Dye.—Dr. Robert Mann, Memphis, who was stricken with appendicitis while operating for that condition at the Baptist Memorial Hospital recently, is making good progress toward recovery.

Tropical Dysentery.—Ten patients in three families at Erlanger, Chattanooga, suffered from a form of dysentery which was found after considerable investigation to be due to the bacillus of Shiga. This infection is unusual in this climate but is frequent in tropical countries and is fatal in from 7 to 20 per cent. of cases. The diagnosis was confirmed by experts.

New Officers.—East Tennessee Medical Association at Arriman, May 21 and 22: president, Dr. George P. Zirkle, Kingston; secretary-treasurer, Dr. Hiller P. Larimore,

Chattanooga (reelected). The next semi-annual meeting will be held at Rogersville, and the annual meeting in Athens in May of next year.—Middle Tennessee Medical Association at Bellbuckle, May 22: president, Dr. Otey J. Porter, Columbia; secretary-treasurer, Dr. Roy W. Billington, Nashville.

VIRGINIA

State Sanatorium Completed.—The State Board of Health announces that the new infirmary building at Catawba has been completed and occupied, and that from now on the board will be able to admit suitable cases to the sanatorium without delay.

Northern Neck Physicians Meet.—At the semi-annual meeting of the Medical Association of the Northern Neck, held at Heathsville, May 28, Dr. Robert E. Booker, Lottsburg, was elected president; Dr. Stonewall Rice, Heathsville, vice-president; and Dr. Robert O. Lyell, Warsaw, secretary and treasurer.

Personal.—The address to the graduating class of the Medical College of Virginia was delivered by Dr. John A. Ferrall, secretary of the North Carolina State Medical Society, on "Health Work as a Career."—Dr. Southgate Leigh, Norfolk, has been appointed a member of the Virginia State Board of Medical Examiners, vice Dr. Herbert Old, removed to Philadelphia.—Dr. J. Allison Hodges, Richmond, delivered the address to the graduating class of the Louisville, N. C., Female College, May 28. The subject of the address was "Conservation of Nerves."—Dr. A. S. Priddy, Lynchburg, president of the State Epileptic Colony, has been elected president of the National Association for the Care, Study and Treatment of Epilepsy.

The Problem of the Feeble-Minded.—Plans to investigate the feeble-minded in the State of Virginia, authorized by the last General Assembly, were discussed by the State Board of Charities and Corrections at its meeting, May 14. The legislative appropriation provides \$3,000 for two years, and the board is directed fully to investigate, determine plans for remedy, and to report to the next General Assembly. The investigation will first deal with feeble mentality and the criminal population, to establish the relation between criminality and feeble-mindedness; it will then turn on feeble-mindedness in the community, and will finally take up the solution of the problem either by segregation or by confinement in institutions.

GENERAL NEWS

Pennsylvania Alumni Smoker.—The Society of the Alumni of the Medical Department of the University of Pennsylvania announces that the smoker will be held in the Rathskeller of the Hotel Alamac, Atlantic City, on the evening of June 23.

Indian Service Physicians' Conference.—The Commissioners of the Indian Service of the Department of the Interior have called a conference of physicians in the Indian Service. It will be held at the Lapwai (Idaho) Indian Sanatorium, June 23-25, and disease conditions among Indians will be discussed.

Clinical Day for Orthopedists.—Clinical Day for the twenty-eighth annual meeting of the American Orthopedic Association will be held in Philadelphia, June 17, at the hospital of the University of Pennsylvania. Clinics will be given in the morning and afternoon, luncheon will be served at Houston Hall, and in the evening there will be a boat-ride on the Delaware River and supper at the Yacht Club.

Leper in Washington.—John R. Early, about whose status as a leper medical experts have disagreed for five years, and who escaped from the Diamond Head Leper Station near Port Townsend, Wash., May 18, was discovered at a fashionable hotel in Washington, June 2, and was returned to his old place of isolation near the city limits. The federal health authorities have asked the Honolulu Board of Health for permission to send Early to Molokai.

New England Alumni of Jefferson Medical College Meet.—The New England Association of Jefferson Medical College Alumni held its annual meeting in Boston, May 28, and elected the following officers: president, Dr. Patrick F. Gahan, Medford, Mass.; vice-president, Dr. Thomas J. Fitzmaurice, Bangor, Me.; secretary, Dr. Wallace P. MacCallum, Boston; and treasurer, Dr. Frank I. Payne, Westerly, R. I. It was voted to hold the next meeting in Providence.

Virginia and District Doctors Meet.—The annual meeting of the Medical Society of Northern Virginia and the District

of Columbia was held in Manassas, Va., May 20. The following officers were elected: president, Dr. William P. Carr, Washington; vice-presidents, Drs. John D. Thomas, Washington, and William F. Merchant, Manassas; recording secretary, Dr. Thomas A. Groover, Washington; corresponding secretary, Dr. Joseph D. Rogers, Washington; and treasurer, Dr. William I. Robey, Herndon.

Glanders Vaccine not Effective.—As a result of extensive experiments with horses and other animals the experts of the Bureau of Animal Industry, Department of Agriculture, have reached the conclusion that mallein is not effective in the treatment of glanders. Its only value is as a diagnostic agent. Efforts to immunize animals with glanders vaccine were unsuccessful, and it is believed that the only way of eradicating glanders is to eliminate all animals showing signs of the disease, as has been the practice heretofore.

Railway Surgeons Meeting.—At the meeting of the Pennsylvania Railway Surgeons' Association, Lines East and West, at Atlantic City, June 19 and 20, one of the chief features of the meeting will be an illustrated address by Mr. T. H. Carrow, representative of Superintendent Newbern of the Insurance Department, on the "Preventative Function of the Company Surgeon in Railway Safety," based on the records of accident statistics of the Olean yards as compared with the Buffalo and other railway yards of similar size and type.

Academy of Medicine Meeting.—The thirty-ninth annual meeting of the American Academy of Medicine will be held in Atlantic City, June 19-22, under the presidency of Dr. John L. Heffron, Syracuse, N. Y. Chief among the topics for discussion will be "The Practice of Medicine and Industries, Considered Under the Heads of Menace to Health and Remediable and Preventive Measures." The president's address will be on "Modern Medicine and Social Problems," and the annual address by Oscar Riddle, Ph.D., of the Carnegie Institute, is to be on "Biologic Basis and Experimental Control of Sex."

Army Medical School Graduation.—The graduation exercises of the class of 1914 of the Army Medical School were held June 1, when a class of seventeen was graduated. An address was delivered by Lieut. Henry C. Coe, New York City, M.R.C., U. S. Army, and the diplomas were presented by Surgeon-General William C. Gorgas. The Hoff Memorial Medal was presented to Lieut. Charles L. Gandy, M.R.C., U. S. Army, by Col. John Van R. Hoff, M.R.C., U. S. Army, and the Sternberg Medal was presented to Lieut. Alexander W. Williams, M.R.C., U. S. Army by Lieut. Richard Slee, M.R.C., U. S. Army, Swiftwater, Pa.

Annual Meeting of Maryland Alumni.—The meeting of the Alumni Association of the University of Maryland School of Medicine was held May 30. The following officers were elected: president, Dr. James T. Jarrett, Portsmouth, Arthur M. Shipley, Baltimore, and J. Charles MacGill, Catonsville; recording secretary, Dr. Albert H. Carroll, Baltimore; assistant recording secretary, Dr. Walter F. Sowers, Baltimore; corresponding secretary, Dr. Howard W. Jones, Baltimore, and treasurer, Dr. John Houff, Baltimore. The address of the evening was made by Rev. H. M. Lichtliter on "Some By-Products of Medical Science."

Tropical Medical Men Meet.—The eleventh annual meeting of the American Society of Tropical Medicine was held at Harvard Medical School, Boston, May 29 and 30. The following officers were elected: president, Capt. Charles F. Craig, M.C., U. S. Army; vice-presidents, Dr. Milton J. Rosenau, Boston, and Maj. Bailey K. Ashford, M.C., U. S. Army; secretary, Dr. John M. Swan, Rochester, N. Y.; assistant-secretary, Dr. Allen J. Smith, Philadelphia; delegate to the Executive Council of the Congress of American Physicians and Surgeons, Surg.-Gen. William C. Gorgas, M.C., U. S. Army; alternate, Capt. Joseph F. Siler, M.C., U. S. Army. The next meeting will probably be held in San Francisco.

Civil Service Examinations.—The United States Civil Service Commission announces an open competitive examination for assistant epidemiologist, for men only. The salaries of this position range from \$2,000 to \$2,500. The duties are to conduct laboratory studies of diseases, to determine the cause of epidemics and to recommend measures to control the diseases. Applicants must be between 23 and 40 years of age, and must have had an education equivalent to that of a medical school or college of recognized standing, at least three years' experience in epidemiologic work under federal, state, or local authorities, and be experienced in laboratory technic, especially in regard to typhoid fever.

Application should be made to the United Civil Service Commission, Washington, D. C., and applicant should attach form 304, giving the exact title, of the examination required, namely, "Assistant Epidemiologist, Male (\$2,000 to \$2,500)."

The United States Civil Service Commission announces an open competitive examination for bacteriologist, for men only, to be held July 8, to fill vacancies. The salaries range from \$1,200 to \$2,000, and the positions are in the Bureau of Chemistry, Department of Agriculture. The applicant must be between 21 and 40 years of age, and must have an education equivalent to a Bachelor's degree or the degree of M.I. from a college of recognized standing, and must have had at least two years' training in bacteriology. Persons who desire to take the examinations should apply to the United States Civil Service Commission, Washington, D. C., giving the exact title of the examination desired, namely: "Bacteriologist (Male)."

Bequests and Donations.—The following bequests and donations have recently been announced:

Foundling Hospital and St. Vincent's Hospital, New York City, each \$2,160 as residuary legatees of the estate of Miss Mary Guerin.

House of St. Giles the Cripple and Brooklyn Eye and Ear Hospital, each \$2,500, by the will of Carl H. De Silver.

Home for Destitute Crippled Children and Foundlings' Home, Chicago, each \$10,000, by the will of Henry M. Hooker.

Associated Jewish Charities, Chicago, \$5,000; Michael Reese Hospital, \$2,000; Home for Destitute Crippled Children, \$1,000, by the will of Nathan Friend.

Methodist Hospital, Philadelphia, Pottsville, Pa., Hospital, each \$50,000; Bryn Mawr, Pa., Hospital, \$5,000; Institution for the Deaf and Dumb, Mt. Airy, Polyclinic Hospital and College for Graduates in Medicine, Philadelphia, Epileptic Hospital, Christ Church Hospital, Philadelphia, Lying-In Hospital and Training School, Seaside Home for Invalid Women, Atlantic City, N. J., Children's Seashore House, Atlantic City, N. J., Women's Medical College, Rush Hospital for Consumption, German Hospital, American Oconologic Hospital, Chestnut Hill Hospital, each \$10,000; for an endowment of a scholarship at the University of Pennsylvania, St. Christopher's Hospital for Children, Howland Hospital, Infirmary for Incurables, Kensington Hospital, Friends' Asylum for the Insane, Frankford Street, St. Agnes' Hospital, West Philadelphia Hospital, Woman's Hospital and Dispensary, Philadelphia Hospital for Incurables, Philadelphia College of Physicians, Home of the Merciful Savior for Crippled Children, Philadelphia Branch of the School for the Feeble-Minded in Memory of Dr. Jacob Mendes Da Costa, Orphan Asylum, and Episcopal Hospital, each \$5,000 by the will of Mr. Elizabeth Swift Shippen; one-fifth of the residuary estate to the Pottsville, Pa., Hospital and Eighth Street Branch of the Pennsylvania Hospital for Cases Thought Incurable.

Adirondack Cottage Sanitarium, one-twelfth; Presbyterian Hospital, one-twelfth; St. Luke's Hospital, one-thirtieth; Charity Organization Society, three-twentieths; Manhattan Eye, Ear and Throat Infirmary, one-thirtieth; Society for the Relief of the Destitute Blind, one-thirtieth; Home for Incurables, one-tenth; State Charitable Aid Association, one-thirtieth, from the estate of William Hale Penfold, appraised at \$995,000, after the death of Edmund Penfold.

Dr. Edward L. Trudeau, Saranac Lake, N. Y., \$10,000, by the will of William Hale Penfold.

Stanford University Medical School, \$10,000, by the will of Charles Latrop.

Deaths Proved Not Due to Antityphoid Vaccine.—Dr. S. Goldwater, Commissioner of Health of New York City, rendered a great service to medicine and the public by carrying out an investigation of deaths and severe illness reported in the newspapers as due to antityphoid vaccine. According to newspaper statements, Clarence E. Pantzer, a private in the National Guard of Brooklyn, died as a result of injection of antityphoid vaccine. The Army surgeons who made the inoculation claimed that the death was not due to the vaccine. After a protracted dispute, in which Health Commissioner Goldwater recalled a burial permit previously issued, an autopsy was performed under the direction of the coroner, which showed that death was caused by myocardial endocarditis. No evidence of typhoid fever could be found in the post-mortem examination. In another instance two children were inoculated with the vaccine, at the request of their father who was at the time sick with typhoid. Marked and severe symptoms later occurred, which were immediately credited to the injection of the vaccine. In the statement was made that the children were suffering from blood poisoning. Thus, the following statement appeared in a number of newspapers simultaneously:

While militiamen in many states of the west are being immunized against typhoid fever, two children in New York are near death as a result of typhoid serum injections. Their mother, brother, and aunt are recovering from an attempt to immunize them.

In this instance, as well, Dr. Goldwater ordered a thorough investigation, and it has now been shown definitely that both children are suffering from typhoid contracted, with any doubt, prior to the administration of the vaccine. In

case, owing to the pressure of an accumulation of cerebro-spinal fluid, the disease closely resembled the epidemic form of meningitis; thus confusing still further the symptoms and making very difficult the diagnosis. In speaking of these cases, Deputy Commissioner Emerson emphasized the fact that typhoid vaccinations were both harmless and efficacious. "According to the department's records most of the secondary or direct contact cases become infected while the physician is waiting for more definite symptoms in the original case. In the presence of any illness, even remotely suspected of being typhoid fever, prompt immunization of every member of the family is of great advantage. Those who develop the disease after immunization invariably show evidence of having contracted the infection before the immunizing injection."

FOREIGN

Personal.—Two suffragists, June 3, waylaid and attacked Dr. W. A. Foreward, deputy-governor of Holloway Gaol, London, in charge of the medical work at the prison.—Sir William Osler, regius professor of medicine at Oxford University, has been elected foreign associate of the Paris Academy of Medicine.

Deaths Abroad.—The following deaths have recently been announced from abroad: Sir Francis Henry Laking, M.D., Heidelberg, 1869; M.R.C.P., London, 1872; Grand Commander of the Victorian Order; Commander of the Bath; apothecary to His Majesty's household; physician-in-ordinary and surgeon-apothecary to King George V, and to the Prince of Wales; died at his home in London, May 28, aged 67.—G. Antonelli, professor of anatomy at Naples.

Hygiene and the Red Cross at the Swiss National Exhibition, Berne.—The Hygiene and Red Cross sections of the Swiss National Exhibition in Berne, which opened on May 5 and which will last until October 15 next, are of interest. The exhibition has been partly arranged by the Swiss hospitals. The Swiss Health Office shows its methods of testing food with a view to preventing adulteration and also its methods of inspecting slaughterhouses, and space is devoted to the work of the Red Cross and Ambulances Associations. The period of the exhibition has also been chosen by a number of congresses and conferences, both national and international, as an opportune moment for a meeting. The Swiss Society of Neurology, for instance, called an International Congress of Neurology, Psychiatry and Psychology to be held at Berne from September 7 to 12 next. An organization committee and various international committees have been appointed.

CANADA

Hospital News.—Dr. Harry Morrell, Regina, has been appointed director of the pathologic laboratory of the Regina General Hospital, with Dr. Seymour Ross as assistant.—It is expected that the new Regina Isolation Hospital in connection with the General Hospital of that city, will be ready for the reception of patients on August 15.—The Regina General Hospital is building a nurses' home at a cost of \$125,000.—A site of 230 acres has been acquired for the Saskatchewan sanatorium for tuberculosis at Ft. Qu'Appelle, and construction work on the buildings has been recommenced.

McGill University News.—At the recent meeting of the Board of Governors the resignations were accepted of Drs. Walton, Howard T. Barnes and R. H. Miller. Dean Walton has accepted a position with the Egyptian Government at Cairo; Dr. Barnes will take up the duties of professor of physics in the new University of British Columbia; Dr. Miller will go to the Western University, London, Ontario.—Mr. G. R. Mines, M.A., has been appointed to the Joseph Morley Drake chair of physiology; Dr. Douglas McIntosh to professor of physical chemistry; Dr. J. W. Tait to be assistant professor of psychology; Dr. F. M. G. Johnston, associate professor of chemistry; Dr. R. V. Krieble, assistant professor of chemistry. In the faculty of medicine, Dr. J. Rhea has been appointed associate professor of pathology; Dr. C. K. Russel, lecturer in neurology; Dr. A. Freedman, assistant in anatomy; Dr. Maude E. Abbott, lecturer in pathology; Drs. H. B. Cushing and C. A. Peters, lecturers in medicine and clinical medicine; Dr. E. M. von Eberts, lecturer in surgery and clinical surgery; Dr. H. C. Burgess, lecturer in gynecology. Dr. J. J. Ower was appointed to a fellowship in pathology maintained by Dr. James Douglas, New York, one of the governors of the university, and Dr. R. H. Malone to the studentship in the same subject, also maintained by Dr. Douglas.

LONDON LETTER

LONDON, May 22, 1914.

Imperial Health Conference

The Imperial Health Conference, organized by the Victoria League for the promotion of knowledge of house and town planning and the care of child life throughout the empire, was opened at the Imperial Institute by Mr. Lewis Harcourt, secretary of state for the colonies. About 300 delegates, representing the governments of the various colonies, as well as local authorities and organizations throughout the United Kingdom, were present. In his address Mr. Harcourt said that the great difficulty which confronted the work of housing reform in this country was the congestion of population in the hearts of the towns. The last word in town-planning rested with Australia, which was entering on the building of a federal capital. It was their boast that during the past nine years the rates of West African invalidity had been reduced from 56 to 25 per thousand. The conference adjourned for the purpose of attending the opening of the Victoria League health exhibition, which was also held in the Imperial Institute. It embraced two classes of exhibits. One dealt with town planning, which was illustrated by plans and photographs of various garden city and housing schemes relating to the United Kingdom and many of the oversea dominions. The other section dealt with the welfare of children from babyhood to maturity, illustrated by exhibits relating to the treatment of children in all parts of the empire, in health and sickness, at work, at school, at play and asleep.

Royal Commission on Venereal Diseases

At the thirty-third meeting of the Royal Commission on Venereal Diseases, evidence was given by Sir Herbert Smalley, M.D., one of the commissioners of prisons. He said that it was his firm impression, and also that of many of the senior medical officers of prisons, that venereal diseases were less prevalent in prisons than thirty and even twenty years ago, and that the cases were less severe in character. He was inclined to think, however, that the later stages of syphilis affecting the circulatory and nervous systems were more prevalent. Under 2 per cent. of prisoners presented manifest symptoms of either gonorrhea or syphilis. The highest incidence occurred among prisoners committed from large towns and manufacturing or mining districts, and cases of venereal disease were disproportionately numerous in prisons receiving prisoners from seaport towns. About half of those suffering from venereal disease were still in an infectious condition when discharged. This problem might be attacked either by detention, notification or by the provision of facilities for treatment subsequent to discharge. The first alternative was of doubtful expediency, and any form of notification other than that which was made applicable to the whole community would be inadvisable. The idea of a prisoner being specially penalized or of his sentence being enhanced on account of venereal disease would, he thought, be strenuously resisted. He was not in favor of venereal disease being made notifiable generally throughout the community. The provision of facilities for treatment seemed to offer a more hopeful solution. Means should be provided throughout the country for treatment of venereal disease free of cost, readily accessible, and with attendance permissible in the evening so as not to interfere with the daily work of the patient. As far as possible these centers should be at general hospitals and dispensaries rather than at special hospitals or centers solely for the treatment of venereal diseases. If such centers were organized it would enable a prison doctor to give a discharged prisoner a ticket, the presentation of which at a center would secure the patient a continuance of treatment. The fact of the patient being recently discharged from prison should be a confidential matter and should be made known at the treatment center to as few persons as possible. In convict prisons out of 1,755 male convicts 299, or 17 per cent., showed signs of having had syphilis.

Government Report on Sleeping-Sickness

The report on sleeping-sickness has been issued by the Interdepartmental Committee, which has been investigating the part played by wild animals and the tsetse-fly in Africa in the spread of the disease and has been considering whether or not it is advisable to attempt the extermination of wild animals, either generally or in a special area, and whether or not any other measures should be taken to check the

disease. The committee finds that there are two distinct forms of sleeping-sickness. There is the Uganda form, which appears to be a new disease, and was first recognized in 1901. It is violently epidemic, and is estimated to have caused 200,000 deaths between 1898 and 1906. On the other hand, there is the sleeping-sickness of Nyasaland and Rhodesia. This has been recognized as a distinct form of the disease only since 1908. It is almost certainly not epidemic. The total number of cases which a vigorous search has been able to discover is 153 in Nyasaland and 107 in Rhodesia from 1908 to 1914. It is said that the natives recognize this as an old disease. Though much less widespread than the Uganda disease, the sleeping-sickness of Nyasaland and Rhodesia is far more deadly. Death usually results in from three to six months after the appearance of the symptoms. Hitherto no treatment has been successful, and the disease may be regarded as almost invariably fatal. The Uganda form, on the other hand, is much more prolonged. Even untreated cases usually last from eighteen months to two years. If the patient is treated at an early stage life is often prolonged for years, and there are many cases of apparent recovery. The tsetse-fly has in each case proved to be the carrier of the disease; but it has also been proved that Uganda sleeping-sickness is caused by a different species of the tsetse-fly from that which carries the Rhodesian or Nyasaland form. The *Glossina palpalis*, which carries the Uganda disease, never goes far from water, and is altogether unknown in those parts of Nyasaland and Rhodesia where the other form of the disease occurs. It is now proved almost beyond doubt that the carrier in this case is *Glossina morsitans*. Its distribution is capricious and it seems to be independent of water. Its migrations are not understood, and its length of flight in search of food is unknown. As to the part played by wild animals in the distribution of sleeping-sickness, there appears to be little doubt that in the case of the Uganda form it is of minor importance as compared with that played by man himself as a reservoir from which the fly derives the infection. In the case of the Rhodesian or Nyasaland form there is much disagreement between the authorities, and the committee comes to the conclusion that the evidence is conflicting as to whether the wild animals which are a reservoir of the disease affecting domestic stock are a danger to man.

Tuberculosis in London

The London County Council has for some time been preparing a scheme for dealing with tuberculosis in the metropolis. This has now been completed and adopted. There will be a complete network of tuberculosis dispensaries at which treatment will be provided by the local sanitary authorities. For their upkeep the council will contribute so far as uninsured persons are concerned grants not exceeding 50 per cent. (provision for insured tuberculous persons has been made under the national insurance act, as reported in previous letters to THE JOURNAL). The dispensaries will be linked up with the hospitals. Arrangements will be made for residential treatment both in hospitals and sanatoriums. An advisory board representing hospitals, dispensaries and sanatoriums will assist in insuring some uniformity of standard in the selection of patients. Recommendations for residential treatment will be received from local medical officers of health. If, however, there appears to be any doubt as to the suitability of the case, it will be submitted to a rota of physicians to be selected by the advisory board. When a patient leaves the residential institution to which he has been sent by the council, arrangements will be made for the local dispensary or other suitable agency to continue his treatment. As a condition of receiving residential treatment, the patient undertakes to remain under medical supervision on his discharge. The committee is of opinion that by the end of the current financial year 160 beds will be required in hospitals and 240 beds in sanatoriums for adults, and 150 beds in residential institutions for children. The London Insurance Committee has obtained the accommodation which it requires at a price not exceeding \$7.50 a week for each bed, and it will be possible for the council to obtain beds at ten hospitals and four sanatoriums on these conditions. Many more beds, however, will be necessary and the Asylums Board is to be asked to provide 150 beds. In the case of children the weekly charge for each bed should not exceed \$5. The cost of the scheme for the present financial year is put at \$144,605, toward which the government would contribute \$61,250, and at \$200,000 for 1915-1916, to which the government would contribute \$100,000.

PARIS LETTER

PARIS, May 22, 1914.

Personal

The Académie de médecine, at its session May 19, elected Charles Eduard Hédon, professor of physiology at the Faculté de médecine of Montpellier, and Charles Nicolle, director of the Pasteur Institute of Tunis, as national correspondents. Dr. Hédon is known especially for his experimental research work in pancreatic diabetes and has published a "Précis de physiologie." Dr. Charles Nicolle last year, in collaboration with Dr. Blaizot, introduced an atoxic antigonococcic vaccine (THE JOURNAL, Nov. 15, 1913, p. 1825).

Dr. Bosc, professor of pathologic anatomy at the Faculté de médecine de Montpellier, has just been appointed professor of pathology and general therapeutics at that school.

Dr. Etienne, professor of general and internal pathology at the Faculté de médecine de Nancy, has just been appointed professor of medical clinics at that school.

Physicians Elected Deputies

Fifty-five physicians have just been elected deputies, the same number as in 1910. Of these, thirty-seven were re-elected. It is an interesting fact that the three deputies from the department of Tarn-et-Garonne are all physicians.

The Plague at Senegal

The governor general of French West Africa has notified the Minister of the Colonies that seven cases of plague were reported, May 13, in a native village at some distance from Dakar. No new case has since developed.

General Anaphylaxis

Anaphylaxis has been conceded, hitherto, to be specific in the sense that the substance used to produce anaphylactic shock must be identical with the sensitizing substance. Such a narrow specificity has been observed in certain cases that an animal which had been sensitized with goat's milk did not react to cow's milk, and that a guinea-pig which had been inoculated with rabbit-serum did not react to horse-serum and vice versa. It appears from a series of experiments which Prof. Charles Richet has just reported to the Académie des Sciences that anaphylaxis need not be specific; animals which had been given non-fatal and (in appearance, at least) innocuous doses of phosphorus showed themselves susceptible to chloroform, just as animals did which had been chloroformed a month before. Richet concludes that, besides the specific anaphylaxis, a general anaphylaxis exists which is derived from indirect anaphylaxis (THE JOURNAL, Feb. 28, 1914, p. 711). The organism may, therefore, through one poison, be sensitized to quite different poisons.

Surgery for Diabetics

At the session of the Académie de médecine, May 19, Dr. Marcel Labbé, agrégé professor at the Faculté de médecine de Paris, showed that the danger in operations on diabetics could be traced to two principal causes: hyperglycemia and acidosis, without considering vascular lesions which do not properly belong to diabetes. Hyperglycemia favors suppuration, but is far from being fatal in aseptic operations. It is well to combat hyperglycemia by a diet before operation.

Labbé deduces the following practical rules: Only important operations should be performed on diabetics; by preliminary treatment, glycemia, and acidosis should be reduced; a mixed diet of carbohydrates may be employed in the case of non-emaciated diabetics; a diet of dried vegetables, oats, or milk, with an alkaline treatment, may be given to diabetics with acidosis. Before the operation 40 gm. of sodium bicarbonate should be administered. For the anesthetic the preference should be given to local or general anesthesia by ethyl chlorid. After the operation large doses of sodium bicarbonate should be administered orally or subcutaneously; then, when able to take food, the patient should be given vegetables, and oat or milk broths.

Refrigeration in the Hospitals of Paris

Dr. Lortat-Jacob has just reported the results of his inquiry into the use of refrigeration in the hospitals of Paris. With the exception of the Cochin hospital, the Hôpital de la Pitié and the military hospital at Val-de-Grâce, all the hospitals of Paris lack refrigeration facilities for the preservation of provisions and bodies. During the summer more than 1,000 quarts of milk are lost each day in certain hospitals of Paris for lack of a suitable refrigerating plant.

BUDAPEST LETTER

BUDAPEST, May 11, 1914.

Increase of Length of Life of Hungarian Women

The detailed statistical results of the last census, published at the end of last month, have been discussed by various medical men from different points of view. A noted gynecologist has examined the data available for comparing the duration of life between men and women, and concludes that women live longer than men. The average lifetime of the Hungarian women, according to the census taken in 1880, was 42.5 years, but according to the last census it is now 51 years. In some parts of Hungary the improvement is still greater. For instance, in the Székely district in Transsylvania the average is 59.2 years. According to this gynecologist the longevity of women is due to the fact that women work less than men. The data of the present census show that there are fewer hysteric and nervous women than in former years. Insanity has also decreased slightly. These favorable results are for the most part due to the general prosperity of the country. Wages in Hungary have been almost doubled during the last ten or twenty years by the increase in agriculture, trade and manufacturing.

Near-Sightedness in Schoolchildren

Dr. Bogdan, in his account of the examination of two hundred text-books from a sanitary point of view, draws particular attention to the fact, already established by many prominent investigators, that near-sightedness in children has either originated or develops in connection with the school-room. The chief cause is the too prolonged reading, writing and drawing in which visual accommodation, as well as convergence, is greatly fatigued. Undue strain of the muscles of accommodation causes an active hyperemia; the nervous circulation is hindered, there is an increase in the intra-ocular pressure and the sclerotic is gradually stretched. Too strong convergence works even greater harm. It is, of course, understood that in some children near-sightedness is hereditary, and as a result, they become affected more quickly than their healthier comrades. In addition, near-sightedness may be the result of insufficient light and improper equipment in desks and other school furniture.

Dr. Bogdan insists that the paper used in the text-books should not have a glossy surface. Under artificial light a glossy surface causes improper focusing of the eye and necessitates frequent changes in the position of the book as well as of the head. The paper should be thick enough to prevent the printing on one page from penetrating to the other. A few authorities have recommended yellow paper, but the majority favor white paper, which gives a better contrast between the printed matter and the background.

Effects of Tobacco-Smoking

In a recent meeting of the Medical Society, Dr. Pekanovits read a paper on this subject. He stated that tobacco-smoke contained nicotinic acid, collidin and other pyridin derivatives, such as acids, resins, carbon dioxide, hydrocyanic acid, ammoniacal salts, as well as the nicotine. Two drops of nicotine placed on a dog's tongue produced great weakness, convulsions and death in less than a minute; eight drops were sufficient to kill a horse. Tobacco contained from 2 to 3 per cent. nicotine, and M. le Bon, a French investigator, determined that although this was changed in smoking, it was converted into other pyridin products, which were just as poisonous. Dr. Pekanovits found that the nicotine did not condense to any appreciable extent in the breath, and were for the most part exhaled, so that the physiologic effect of ordinary smoking was nil. Susceptible persons, however, might be affected by breathing the air in which there was much tobacco-smoke.

The action of nicotine has been shown by the investigations of Petit to be intermediate between that of bromids and that of digitalis. It soothes the nervous system, but causes a powerful and rapid contraction of the vessels and a rise in blood-pressure. One of its best-known dangers is angina pectoris, caused, perhaps, by the severe contractions of the coronary arteries. Prolonged use induces the development of arteriosclerosis. Tobacco is a "habit-drug" like opium, alcohol and alcohol; its devotee, although he is aware of its effects, loses the force of will necessary to break the habit. Tobacco-smoke has apparently no bactericidal action on any micro-organisms present in the lungs. One of the first effects of an overdose is nausea. Prolonged smoking is a direct factor in the production of digestive troubles.

Marriages

FRANK J. ERDLITZ, M.D., Johannesburg, Mich., to Miss Matilda La Rivere of Manistee, Mich., at Grayling, Mich., May 20.

LOUIS RAYMOND BURNETT, M.D., Cambridge, Mass., to Miss Isabel Knowlton Thomas, Milton, Mass., recently.

GAYLORD EUGENE PITTS, M.D., Mount Horeb, Wis., to Miss Agnes Helene Dahle of Minneapolis, May 28.

WILLIAM A. GARDNER, M.D., Cincinnati, to Miss Bertha Kleinknecht, at Middletown, Ohio, April 14.

WILLIAM L. MUNROE, M.D., Pittsburgh, Pa., to Miss Frances Rudd Eno of Pine Plains, N. Y., June 1.

RALPH FRANK LUSE, M.D., Comanche, Iowa, to Miss Pearl Minear of Council Bluffs, Iowa, May 26.

CHARLES HENRY SCHMIDT, M.D., Chicago, to Miss Effie Olson of Melrose Park, Ill., May 28.

HERMAN RENNER, M.D., Chattanooga, Tenn., to Miss Marie Kinny of New York City, recently.

WORTH CLARK, M.D., to Miss Florence Cunningham, at Charleston, W. Va., May 14.

ARTER W. DEAL, M.D., to Miss Gladys Smith, both of Lewistown, Mont., May 25.

Deaths

Emil Gruening, M.D. College of Physicians and Surgeons in the City of New York, 1867; a veteran of the Civil War; and a pioneer ophthalmologist and otologist of New York City; died at his home, May 30, from cerebral endarteritis, aged 71. Dr. Gruening was appointed assistant surgeon to the New York Ophthalmic and Oral Institute in 1871; ophthalmic surgeon to Mt. Sinai Hospital in 1879, and to the German Hospital in 1880. At the time of his death he was consulting ophthalmic and oral surgeon to Mt. Sinai Hospital; consulting ophthalmic surgeon to the German Hospital and New York Eye and Ear Infirmary; and consulting surgeon to the New York Infirmary for Women and Children. He had served as president of the American Ophthalmologic Society, American Otological Society and Society for Relief of Widows and Orphans of Medical Men; he was also a member of the American Laryngological, Rhinological and Otological Society, and many other scientific bodies. Among his most notable achievements were the development of the mastoid operation, and his warning regarding the danger of blindness from the use of wood alcohol. He was a voluminous contributor to the literature of his specialty; and was the author of the chapter on "Diseases of the Eye" in Norris and Oliver's encyclopedic work.

Samuel Caldwell Benedict, M.D. Miami Medical College, Cincinnati, 1880; of Athens, Ga.; a member of the Medical Association of Georgia, and its president in 1900; acting assistant surgeon, U. S. Army, in 1880 and 1881; professor of medical jurisprudence in the law school of the University of Georgia, Augusta, since 1883, and professor of materia medica in the school of Pharmacy; local surgeon of the Seaboard Air Line, Central Railroad of Georgia, Gainesville Midland Railroad and Georgia Railroad; president of the Association of Surgeons of the Central Railroad of Georgia in 1903; and of the Association of Seaboard Air Line Surgeons in 1911; a member of the State Board of Health of Georgia, and its president in 1911; died in a sanatorium in Macon, Ga., June 1, aged 58.

Charles Hicklen Preston, M.D. University of Iowa, Iowa City, 1873; a Fellow of the American Medical Association, and one of the oldest practitioners of Davenport, Iowa.; for many years secretary and once president of the Scott County Medical Society; trustee and president of the Davenport Academy of Sciences, and for nine years a member of the board of education; died at his home in Davenport, May 21, from cerebral hemorrhage, aged 69.

Arthur Wharton Swann, M.D. College of Physicians and Surgeons in the City of New York, 1907; an instructor in his Alma Mater; assistant attending physician to the Presbyterian Hospital, and chief of the medical clinic of the Presbyterian Dispensary; died in the Manhattan Eye, Ear and Throat Hospital, New York City, May 28, from septicemia, following an operation on the throat a week before, aged 33.

Joseph Franklin Hobson, M.D. Western Reserve University, Cleveland, Ohio, 1886; a Fellow of the American Medical Association; professor of anatomy in his Alma Mater from 1887 to 1892; and professor of clinical surgery in the Cleveland College of Physicians and Surgeons from 1892 to 1906; one of the founders, chief of staff and visiting surgeon to Cleveland General Hospital, and visiting surgeon to St. John's and the City Hospital; local surgeon of the Pennsylvania and Lake Shore and Michigan Southern railroads; and consulting surgeon to the Brotherhood of Railroad Trainmen; died at his home in Cleveland, May 24, aged 52.

George Washington Hosmer, M.D. College of Physicians and Surgeons in the City of New York, 1864; a member of the Medical Society of the State of New York and New York Academy of Medicine; a veteran of the Civil War; and for many years confidential secretary to the late Joseph Pulitzer, editor of the *New York World*; author of numerous articles and books on political economy; died at his home in Summit, N. J., June 3, from senile debility, aged 83.

Henry St. George Lyons Hopkins, M.D. University of Pennsylvania, Philadelphia, 1855; for several years after his graduation a surgeon on transatlantic steamships; surgeon in the confederate service throughout the Civil War, and lieutenant-colonel of the staff of General Pendleton at its close; a resident of Fresno, Cal., for thirty-three years; at one time health officer of Fresno County; died at his home in that city, May 25, aged 78.

Bret Nottingham, M.D. New York Homeopathic College and Hospital, New York City, 1901; a Fellow of the American Medical Association, and a member of the Michigan State Board of Registration and Medicine; city physician and health officer of Lansing, Mich., and local surgeon for the Lake Shore and Michigan Southern System; died in the Harper Hospital, Detroit, May 26, from malignant disease, aged 37.

Daniel C. Gentsch, M.D. Georgetown University, Washington, D. C., 1889; for several years deputy judge and clerk of the probate court of Tuscarawas County, Ohio, and principal examiner of the United States Pension Bureau; died at his home in New Philadelphia, Ohio, May 30, from cerebral hemorrhage, aged 69.

Edwin Y. Chilton, M.D. Miami Medical College, Cincinnati, 1874; a Fellow of the American Medical Association; formerly state senator and president of the Board of Medical Examiners of Minnesota; one of the most prominent practitioners of that state; died at his home in Howard Lake, Minn., May 25, aged 64.

Abijah Johnson, M.D. Denver, Colo., College of Medicine, 1882; a practitioner since 1863; for five years mayor of Earlham, Iowa; for twenty years president of the school board of Montrose, Colo., and once president of the Montrose County Medical Society; died at his home in Glendale, Cal., May 24, aged 76.

Ellis Sanders Potter, M.D. Long Island College Hospital, Brooklyn, N. Y., 1878; one of the oldest colored practitioners of Louisville, and once professor of theory and practice of medicine and pediatrics in Louisville National Medical College; died at his home in Louisville, May 28, from typhoid fever, aged 64.

Mary L. Widdop, M.D. Medical College of Indiana, Indianapolis, 1901; a member of the Indiana State Medical Association; a member of the medical staff of the Northern Hospital for the Insane of the State of Indiana, Longcliff, Logansport; died in that institution May 26, from nephritis, aged 45.

Joseph O. Walkup, M.D. Chicago College of Medicine and Surgery, 1908; Captain, M. C., U. S. Army; once instructor in physiology and assistant in clinical neurology in his Alma Mater; was struck by lightning and instantly killed, June 1, at Fort Bayard, N. Mex.; aged 29.

Christian Charles Hadley Carlson, M.D. Cooper Medical College, San Francisco, 1894; who founded the Mount Shasta Hospital, Yreka, Cal.; died in San Francisco, May 16, from septicemia following an operation for appendicitis, aged 47.

John Nelson Rankin, M.D. Vanderbilt University, Nashville, Tenn., 1888; a member of the Indiana State Medical Association; formerly of Winchester, Ky.; died at his home in Cartersburg, Ind., May 18, from heart disease.

William J. Worsham, M.D. Washington University School of Medicine, 1868; a confederate veteran; and the oldest pharmacist of Knoxville, Tenn.; died at his home in that city, May 21, aged 74.

Jacob Carpenter Shimer, M.D. University of Pennsylvania, Philadelphia, 1861; surgeon in the federal service during Civil War; for thirty-five years a practitioner of Baltimore; died at the Home for Widows and Orphans of Physicians in that city, May 21, aged 75.

Daniel W. Braden, M.D. Medical College of the State of South Carolina, Charleston, 1852; aged 88; a trustee and treasurer of Washington, Pa., College, for several years; died at his home in Lebanon, Tenn., May 19, from the effects of a carbuncle on the neck.

Glenmore Combs, M. D. Louisville, Ky., Medical College, 1875; a member of the Kentucky State Medical Association of Winchester; for nearly forty years a practitioner of Clinch County, Ky.; died in a church in Winchester, May 17, from heart disease, aged 64.

Daniel Webster Border, M.D. Bellevue Hospital Medical College, 1876; formerly a practitioner of Kearneysville, W. Va.; and at one time a member of the State Board of Agriculture; died at his home in Charlestown, W. Va., May 17, aged 60.

Zachariah B. J. Griffing, M.D. Jefferson Medical College, 1844; a practitioner until the age of 75, and then placed in charge of the poorhouse of Warren, Miss.; died at his home in McGehee, Ark., March 21, from cerebral hemorrhage, aged 92.

Bertram U. Doolittle, M.D. Fort Wayne, Ind., College of Medicine, 1905; of Whiting, Ind.; a Fellow of the American Medical Association, and a specialist on diseases of children; died at his home in Whiting, Ind., about May 16, aged 37.

Emma Mary Eastman Sanborn, M.D. Boston University School of Medicine, 1876; for many years a practitioner in Andover, Mass.; a specialist in the care of imbecile children; died at the Barr Sanitarium, Andover, recently, aged 73.

James Savage Woodward, M.D. George Washington University, Washington, D. C., 1880; a member of the Medical and Chirurgical Faculty of Maryland; formerly a surgeon; died at his home in Roland Park, Md., May 28, aged 59.

James Henry M. Karsner, M.D. Jefferson Medical College, 1868; a veteran of the Civil War; and a member of the Medical Society of the State of California; died at his home in Oroville, Cal., May 15, from heart disease, aged 69.

John W. Pipkin, M.D. University of Arkansas, Little Rock, 1890; of Tillar, Ark.; aged 44; a Fellow of the American Medical Association; was shot and killed by his father-in-law, Dr. J. T. Cheairs, at Tillar, Ark., May 30.

Bela W. Coggeshall, M.D. Jefferson Medical College, 1871; a member of the Michigan State Medical Society; of Farmington, Mich.; aged 72; was struck by a street-car in Detroit, and died as a result of his injuries, about May 23.

Robert Jones Dysart, M.D. College of Physicians and Surgeons, Chicago, 1900; assistant physician at the State Hospital for the Insane, Winnebago, Wis.; died in that institution, May 25, from heart disease, aged 41.

William B. Swisher, M.D. Rush Medical College, 1871; formerly of Lincoln, Neb.; surgeon of Kentucky Volunteers during the Civil War; died at his home in Los Angeles, May 29, from senile debility, aged 88.

Michael P. Stoltz, M.D. Louisville, Ky., Medical College, 1896; a member of the Kentucky State Medical Association of Louisville; died at the home of his sister in that city, May 18, from heart disease, aged 58.

Thomas Edward McDonald, M.D. Detroit College of Medicine, 1894; a Fellow of the American Medical Association; local surgeon at Holly, Mich., for the Grand Trunk System; died at his home, May 22, aged 46.

Hettie M. Stewart McFall, M.D. Southwestern Homeopathic Medical College, Louisville, 1905; of Fort Wayne, Ind.; died at the home of her daughter in New Albany, May 21, from nephritis, aged 54.

Donald Duncan McDonald, M.D. McGill University, Montreal, 1887; for many years a practitioner of Petito, Ont.; physician to the Maritime Penitentiary, Dorchester, Ont.; died January 23, aged 55.

William T. Whitaker, M.D. Fort Worth, Texas, University, 1910; formerly of Fort Worth, Texas; died in his room at McKinney, Texas, May 27, from the effects of an accidental overdose of morphin, aged 32.

William Bayard Carroll, M.D. University of Michigan, Ann Arbor, 1880; died at his home in Chicago, May 21, aged 56.

John Underwood Raymond, M.D. University of Michigan, Ann Arbor, 1875; of Washington, D. C.; medical examiner for the United States Pension Bureau; died at his home in Washington, May 15, aged 63.

George Dresser, M.D. Harvard Medical School, 1862; a member of the Massachusetts Medical Society, and a practitioner of Chicopee, Mass., for more than forty years; died at his home, May 16, aged 76.

John Frank Alcorn, M.D. Western Pennsylvania Medical College, Pittsburgh, 1900; a member of the Medical Society of the State of Pennsylvania; died at his home in Wilkesburg, Pa., May 25, aged 43.

John Laurence Gartland, M.D. New York University, New York City, 1891; a member of the Ohio State Medical Association; and a resident of Cleveland; died in Lakeside Hospital, May 14, aged 47.

Adolph G. Gehr, M.D. Chicago College of Medicine and Surgery, 1908; formerly an intern in Cook County Hospital, Chicago; died in Los Angeles, Cal., May 26, from valvular heart disease, aged 32.

James M. Cooper, M.D. Jefferson Medical College, 1874; of Reinhold's Station, Pa.; for several years physician of Schuylkill County; died at the home of his son in Shillington, Pa., May 27, aged 64.

Thomas F. Holaday, M.D. Cincinnati College of Medicine and Surgery, 1864; for fifty years a practitioner of Monrovia and Mooresville, Ind.; died at his home in Monrovia about May 19, aged 79.

Alexander B. Ferrell, M.D. Tulane University, New Orleans, 1873; of Wideners, Ark.; a member of the Board of Health of St. Francis County, Ark.; died at Carlisle, Ark., May 19, aged 64.

Leander Anie Steele (license, six years of practice, Michigan, 1900). Formerly a member of the state tax commission; died at his home in Lansing, Mich., March 11, from pneumonia, aged 64.

John Byron Thomas, M.D. Indiana University School of Medicine, Indianapolis, 1909; house physician at Bethel Hospital, Colorado Springs, Colo.; died at Wabash, Ind., May 20, aged 26.

Daniel B. Stewart (license, years' of practice, Ohio, 1896). For sixty-three years a practitioner of Williams County, Ohio; died at his home in Jefferson Township, May 25, aged 92.

Lewis Eugene Stanton, M.D. King Eclectic Medical College, Des Moines, Iowa, 1886; a pioneer resident of the Platte Valley; died at his home in Sterling, Colo., May 8, aged 54.

Lewis Hodges Clapp, M.D. New York Homeopathic Medical College, New York City, 1904; of Brooklyn; died at Lakewood, N. J., May 17, after an operation for appendicitis, aged 33.

Marietta E. Livingston Hughes, M.D. Hahnemann Medical College, Chicago, 1876; of Spokane, Wash.; died in Sacred Heart Hospital, Spokane, May 17, from lobar pneumonia, aged 71.

John M. Dunn, M.D. Missouri Medical College, St. Louis, 1861; surgeon in the confederate service throughout the Civil War; died at his home in Richmond, Ark., May 19, aged 80.

Gibson Francis Brock, M.D. Tulane University, New Orleans, 1909; a member of the State Medical Association of Texas; died at his home in Corrigan, Texas, May 26, aged 30.

Henry Cleves Symmes, M.D. University of Pennsylvania, Philadelphia, 1880; a member of the Medical Society of New Jersey; died at his home in Cranbury, N. J., May 8, aged 58.

Amos W. Bickford, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1865; a pioneer practitioner of Pasadena, Cal.; died at his home in that city, May 21, aged 76.

Thomas Egbert Enloe, M.D. University of Nashville, Tenn., 1874; of Nashville; died at the home of his daughter in that city, from cerebral hemorrhage, May 26, aged 69.

John J. Bradley, M.D. Minnesota Hospital Medical College, Minneapolis, 1885; died at his home in Milwaukee, May 12, aged 82.

Littleton B. Richards, M.D. Memphis Hospital Medical College, 1898; died at his home in Avery, Ark., May 14, aged 42.

John H. Page, M.D. University of Louisville, Ky., 1875; died at his home in Madill, Okla., May 16, aged 62.

The Propaganda for Reform

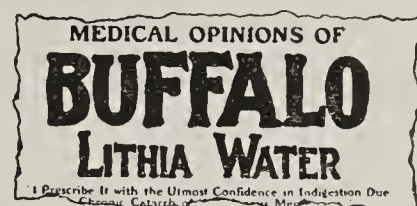
IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

BUFFALO LITHIA WATER

Contains One-Fifth as Much Lithium as Potomac River Water

Some years ago, Alexander Haig evolved the theory that most diseases are due to uric acid. The data on which he founded his theory were not corroborated by scientific men, and investigation showed that his methods were unreliable. In spite of the fact that Haig's theories are utterly discredited, and have been for years, the uric acid fallacy still persists, although it is now largely confined to the public. Shrewd business men, especially those who are more intent on making money than they are concerned with the manner in which that money is made, owe much to Haig's theory. As a business proposition, uric acid has been one of the best-paying fallacies on the market—and possibly still is. It is only necessary to refer to THE JOURNAL'S recent article¹ on the Turnock mail-order medical fraud to emphasize this fact.

Contemporary with, and to a certain extent a corollary of, the uric acid fallacy was another, *viz.*, that lithium would eliminate uric acid. This at once gave a good working principle for the proprietary men. Uric acid, we were told,



NOW AND THEN

Showing how "Buffalo Lithia Water" in the course of time became "Buffalo Lithia Springs Water." The government has shown that, to obtain a therapeutic dose of lithium from Buffalo Lithia Springs Water, it would be necessary to drink 200,000 gallons of the water. The government also declared that Potomac River water contained five times as much lithium as does Buffalo Lithia Springs Water.

causes disease; lithium, we were also told, would eliminate uric acid; therefore, lithium is the new elixir of life! Could anything be simpler?

Accepting this theory, it was inevitable that mineral waters containing lithium salts should become highly popular. Many exploiters of mineral waters began to place most emphasis on the lithium salts in their waters even in those cases in which lithium was present in such infinitesimal amounts as to render its detection impossible by any but spectroscopic methods.

One of the best known, because most widely advertised, of the so-called lithia waters is Buffalo Lithia Water—or what used to be called Buffalo Lithia Water. After the Federal Food and Drugs Act came into effect, by which falsification on the label was penalized, the name of Buffalo Lithia Water was changed to Buffalo Lithia Springs Water. The reason for this change was that when Buffalo Lithia Water was subjected to examination by the government chemists it was found to contain so little lithium that the amount present was unweighable—it could be demonstrated only by the spectroscope. It was evidently, therefore, not a lithia water in that it did not contain—at least in quantities that could be consumed—an amount of lithium that would give the therapeutic effects of lithium: Possibly the company imagined that by changing the name from "Buffalo Lithia Water" to "Buffalo Lithia Springs Water" it had cleverly evaded the federal law. Their argument was to this effect:

1. THE JOURNAL A. M. A., May 23, 1914, p. 1675.

The springs from which this water is taken are known as Buffalo Lithia Springs; therefore, it is not a misstatement of facts to call this Buffalo Lithia Springs Water.

WHAT IS A LITHIA WATER?

The Supreme Court of the District of Columbia, holding a district court, has recently given an opinion on the Buffalo Lithia Springs Water case. The findings of the court are refreshingly simple, and characterized by that broad common-sense view that is becoming increasingly more common among modern jurists. Read Judge Gould's opinion as to what constitutes a lithia water:

"Speaking generally, and as an individual of average intelligence and information, it would seem that if one were offered a water which the vendor told him was a 'lithia' water, one would have the right to expect enough lithium in the water to justify its characterization as such, thus differentiating it from ordinary potable water; and this amount would reasonably be expected to have some effect on the consumer of the water by reason of the presence of the lithium."

Certainly a reasonable attitude, and one which the man in the street not only can understand but will agree with. Then came the question as to the actual lithium content of Buffalo Lithia Springs Water, and the court said:

"For a person to obtain a therapeutic dose of lithium by drinking Buffalo Lithia Water he would have to drink from one hundred and fifty thousand to two hundred and twenty-five thousand gallons of water per day. It was further testified, without contradiction, that Potomac River water contains five times as much lithium per gallon as the water in controversy."

SOME TESTIMONIALS

Here, then, is a water that has for years been advertised first, in medical journals, and later, in lay publications, as a "lithia water" yet, actually, it contains less lithium, five to one, than is to be found in ordinary river water. This is a point for physicians to ponder well over. Turn to the back volumes of medical journals and read, both in the advertising and reading pages, the elaborate testimonials, given by men high in the medical profession, on the marvelous effects obtained by the use of Buffalo Lithia Water. Read the following in light of the fact that the water from the Potomac River contains five times as much lithium as Buffalo Lithia Water:

"In the class of cases in which lithia, soda and potash are regarded as most specially indicated, I have obtained far better results from the Buffalo Lithia Waters than from any of the preparations of the lithium salts of the Pharmacopeia." (*Statement by a member of the Faculty of Medicine of Paris, France, etc.*)

"Its [Buffalo Lithia Water] therapeutic effects, in my practice, have been vastly superior to those obtained from Lithia Tablets or other Lithia preparations." (*Statement by an ex-president of the University College of Medicine, Richmond, Va., etc.*)

"It [Buffalo Lithia Water] is strikingly superior to emergency solutions of lithia tablets and pure water, even where the said solution is an exceedingly strong one." (*Statement by a former Professor of Clinical Medicine of the College of Physicians and Surgeons, New York, and vice-president of the American Medical Association, etc.*)

"When Lithia is indicated, I prescribe Buffalo Lithia Water in preference to the Salts of Lithia, because it is therapeutically superior to laboratory preparations of Lithia." (*Statement by a former professor in the Medical College of Virginia and ex-president of the Medical Society of Virginia, etc.*)

"Buffalo Lithia Water . . . by its richness of composition of Lithia, is of marvelous efficacy, in cases of gout, of chronic, articular, and muscular rheumatism . . ." etc. (*Statement by a former Physician in Ordinary to the Pope; Member of Academy of Rome, etc.*)

"I have tried carbonate of lithia dissolved in water in various proportions; but it certainly does not have the same effect as Buffalo Lithia Water." (*Statement by a former Surgeon-General of the U. S. Army, etc.*)

These are but a few of many testimonials from physicians that might be quoted. They are interesting from many points of view. They show the worthlessness of testimony of this sort—no matter from what source—and the fallacy of that based on so-called clinical evidence.

To go back to the court's findings: In the case of the government against Buffalo Lithia Springs Water, one other

judicial opinion is worthy of attention, that referring to the attempt on the part of the exploiters of the water to circumvent, on a technicality, the evident intent of the Food and Drugs Act. Said Judge Gould:

"The argument seems to be that if Buffalo Lithia Springs are falsely named, being called 'Lithia' Springs, when they do not flow water containing lithium, therefore the proprietors have the right to sell the product as being Buffalo Lithia Springs Water, thus perpetuating on the public the misnomer connected with the origin of the water. It is not apparent how the deceit practiced on the public by the label is mitigated by carrying it back to the designation of the spring from which the water comes."

For years no one, apparently, ever criticised the claim made for this product. Finally, we got the Food and Drug Act and the federal officials, acting under the authority vested in them by that law, in December, 1910, declared Buffalo Lithia Water misbranded. Thus this old established vested interest was attacked. The company, of course, fought. It first demurred to the charge brought, and in April, 1912, the demurrer was sustained. At the same time an amended libel was filed by the government, which the company again demurred to. This demurrer was overruled in June, 1912, whereon the company in December, 1912, filed an answer denying that the water was misbranded. The question has now (1914) been finally decided by the court sitting as a jury, the matter having been submitted by agreement to the court.

Buffalo Lithia Water has been sold since 1878. During this period undoubtedly many physicians have prescribed enormous quantities of this water, and many more laymen have taken the water on their own initiative, based on the advertised claims made for it. Practically all who purchased the water, whether directly or on the advice of physicians, did so in the belief that they were getting lithium. Had they known that, to get a therapeutic dose of lithium they would have had to drink 200,000 gallons of Buffalo Lithia Water they would have felt, and rightly so, that they were the victims of an expensive hoax.

THE GERMAN PROPAGANDA FOR REFORM

Appreciation by a German Lay Publication

Of all those interested in the reform of the proprietary drug business, the patient has the most at stake—and the public is beginning to understand this fact. If physicians are slow in recognizing the necessity for improvement, laymen will eventually demand reform in their own interest. The movement, therefore, will not be halted by the indifference of the unprogressive element of the medical profession. No evidence of this fact is furnished by a recent editorial comment by the German lay periodical, *Wohlfahrt und Wirtschaft* (Public Welfare and Economics), on the *Arzneimittel-Kommission*, a German organization resembling in purpose not in scope the Council on Pharmacy and Chemistry of the American Medical Association.

"One would suppose," says this lay journal, "that medicinal preparations which did not win the approval of scientific medicine would not be used by any physician, but the contrary is the case. In fact, those new medicinal preparations or old ones with new names that flood the market far surpass the actual demand according to the judgment of all authorities. The impartial advisers in this field, practitioners and members of medical faculties, demand, as a matter of public welfare that this overproduction should be regulated in the interests of the sick, the consumers; but, unfortunately, a medical man, like any one else, is impressed by the suggestion from advertising done on a large scale."

The movement for reform, *Wohlfahrt und Wirtschaft* goes on to explain, is not exclusively a medical one. It is a part of the reaction of "economic common sense" against an individualistic commercial system which leads to overproduction. In other words, it is a reaction against the system of making things because they can be sold rather than because they are needed. The interests of producers need to be

monized with those of consumers, not merely in the drug trade alone, but throughout the commercial world. *Wohlfahrt und Wirtschaft* quotes with unqualified approval, the Arzneimittel-Kommission's statement of its position: An industry which serves the science of healing must be guided by that science. (*Eine Industrie die der Heilwissenschaft dient, hat sich nach der Heilwissenschaft zu richten.*)

The movement for reform in Germany has apparently gathered sufficient impetus among the laity to go on of its own momentum, even though, with one exception, German medical journals, reluctant to lose the advertising of drug houses by publishing criticisms of their wares, have become lukewarm, if not antagonistic, to the efforts of the Arzneimittel-Kommission. The one exception is the *Therapeutische Monatshefte*, which, in its May issue, quotes in full the editorial just referred to and makes the following comment: "These lines reveal such intimate knowledge and correct judgment of existing conditions that the suggestions advanced in regard to possible reforms deserve serious consideration. For us physicians the editorial is important in that it recognizes that the efforts of the profession to accomplish the reforms aimed at are rational and beneficial from the standpoint of general economics and the public welfare."

Association News

PUBLIC HEALTH SUNDAY IN PHILADELPHIA

Following the custom observed for several years past, the Council on Health and Public Instruction of the American Medical Association has offered this year to furnish speakers for all Philadelphia churches desiring an address on public health on Sunday, June 21, the Sunday preceding the Atlantic City session. A list of the churches, speakers and subjects follows:

BELMONT AVENUE BAPTIST, Corner of Belmont and Westminster, Rev. W. A. Spinney, Pastor.
Morning, 10:30: Dr. J. W. Kerr, Assistant Surgeon-General, U. S. P. H. S., Washington, D. C., "Opportunities of the Church in Public Health Endeavor."

CHELTEN AVENUE BAPTIST, Cheltenham Avenue above Boyer Street, Rev. P. R. Hayward, Pastor.
Evening, 7:45: Dr. Calvin S. White, Portland, Ore., "Socialization of Medicine."

CHESTNUT STREET BAPTIST, Fortieth and Chestnut streets, Rev. George D. Adams, Pastor.
Evening, 8: Dr. Thomas D. Coleman, Augusta, Ga., "Public Health."

DOTTREL MEMORIAL BAPTIST, Twenty-Fourth and Dickinson streets, Rev. E. D. Shull, Pastor.
Evening, 8: Dr. Claude A. Smith, Atlanta, Ga., "Public Health."

FIFTH BAPTIST, Eighteenth and Spring streets, Rev. W. Q. Rosselle, Pastor.
Morning, 10:30: Dr. W. W. Grant, Denver, "Public Health."

FIRST BAPTIST GERMANTOWN, Price Street near Germantown Avenue, Rev. Thomas S. Samson, Pastor.
Morning, 10:30: Dr. Oscar Dowling, New Orleans, "Public Health."

FIFTIETH BAPTIST, North Seventh Street and Susquehanna Avenue, Rev. J. Francis Behrens, Pastor.
Morning, 10:30: Dr. Frank B. Wynn, Indianapolis, "Mental Hygiene in Relation to Disease."

THE BAPTIST TEMPLE, Broad and Berks street, Rev. Russell H. Conwell, Pastor.
Morning, 10:30: Dr. Guilford H. Sumner, Des Moines, Iowa, "Disease and Its Prevention."

IMMANUEL BAPTIST, Twenty-Third and Summer streets, Rev. William Oswald, Pastor.
Morning, 10:30: Dr. Charles S. Williamson, Chicago, "The Relationship of Mortality and Public Health."

NORTHWEST BAPTIST, Lehigh Avenue and Twenty-Eighth Street, Rev. W. Dallas Cope, Pastor.
Evening, 7:45: Dr. Robert M. Funkhouser, St. Louis, "Eugenics."

SECOND BAPTIST GERMANTOWN, Germantown Avenue and Upsal Street, Germantown, Rev. Charles H. Dodd, Pastor.
Morning, 10:30: Dr. H. A. Kelly, Baltimore, "Public Health."

TEMPLE BAPTIST, Twenty-Second and Tioga streets, Rev. Thomas C. Bird, Pastor.
Morning, 10:30: Dr. Edward Jackson, Denver, "The Gospel of Health."

THIRD BAPTIST, Broad and Ritner streets, Rev. G. W. Drew, Pastor.
Morning, 10:30: Dr. Hugh Cabot, Boston, "The Control of Disease by Public Opinion."

TIOGA BAPTIST, Broad below Tioga Street, Rev. Rutger Dox, Pastor.
Morning, 10:30: Dr. Jere L. Crook, Jackson, Tenn., "The Stewardship of the Body."

WAYNE AVENUE BAPTIST, Wayne Avenue and Queen Lane, Germantown, Rev. B. L. Newkirk, Pastor.
Evening, 8: Dr. Charles P. Emerson, Indianapolis, "The Message of Modern Medicine."

WOODLAND AVENUE BAPTIST, Woodland Avenue east of Sixty-Fourth Street, Rev. Rittenhouse Neisser, Pastor.
Evening, 7: Dr. Richard C. Newton, Montclair, N. J., "The Human Body."

FIRST CHRISTIAN, Berks and Marvine streets, Rev. Irving S. Chenoweth, Pastor.
Morning, 10:30: Dr. Morgan Smith, Little Rock, Ark., "Public Health, the Paramount Issue."

PRICHARD MEMORIAL LUTHERAN, Sixty-Third and Elmwood Avenue, Rev. J. William H. Heinty, Pastor.
Evening, 7:45: Dr. James P. Warbasse, Brooklyn, "The Socialization of Public Health."

FLETCHER METHODIST EPISCOPAL, Fifty-Fourth and Master streets, Rev. R. H. Crawford, Pastor.
Evening, 7:45: Dr. Miles F. Porter, Fort Wayne, Ind., "A New Health Gospel."

KYNETT MEMORIAL METHODIST EPISCOPAL, Seventeenth and Cayuga streets, Rev. Harry P. Boughey, Pastor: Dr. G. V. I. Brown, Chicago, "The Health of Children and Its Influence in Moral, Physical and National Development."

NORRIS SQUARE METHODIST EPISCOPAL, Susquehanna Avenue and Mascher Street, Rev. E. F. Hoffman, Pastor.
Evening, 7:45: Dr. Henry D. Holton, Brattleboro, Vt., "Social Conditions as They Affect Daily Life."

OLIVET METHODIST EPISCOPAL, Sixty-Third and Grays Avenue, Rev. S. K. McConnell, Pastor.
Evening, 7:45: Dr. J. C. M. Floyd, Steubenville, Ohio, "Social Waste."

PORT RICHMOND METHODIST EPISCOPAL, Indiana Avenue and Thompson Street, Rev. G. B. Burnwood, Pastor.
Evening, 7:45: Dr. Thomas N. Gray, Newark, N. J., "Save the Babies."

PROVIDENCE METHODIST EPISCOPAL, Front Street and Allegheny Avenue, Rev. Walter B. Smith, Pastor.
Evening, 7:45: Dr. C. E. Cantrell, Greenville, Tex., "Public Health."

SILAM METHODIST EPISCOPAL, East Susquehanna above Thompson, Rev. John C. Petre, Pastor.
Morning, 10:30: Dr. Lucien Howe, Buffalo, N. Y., "The Morality of Eugenics."

SUMMERFIELD METHODIST EPISCOPAL, corner Tulip Avenue and East Dauphin, Rev. F. A. Gacks, Pastor.
Evening, 7:45: Dr. Thomas S. Cullen, Baltimore, "Cancer."

TWENTY-NINTH STREET METHODIST EPISCOPAL, Corner Twenty-Ninth and York streets, Rev. John D. C. Hanna, Pastor.
Morning, 10:30: Dr. V. C. Vaughan, Ann Arbor, Mich., "The Evolution of the Superman."

COVENANT PRESBYTERIAN GERMANTOWN, Cheltenham Avenue and Limekiln Pike, Rev. Harle W. Hathaway, Pastor.
Morning, 10: Dr. S. L. Jepson, Wheeling, W. Va., "The Fallacy of Faith Healing."

EMMANUEL PRESBYTERIAN, Girard Avenue and Forty-Second Street, Rev. Edward S. Bowman, Pastor.
Evening, 7:45: Dr. Woods Hutchinson, New York, "Am I My Brother's Keeper?"

NINTH PRESBYTERIAN, Fifty-Seventh Street and Washington Avenue, Rev. John A. Higgins, Pastor.
Evening, 8: Dr. R. E. Brenneman, Pittsburgh, "Prevention of Cancer."

PURITAN PRESBYTERIAN, Second and Clearfield streets, Rev. James G. Raymond, Pastor.
Evening, 7:45: Dr. E. A. Hines, Seneca, S. C., "Vital Problems in Preventive Medicine."

WEST HOPE PRESBYTERIAN, Preston and Aspen streets, Rev. Charles E. Bronson, Pastor.
Evening, 7:45: Dr. H. W. Wiley, Washington, D. C., "Public Health."

WEST PARK PRESBYTERIAN, Fifty-Fourth Street and Lansdowne Avenue, Rev. C. Grant Hopper, Pastor.
Evening, 7:45: Dr. Thomas D. Crothers, Hartford, Conn., "Scientific Side of the Temperance Question."

OVERBROOK PRESBYTERIAN, Corner City and Lancaster avenue, Rev. Guido Bossard, Pastor.
Evening, 8: Dr. C. S. Bacon, Chicago, "How to Prevent Sickness and Prolong Life."

FOURTH UNITED PRESBYTERIAN, Nineteenth and Fitzwater streets, Rev. J. C. Scouller, Pastor.
Morning, 10:30: Dr. Angus McLean, Detroit, "Health Education a State Duty."

DALES MEMORIAL UNITED PRESBYTERIAN, Thirty-Second, corner Cumberland, Rev. T. B. Turnbull, Pastor.
Morning, 11: Dr. John L. Heffron, Syracuse, N. Y., "Public Health and Public Morals."

ALL SAINTS EPISCOPAL, Torresdale, Rev. A. R. Van Meter, Rector.
Morning, 10:30: Dr. W. C. Rucker, Assistant Surgeon-General, U. S. P. H. S., Washington, D. C., "The Church and Industrial Disease."

ST. JOHN'S EPISCOPAL, Brown Street near Third, Rev. George Chalmers Richmond, Rector.
Evening, 7:45: Dr. Joseph C. Bloodgood, Baltimore, "Control of Cancer."

CALVARY REFORMED, Twenty-Ninth and Lehigh Avenue, Rev. F. H. Fisher, Pastor.
Evening, 7:30: Dr. S. A. Knopf, New York, "How to Improve the Physical, Mental and Moral Condition of our Schoolchildren."

HEIDELBERG REFORMED, Nineteenth and Oxford streets, Rev. Rufus C. Zartman, Pastor.
Evening, 7:45: Dr. A. L. Benedict, Buffalo, "Public Intelligence and Information as Factors of Public Health."

MT. HERMON REFORMED, Sixteenth and Wingohocking streets, Rev. C. B. Alspach, Pastor.
Evening, 8: Dr. B. R. McClellan, Xenia, Ohio, "Conservation of Child Life."

ST. MARK'S REFORMED, Fifth Street above Huntingden Pt., Rev. George A. Sheer, Pastor.
Morning, 10: Dr. Charles H. Cook, Natick, Mass., "Public Health."

GIRARD AVENUE UNITARIAN, Girard Avenue above Fifteenth Street, Rev. K. E. Evans, Pastor.
Morning, 10:45: Dr. Walter B. Cannon, Boston, "Social Responsibilities Arising from Medical Progress."

BETHEL UNITED EVANGELICAL, Twelfth Street above Lehigh Avenue, Rev. John W. Slack, Pastor.
Evening, 7:45: Dr. L. Mervin Maus, Colonel Medical Corps, U. S. Army, Governor's Island, N. Y., "The Effect of Alcohol on Society."

ALL SOULS UNIVERSALIST, Forty-Seventh Street and Larchwood Avenue, Rev. Thomas W. Illman, Pastor.
Dr. G. M. Illman, Philadelphia, "Some Things the Public Should Know about Medicine and The American Medical Association."

In addition, through the courtesy of Archbishop Prendergast, the 104 Catholic priests of Philadelphia have been supplied with copies of a special address on "Our Progress in Medicine," by Dr. J. J. Walsh of New York. This address will be used by the parish priests as the basis for sermons on public health which will be delivered to the congregations on Sunday morning, June 21.

Correspondence

The Necessity of Adopting State Laws Regulating the Nature of the Liquids to Be Used for Embalming Purposes

To the Editor:—A recent experience brought forcibly to my notice the desirability that laws regulating the nature of embalming fluids should be enacted. In analyzing certain organs from a body in which there were many reasons to suspect arsenical poisoning, I was able to isolate large amounts of mercury and arsenic. Examination of the embalming fluid used in this case showed it to contain arsenic and mercury. On this account no case could be made out against the supposed administrators of the poison.

When one realizes that there are no restrictions in this country regarding the nature of embalming fluids to be used except in the states of New York, New Jersey and Michigan, the chance of detecting poisoners after the embalming is done is rather slim. This is especially true as regards the use of arsenic and mercury, as they are almost invariably present in the embalming fluids now used. In Michigan the law prohibits only the use of arsenic. In New Jersey the law provides that "no person shall employ for the purpose of embalming or preserving any dead human body, any arsenical solution nor any other poisonous agent which may, by its presence in the viscera, prevent the detection of criminal uses of said poisonous agents before the death of the individual occurred."

The state of New York has by far the best law regulating the nature of the embalming fluid to be used. It is as follows:

No embalmer shall inject into any dead human body for the purpose of preserving, disinfecting or embalming the same any fluid that is not a thorough germicide in the proportions ordinarily used in embalming, that is, eight parts of fluid to 150 parts of body-weight, or that contains arsenic, zinc, mercury, copper, lead, silver, antimony or chloral or any substance or compound that contains either or any of them, or any poisonous alkaloid. Except that nothing in this regulation shall apply to the use of the above-named substances in any duly incorporated medical college or scientific institution by those having in their legal possession human cadavers intended to be used for the purpose of medical study or other legitimate purposes.

The New York regulations also prohibit the sale of embalming liquids containing the poisons above mentioned and provide for the bacteriologic examination, chemical analyses and certification of such liquids by the board.

It is most desirable that the other states in this country enact laws similar to those adopted in New York State. At the next meeting of the Pennsylvania legislature, I shall have introduced a bill similar to that adopted in New York. It may be of interest to observe that France in 1846 prohibited the use of arsenic in embalming fluids.

JACOB ROSENBLOOM, M.D., PH.D., Pittsburgh.

[COMMENT.—Reference to the laws of the various states would indicate that our correspondent is too sweeping in his statement as to the lack of restrictions outside of New York, New Jersey and Michigan.

Illinois has a statute on this specific point, and while in some ways it may not be quite so effective as the New York law, it would seem to carry more weight, inasmuch as a penalty is attached. See Illinois Sess. Laws, 1907, page 257, and Chapter 31, Sec. 25, Illinois Sess. Laws, 1907.

Iowa vested its Board of Health with jurisdiction over embalmers. This board has promulgated a set of rules precluding the use of other material than that which is specified in the rules, from an examination of which it appears that the objectionable substances cannot be used. See Chap. 4, Rule 3, Regulations of the Iowa State Board of Health, on the care of the dead. See also Chap. 16, Title 12, Iowa Code, as to the powers of the State Board of Health.

South Dakota similarly vests its board with a like jurisdiction. This state has also forbidden the use of objectionable poisons. See Regulations of the South Dakota State Board of Health for 1913, Sec. 144.

Moreover, in a number of states in which the use of specific poisons is not forbidden, the ground is nevertheless fairly well covered in the provision that "it shall be unlawful for any person or persons to embalm . . . any dead body . . . in case the death is believed to be due to other than natural causes, or the cause thereof is unknown . . . without a proper death certificate which has been signed or approved by the coroner." See 31 and 32 of the statutes at large, U. S., Sections 683, 684. Also Kansas Embalmers Law for 1912, Sec. 9764; Chap. 181, Maine Sess. Laws, 1911, Section 12; Rules and Regulations of the Massachusetts Board of Embalmers for 1908, Sec. 9; Chap. 76, New Hampshire Sess. Laws, 1899, Sec. 5; Rules and Regulations of Rhode Island Board of Embalmers for 1912, Sec. 8; and Act 216, Vermont Sess. Laws, 1910, Sec. 7.

Finally, a number of states vest their boards of health with power to make regulations touching the proper care of the dead. See Conn. Code as amended, 1909, Sec. 1962; and rules of the Connecticut Board of Health, Feb. 5, 1902; Laws and Regulations touching on embalmers, Idaho, 1909, Sec. 6; Chap. 101, Minnesota Sess. Laws, 1905; Embalmers Law, Oregon, Sec. 9; and Chap. 420, Wis. Sess. Laws, 1905, Sec. 8; Cf. Wisconsin Code, Sec. 1408-1409.—Ed.]

McClure's Mistake

To the Editor:—THE JOURNAL is to be congratulated on the promptness with which it has commented on the article "Painless Child-Birth" in the June issue of *McClure's*.

As the article has much in common with the paper Krönig read before the Chicago Gynecological Society in November, 1913, entitled, "The Difference between the Older and the Newer Treatments by X-Ray and Radium in Gynecological Diseases," and published in the May issue of *Surgery, Gynecology and Obstetrics*, I was impressed that the data for the article in *McClure's* could not have been obtained without at least the passive cooperation of Krönig, Gauss, or both. I, therefore, wrote *McClure's* to inquire if the article had been gone over by Krönig and Gauss and published with their consent. Enclosed you will find a copy of the reply received from *McClure's*, which answers the editorial comment in THE JOURNAL, June 6, 1914, page 1815, which states that "If the publication was sanctioned by either or both of them it indicates an advertising initiative which bids fair to rival Friedmann," and will at least, if published, enlighten the members of the profession in this matter.

I read the article in *McClure's* with much interest, but was amazed that it had slipped through the editorial department as it reads like an advertisement put out by a charlatan, or by a pharmaceutical house with its "ethical proprietary" advertised to the public.

S. E. TRACY, M.D., Philadelphia.

COPY OF LETTER RECEIVED FROM MCCLURE'S

McClure's Magazine
The McClure Publications
Fourth Avenue and 20th Street, New York.

Editorial Department.

May twenty-fifth, 1914

Dear Doctor:

In reply to your letter of May nineteenth, I have to say that the article on "Painless Childbirth" in June *McClure's*, is technically correct and was read by Prof. Krönig and Dr. Gauss and published with their consent.

Yours very truly,

(Signed) J. WILLARD CONNELLY

Dr. Stephen E. Tracy,
1527 Spruce Street.
Philadelphia, Pa.

Stubbornness.—Obstinacy is the result of the will forcing itself into the place of the intellect.—Schopenhauer.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE ABSORPTION OF IRON FROM MINERAL WATERS

To the Editor:—In a Current Comment on this subject (*THE JOURNAL*, March 14, 1914, p. 856), there is a statement to the effect that both organic and inorganic iron can be absorbed and satisfactorily carry out the purposes for which they are ordinarily administered. Will you please give me references to the results which you have considered evidence as to the truth of that statement? I wish to present the proofs to a class in dietetics at the University.

MARIA MADDEN, Lawrence, Kan.

ANSWER.—The evidence regarding iron absorption was mostly interpreted prior to the first clear demonstration that the bowel forms the most important channel for the excretion of this element. The failure to find any increase in the amount of iron eliminated with the urine by the kidneys after the ingestion of the element in some form or other was taken as an indication that it had not been absorbed. To-day we know that it can be both absorbed and excreted by the intestinal wall. For this reason references to the very early literature on the subject now have merely historical interest.

The conclusion that both forms of iron compounds, namely, the organic and the inorganic or ionized types, can be absorbed, is based on a variety of experimental evidences. The total intake and output of iron have been ascertained in some cases, and the favorable balance or retention of iron accepted as evidence. The intestinal mucosa has been examined by microchemical methods to demonstrate the entrance of ingested iron. Iron has been detected in the thoracic lymph soon after the introduction of ferric chlorid into the stomach. Various organs and even the entire bodies of animals have been examined to learn whether they have become enriched by the forms of iron compounds administered. Animals have been rendered anemic by hemorrhage and thereon the efficiency of the two kinds of iron derivatives in restoring the hemoglobin of the blood ascertained. Clinical observations on anemic patients have been drawn on to contribute to the same end.

The debate on the subject has been prolonged. The absorption of inorganic iron is now universally admitted. The question whether it can serve *directly* for hemoglobin formation has not been so easily answered. Some have inclined to the view that the absorbed inorganic iron acts merely as a stimulus to the hemopoietic organs to convert the organic forms into the blood pigment. The changing views of digestion formulated in recent years make it easier to understand that all iron probably becomes ionized in the intestine before absorption, and that synthetic transformations of the element occur later in any event, if it is to be retained in the organism.

An elaborate review of the subject, with a complete bibliography to 1906, has been prepared by Meyer, E.: *Ueber die Resorption und Ausscheidung des Eisens, Ergebn. d. Physiol.*, 1906, v, 698. An excellent discussion of the question is furnished in Sherman, H. C.: *Chemistry of Food and Nutrition*, New York, the Macmillan Company, 1911, p. 232, and following. Abderhalden's contributions are considered in his *Text-Book of Physiological Chemistry*, translated by Hall, New York, John Wiley & Sons.

THE BOAS EXTRA-ANAL TREATMENT OF HEMORRHOIDS

To the Editor:—Please describe the Boas extra-anal treatment of hemorrhoids.

A. M., Detroit.

To the Editor:—What is the Boas method for the extra-anal treatment of hemorrhoids?

A. J. NOSSAMAN, M.D., Pagosa Springs, Colo.

ANSWER.—The Boas method consists of extruding the tumors, applying Bier's suction to them until a ring of edema forms, the time being about sixty minutes, and leaving the tumors outside the anus. The hemorrhoids shrivel in consequence of the interruption to the circulation and eventually disappear. The patients are confined to bed about two weeks. The following articles may be referred to:

Boas, I.: Extra-Anal, Non-Operative Treatment of Hemorrhoids, *Arch. f. Verdauungskr.*, 1909, xv, No. 2; abstr., *THE JOURNAL*, March 22, 1909, p. 1725.

Boas, I.: Bloodless Cure of Hemorrhoids, *München. med. Wchnschr.*, Jan. 30, 1912; abstr., *THE JOURNAL*, March 9, 1912, p. 742.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

A PRACTICAL STATE-WIDE CAMPAIGN IN VENEREAL PROPHYLAXIS AND SEX INSTRUCTION, INCLUDING LEGISLATION AGAINST QUACKS

Oregon has had in operation for over two years a plan of education in venereal prophylaxis and sex instruction. The movement originated in Portland in 1911 in a call issued by a committee of the Y. M. C. A. for a meeting of citizens to combat the social evil in that city. An organization was effected which later merged into the Oregon Social Hygiene Society. Its efforts have been extended to the entire state, and the legislature and State Board of Health have cooperated in the work. The head of the society from the beginning has been the state health officer, Dr. Calvin S. White.

During the first year the work was confined almost entirely to Portland. Meetings were held among the young people, the parents, and in various business houses and industrial establishments. Talks on health topics were given, gradually introducing the subject of sex hygiene. State Board of Health notices regarding venereal diseases were given publicity and circulars were distributed through paymasters and other channels. Permanent and temporary traveling exhibits in the form of posters and panels were also provided in Portland and a large number of other cities of Oregon. These concerned the subjects of sex hygiene, venereal prophylaxis, "men's specialists" quacks and their fraudulent methods, and offered free advice by the State Board of Health.

LEGISLATION AFFECTING QUACKS

The state legislature in 1913 passed the following law in regard to quacks and quack advertising:

SEC. 2095. Any person who shall advertise or publish any advertisement intended to imply or be understood that he will restore manly vigor, treat or cure lost manhood, lost power, stricture, gonorrhea, chronic discharges, gleet, varicocele or syphilis, or any person who shall advertise any medicine, medicinal preparation, remedy or prescription for any of the ailments or diseases enumerated in this act shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than \$100 nor more than \$1,000, or by imprisonment in the county jail for a period of not less than six months nor more than twelve months, or by both such fine and imprisonment. Any owner or managing officer of any newspaper in whose paper shall be printed or published any such advertisement as is described in this act shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than \$100 nor more than \$1,000, or by imprisonment in the county jail for a period of not less than six months, or by both such fine and imprisonment.

As a result of the passage of this law and of the steadily growing public sentiment against the methods of quack doctors, their business steadily decreased. The cooperation of the newspapers of Portland (with one exception) was secured so that a minimum of advertising space was available for the quack doctors. Many offices were closed and the business of others decreased. In 1911 grand jury indictments were obtained in Portland against a number of advertising quacks for violation of the state law which prohibits advertising to cure certain specific ailments. The newspapers of the state also generally support the movement, and only two or three continued to publish one or more advertisements of the "men's specialists." As shown by the report of the society, at the end of 1913 there were in the whole state only five of the old quack concerns, and in addition about five Chinese concerns which did a general practice. None of them advertise as "men's specialists"; all purport to treat both men and women for various diseases. The only remaining "museum of anatomy" in the state went out of business during the year. Among the quack institutions named in the poster campaign are the "Oregon Medical Institute," "Pacific Coast Medical Co.," "Dr. A. G. Smith, specialist,"

"Dr. Lindsay," "Dr. Warren," "Dr. C. K. Holsman," "Truthful Travis Oriental Remedy Co.," "Asiatic Acme Remedy Co.," and "J. J. Keefe, Ph.G., M.D."

In addition to the act regarding fraudulent practice and advertising, the legislature of 1913 lent its substantial support to the Oregon Social Hygiene Society in the form of an appropriation of \$10,000, to be paid direct to the society for carrying on and extending its work throughout the state. The campaign is an example of the good results which may be achieved by united efforts encouraged by newspaper and legislative assistance.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 14. Chairman, Dr. W. H. Sanders, Montgomery.

ALASKA: Juneau, July 7. Sec., Dr. Henry C. De Vigne, Juneau.

ARIZONA: Phoenix, July 7-8. Sec., Dr. John Wix Thomas, Phoenix.

CALIFORNIA: Los Angeles, June 16. Sec., Dr. C. B. Pinkham, 135 Stockton St., San Francisco.

COLORADO: Denver, July 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven, July 14-15. Sec., Dr. Chas. A. Tuttle, New Haven. Homeopathic: New Haven, July 14. Sec., Dr. Edwin C. M. Hall, New Haven. Eclectic: New Haven, July 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

DELAWARE: Dover and Wilmington, June 16-18. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Palatka, June 17-18. Sec., Dr. E. W. Warren, Palatka.

ILLINOIS: Chicago, June 23-25. Sec., Dr. C. St. Clair Drake, Springfield.

INDIANA: Indianapolis, July 14-16. Sec., Dr. W. T. Gott, State House, Indianapolis.

KENTUCKY: Louisville, June 15-17. Sec., Dr. A. T. McCormack, Bowling Green.

MAINE: Augusta, July 7-8. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MARYLAND: Baltimore, June 15. Regular Board: Sec., Dr. J. McP. Scott, Hagerstown. Homeopathic: Baltimore, June 15. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.

MISSISSIPPI: Jackson, June 16-17. Sec., Dr. E. H. Galloway, Jackson.

MISSOURI: St. Louis, June 15-17. Sec., Dr. J. A. B. Adcock, Jefferson City.

MONTANA: Helena, June 30-July 2. Sec., Dr. Wm. C. Riddell, Helena.

NEW HAMPSHIRE: Concord, July 1-2. Regent, Mr. H. C. Morrison, Concord.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.

NEW MEXICO: Santa Fe, July 13. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: June 23-26. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

NORTH DAKOTA: Grand Forks, July 7. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 14. Sec., Dr. John W. Duke, Guthrie.

OREGON: Portland, July 7-9. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

RHODE ISLAND: Providence, July 2-3. Sec., Dr. Gardner T. Swarts, State House, Providence.

SOUTH DAKOTA: Deadwood, July 14. Sec., Dr. Park B. Jenkins, Waubay.

TEXAS: Austin, June 23-25. Sec., Dr. W. L. Crosthwait, Waco.

UTAH: Salt Lake City, July 6-7. Sec., G. F. Harding, 405 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, July 14-17. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 23-26. Sec., Dr. Herbert Old, Norfolk.

WASHINGTON: Seattle, July 7. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

WEST VIRGINIA: Elkins, July 1. Sec., Dr. S. L. Jepson, Wheeling.

WISCONSIN: Milwaukee, June 29. Sec., Dr. John M. Baffe, 3200 Clybourn St., Milwaukee.

WYOMING: Laramie, July 9-11. Sec., Dr. H. E. McCollum, Laramie.

MEDICAL EDUCATION *

Kendric C. Babcock

Dean of College of Liberal Arts and Sciences of the University of Illinois

URBANA, ILL.

No single feature of improvement in higher education in the last seven years better deserves reiterated emphasis and approval than the progress in medical education. The changes of the last year give renewed cause for satisfaction. The continued decrease in the number of medical schools,

from 162 in 1906 to 106 in 1913, is fresh evidence of sound appreciation of the vital necessity of most thorough, exacting and scientific training in laboratories, and actual, practical apprenticeship under expert direction in large hospitals.

By the action of the Council on Medical Education of the American Medical Association, acting in cooperation with the Association of American Medical Colleges, a new milestone in the progress of medical education was established in the spring of 1913. Step by step the curriculum of standard medical school has been extended to cover four years; admission has advanced from the modest requirement of the completion of high-school education to requirement of a preliminary college year, which should include at least physics, chemistry and biology. Forty-three medical colleges at the close of the period covered by this report were enforcing at least this requirement; others have announced that it will go into effect in 1913; still others have signified their intention to put it into operation in 1914. By these schedules there should be after January, 1914, seventy-one medical colleges requiring for entrance one year of college work, including courses in physics, chemistry, biology and a modern language. But this is not the whole story. Thirty of them, including those which require a bachelor's degree for admission, now demand two years of work in a college of liberal arts, in addition to a high-school course covering four years, and nine have announced the adoption of the two-year collegiate requirement, to become effective before the end of 1915.

The Council on Medical Education, by its announcement of the basis on which medical colleges will be rated in the council's classification as "Class A+, acceptable medical colleges," and "Class A, colleges lacking in certain respects but otherwise acceptable," has fixed and defined this new or collegiate requirement of a single year (THE JOURNAL, Aug. 23, 1913, p. 582). This requirement for admission becomes effective on and after Jan. 1, 1914. The Association of Medical Colleges expresses its requirement in slightly different terms—"one year each of physics, chemistry and biology of college grade, each not less than eight hours." While these two associations have no legal authority to compel the acceptance of their standards, the value of the recognition accorded to an institution by placing it in Class A+ or Class A is so great that ambitious institutions cannot afford to defer compliance longer than is absolutely necessary. It should be noted in this connection that the information on which classification by the Council is made of admission to the Association of Medical Colleges accomplished is based on the direct personal examination of the work of institutions listed by an agent or by a committee of these two organizations. The rating, therefore, is not a paper-made affair, but one which commends itself because of its thoroughness and because it is continually kept up to date by visitation, conference and correspondence.

Confronted by the enormously increased cost of maintaining a first-class medical school, the movement to surrender medical education to the state university or to put it under the care of the state has gone on apace during the year under discussion. The medical college of Drake University, Des Moines, Iowa, was transferred by a cordially amicable arrangement to the State University of Iowa; the medical college of Willamette University, Salem, Ore., has been discontinued and all medical education in Oregon will be carried on by the University of Oregon, in Portland. The state of South Carolina has adopted and made appropriations for the Medical College of the State of South Carolina located at Charleston. An agreement has been perfected by which the University of Alabama will take over the Birmingham Medical College and make of it the postgraduate department of the university's medical school. The College of Physicians and Surgeons of Chicago, which has had an intermittent affiliation with the University of Illinois, without receiving any state aid, however, has recently turned over all its property to the university and gone out of existence as a separate corporation. State aid, which was once defeated by the veto of the governor and once by a decision of the supreme

* Part of report on Higher Education in Chapter II of the 1913 report of the U. S. Bureau of Education.

court of the state, seems now assured. The two medical schools in Richmond, Va., the Medical College of Virginia, which has received a small subsidy from the state, and University College of Medicine, which must not be confused with the medical school connected with the University of Virginia, at Charlottesville, have united as the result of long negotiations.

The financial resources of the medical schools have shown gratifying increases. State appropriations have been generous both for maintenance and for buildings, while gifts running into the millions for hospitals, for instruction and for endowment of research fill the record of the year. The campaign of the Western Reserve University, of Cleveland, in the past two years resulted in a total of \$1,533,000 of endowment for the medical department of that institution. During the past year the University of California received an aggregate of nearly \$480,000 toward a total of \$600,000 for teaching hospital, and the George William Hooper Medical Endowment, consisting of property valued at considerably more than \$1,000,000, perhaps ultimately \$2,000,000, for purposes of medical research.

New Rules in Illinois

From Dr. C. St. Clair Drake, secretary of the Illinois State Board of Health, we have received the following notice of an amendment to the rules and regulations relative to the administration of an act to regulate the practice of medicine in Illinois, in force July 1, 1899. The notice is dated May 26, 1914:

Examinations of candidates for state certificates authorizing the practice of medicine and surgery in Illinois will be held in Chicago, in January, May, June and October, as far as practicable, each year.

All examinations will be in writing and will embrace the subjects hereinafter stated, these subjects being covered in ten papers, each paper being made up of ten questions, as per the following grouping: (1) chemistry, etiology and hygiene; (2) physiology and neurology; (3) anatomy; (4) materia medica and therapeutics; (5) pathology and bacteriology; (6) surgery; (7) physical diagnosis, ophthalmology and otology, pediatrics; (8) obstetrics; (9) gynecology, laryngology, rhinology and medical jurisprudence; (10) practice of medicine.

A candidate to be entitled to a state certificate authorizing the practice of medicine and surgery in Illinois must obtain in his examination a general average of not less than 75 per cent., with a rating of not less than 60 per cent., in any one paper, as set forth in the preceding paragraph.

This amendment is to take effect and become operative in all examinations given by the Illinois State Board of Health, after July 1, 1914.

Connecticut March Report

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the practical and written examination held at New Haven, March 10-11, 1914. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 20, of whom 14 passed and 6 failed. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|--------|---------------------------|------------|
| Yale Medical School | | (1911) | 87.2 |
| Baltimore Medical College | | (1909) | 75.1, 75.6 |
| Johns Hopkins University | (1911) | 77.5; (1913) | 88.1 |
| Maryland Medical College | (1911) | 75.8; (1912) 75.1; (1913) | 82.4 |
| University of Maryland | | (1912) | 81 |
| John A. Creighton Medical College | | (1913) | 81.7 |
| Albany Medical College | | (1894) | 77.3 |
| Woman's Medical College of Pennsylvania | | (1913) | 82.6 |
| University of Vermont | | (1912) | 77, 81.6 |
| FAILED | | | |
| College of Physicians and Surgeons, Baltimore | | (1913) | 67.5 |
| Maryland Medical College | | (1913) | 63.3, 65.5 |
| College of Physicians and Surgeons, Boston | | (1908) | 65.5 |
| University of the South | | (1902) | 63.5 |
| University of Catania, Italy | | (1912) | 63.3 |

Book Notices

A TREATISE ON THE DISEASES OF WOMEN. For Students and Practitioners. By Palmer Findley, B.S., M.D., Professor of Gynecology, College of Medicine, State University of Nebraska. Cloth. Price, \$6 net. Pp. 954, with 670 illustrations. Philadelphia: Lea and Febiger, 1913.

This treatise is an outgrowth of the author's "Diagnosis." The subject-matter is divided into thirty-four chapters, arranged in order rather different from that usually employed, which necessitates considerable overlapping of subjects. Yet if we view this fact from the position of the student who is reading the subject for the first time, we shall agree that it is no detriment to have the repetitions. Indeed, it may be a source of advantage. A wide knowledge of the literature is shown in nearly every page, especially in the chapters developed from some of the author's comprehensive papers. It is to be regretted that a bibliography is not given. There is a remarkable freedom from unsupported and dogmatic assertions, and the book is scholarly in tone. A critical examination shows much to commend and little to criticize. The work seems so strong that attention is called to certain points to which we may object with the hope that they may be corrected in future editions of the book.

The chapters on hemorrhage are arranged to give the student a clear idea of the menstrual phenomena. The author, however, like so many others, has incorporated the old myth that the Caucasian race is more subject to carcinoma and the African to fibroids (p. 21). This statement receives but little support (p. 576) where he states that Kelly and Williams, who have had abundant opportunity to make reliable observations, deny that the negress is preeminently susceptible to fibroids. Even were the result contrary, the observation of 357 cases should not permit of conclusions which may be applied to an entire race. It is surprising to note that in the treatment of dysmenorrhea, treatment by stem pessaries is dismissed in four lines of disfavor, while Pozzi's operation, which to some authorities has no fundamental basis whatsoever, is pictured in four three-quarter-page drawings. Incidentally, Findley is not a believer in tents for cervical dilatation, restricting his choice to the Hegar dilators. Fatigue is not mentioned as a cause for backache, and the author apparently believes that douching will cure leukorrhea—thus marring, to some extent, a very good chapter.

The chapter on sterility shows breadth of view. The effect of acid secretions is considered; extract of corpus luteum is advised in the artificial menopause. A chapter on the examination of the blood is wisely inserted, yet on first glance would appear to be unnecessary in a work of this type. The same statement applies to the chapter on the microscopic examination of scrapings. A valuable chapter on non-operative methods of treatment precedes the preparation for operation. Massage and pressure therapy are discussed quite fully, and organotherapy and serum therapy have a page. Polak's results in the treatment of pelvic infections with vaccines are quoted as encouraging. The absence of diagrams illustrating the method of replacing a retroposed uterus both in the description of non-operative methods and in the discussion of retroversions is to be regretted. They would seem quite as valuable to the student as the illustration of the man in an undershirt painting iodine on an abdomen (p. 245). The author uses Schleich's solution for local anesthesia. The method of putting on dry sterile gloves is splendidly shown on page 253. This is a most valuable illustration and one which could be shown (unfortunately) to the majority of operating-room nurses to the benefit of their technic. How often nurses, in holding gloves for the operator to thrust his hand into, manage to touch the bare hand and thus (frequently) contaminate their gloves! At the same time the illustration on page 274, which depicts one finger in the urethra and the other in the rectum to demonstrate an atresic vagina, should be condemned. At present, methods which demand

the insertion of a finger into the urethra have no place in modern gynecology. Unfortunately the students frequently remember the illustrations longer than the text, and some novitiate will undoubtedly attempt such a barbarous procedure. With this exception, the difficult subject of anomalies of the vagina and uterus is ably handled. The order of presentation of the displacements of the uterus does not appear logical, even though it has the authority of like arrangement in several Scottish and English texts. Retroversion with descent is the natural prologue of procidentia and is best considered before it. The discussion of the various postures which a displaced uterus may assume is not wisely inserted, as it is apt to confuse the student so that he remembers the details rather than the principles. It is only fair to say, however, that in comparison with many American texts the discussion of retrodisplacements here given is simplicity itself.

Findley advises the Todd-Gilliam operation, as well as the Webster, the illustrations of which (Baldy) do not show the ligaments spread out fan-shape on the back of the uterus as they must be to prevent recurrence, and indeed as they are described in the text. In the chapter on inflammation of the uterus the author appears committed to the older nomenclature. Thus he describes many erosions (non-cancerous) which would be far better described as what they really are, eversion, and appears unwilling to accept the splendid work of Hitchman and Adler at its face value. Therefore, he gives a clinical and anatomic classification of endometritis, and in the latter retains the old divisions of Ruge and Veit. The treatment of puerperal infection is well given. He does not use the curet, and does not recommend hysterectomy. He does stimulate with strychnin, and does not suggest the need of obtaining rest and sleep, with opium if necessary, nor does he suggest outdoor treatment.

Findley still uses Noble's compilation of 2,274 cases to enforce his arguments. He quotes the much-quoted statement of Bayle, misspelled in the text as Boyle (p. 576), that 20 per cent. of women more than 35 years of age have fibroids. This statement made prior to 1813 cannot be traced beyond the point where Bayle, in an article in the *Dictionnaire des sciences médicales*, says in making the necropsy on 100 women of more than 35 years in age, 20 per cent. will be found to have fibroids. It is time we dropped such loose statements from our literature.

This work, which combines safe treatment and scholarly consideration may be commended as one of the best volumes of its class in recent times. The publishers also deserve congratulation, as they have done their part well in the preparation of an interesting text.

GRUNDSÄTZE FÜR DEN BAU VON KRANKENHÄUSERN. By Obergeneralarzt Dr. Thel, Inspekteur der 5. Sanitätsinspektion. Second Edition. Paper. Price, 6 marks. Pp. 170, with 88 illustrations. Berlin: August Hirschwald, 1914.

The title of this book indicates that the author is attempting to set forth the principles to be used for the planning and construction of hospitals. It is illustrated with a number of plans of existing institutions and detail plans of operating departments and isolation buildings. The larger plans illustrate German military hospitals which do not contain arrangements of particular value to Americans. The work begins with an interesting history of hospitals. It contains a number of tables in regard to the number of hospital beds in European cities, the cost per bed of many well-known hospitals, areas of buildings per bed, the division for different services and other statistical matters, all of which are taken from larger works such as "Das Deutsche Krankenhaus" by Prof. Dr. Grober; but those who do not possess this work will find the smaller one helpful and reasonable in price. The book does not treat of the management or organization of hospitals and is intended more as a guide to builders. Inasmuch as the author is not an architect or builder his advice in regard to building matters is not technically correct in many instances, and is also incom-

plete. The illustrated method of deafening floors cannot be used in this country. Some recommendations appear unusual to Americans; for instance, "gas-pipes are to be placed on wall and ceiling surfaces. They are not to be placed within the mason work, so that leaks can be found easily and repairs made quickly." This does not speak well for German pipe installations, for such troubles are exceedingly rare in American cities.

Two statements by Dr. Thel appear particularly noticeable, namely: "Building good hospitals without possessing great experience is not possible in this specialty." "The experience frequently employed by communities in appointing commissions for the building of hospitals, who may make an inspection trip for the purpose, but who have little experience in this field, is a poor method to proceed with the construction of a hospital." The author also calls attention to the necessity of the proper attention to ventilating apparatus by saying, "The help and nurses must be fully instructed in regard to the ventilating apparatus in order that it obtain proper attention and good operative results; the help and nurses must be watched continuously in this matter." That the Germans persist in their contention that hospitals should not have many stories is shown by Dr. Thel's statement that a height of two stories should be exceeded only in exceptional cases.

DIAGNOSTIC SYMPTOMS IN NERVOUS DISEASES. By Edward Livingston Hunt, M.D., Instructor in Neurology, College of Physicians and Surgeons. Cloth. Price, \$1.50 net. Pp. 229, with 54 illustrations. Philadelphia: W. B. Saunders Company.

This was written to supply the demand for a manual containing the salient points and leading symptoms of the principal nervous diseases without the laborious search involved in consulting larger text-books. The author has carried out his purpose admirably, and has furnished in a concise, yet readable and entertaining manner, a complete cross-index, so to speak, to the regular text-books. All important symptoms and signs are taken up, with the methods of eliciting them, and a list of the diseases in which they are encountered. The constant use of such a book will enable any physician with a reasonable knowledge of the fundamentals of neurology to avoid errors and to make his own diagnoses correctly in a great many cases which he otherwise could not disentangle without a consultation with a specialist.

This little book, together with one standard text-book, will meet the every-day needs of the student and practitioner better than a whole shelf of large works.

DISEASES OF CHILDREN. A Manual for Students and Practitioners. By John McCaw, M.D., R.U.I., L.R.C.P., Senior Physician, Belfast Hospital for Sick Children. Cloth. Price, \$3.50 net. Pp. 524. New York: William Wood & Co., 1914.

This is an effort to put the subject of diseases of children in such a form that busy practitioners and medical students will grasp it readily and be encouraged to go further in the study of pediatrics. It appears to be an eminently fitting book. While the subject-matter is condensed, it is well systematized and the important points are well brought out. More than any other book which has come from the British Isles, it shows a definite knowledge of the work which has been done by Americans and gives full credit for it. The chapters on infant feeding are well written, and while no attempt is made to recommend methods, many are described properly and the practitioner left to take his choice. The chapters on diseases of the respiratory tract, are especially complete and practical.

DIAGNOSTIC METHODS. A Guide for History Taking, Making of Routine Physical Examinations and the Usual Laboratory Tests Necessary for Students in Clinical Pathology, Hospital Interns and Practicing Physicians. By Herbert Thomas Brooks, A.B., M.D., Professor of Pathology, University of Tennessee, College of Medicine, Second Edition. Cloth. Price, \$1. Pp. 82. St. Louis: C. V. Mosby Company, 1914.

Laboratory methods are clearly described in this convenient handbook and so far as a somewhat thorough investigation has shown, it is reliable.

Miscellany

Combined House and Office for the Physician

In *Suburban Life*, for May, Charles Vaughan Boyd discusses the building of a distinctive type of combined residence and office for the physician. Generally speaking, the house is composed of two units, represented by the family

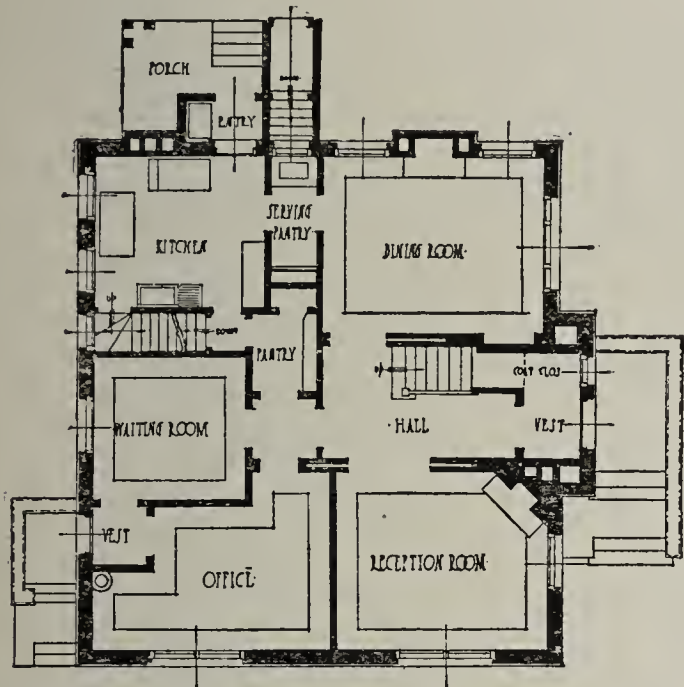


Fig. 1.—Combined house and office at Hamilton, Canada. For description see text.

quarters and the service department. In a physician's residence, three units are necessary on account of the requirements of office space. In planning such a residence for the physician, care must be taken not to place undue emphasis on any one portion. The pleasure of the family cannot be ignored in locating the living-rooms, nor can the welfare of the servants be overlooked. It is also not wise to relegate to inconspicuous position the rooms actually devoted to the

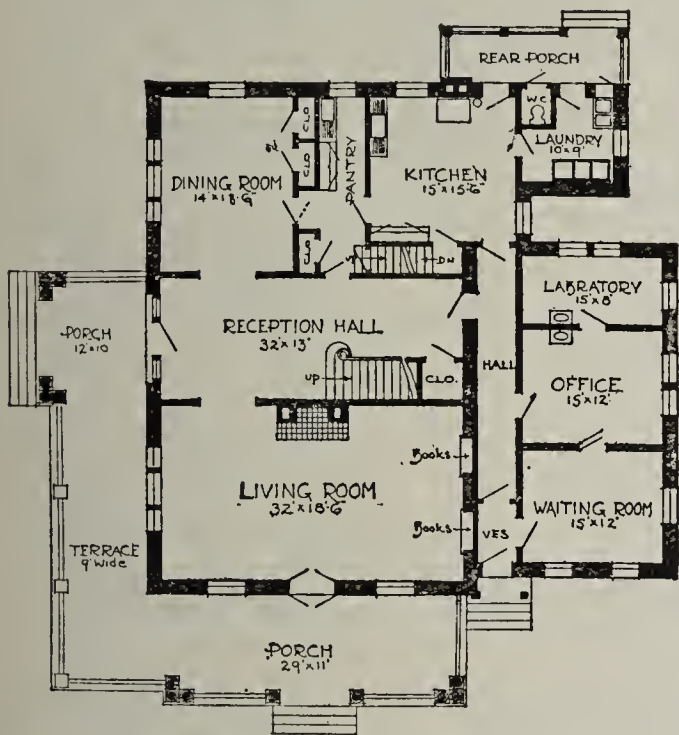


Fig. 2.—Residence and office at Ambler, Pa.

physician's office. It is therefore believed that the best location for such a residence is at the intersection of two streets. By this procedure, the house gains in two important details: First, there is assured an abundance of light and air. Second, there is provided an equally desirable position for the family entrance and the office entrance.

Figure 1 represents the ground floor of a physician's house in Hamilton, Canada. It is located on a corner, the house

and the office being entered from different streets. The office entrance, it will be seen, is not at the front of the house. A small vestibule serves as means of communication with both the waiting-room and the office. Each of these rooms is also connected with an inner hall which, in turn, is connected with the living and service quarters. In this plan, only two rooms are allowed for the office, the waiting-room and the consultation-room. The plan, however, is very compact and permits of a convenient arrangement of the living-rooms. In this house, a large living-room is provided on the second floor, which overlooks the intersecting streets.

Figure 2 is the plan of a residence and office at Ambler, Pa. It represents the remodeling of an old house, the office wing being added. It has a separate office entrance at the front of the house. The plan as a whole, if not particularly well balanced, affords a convenient arrangement of the office which consists of waiting-room, consultation-room and laboratory with a separate hallway running the length of

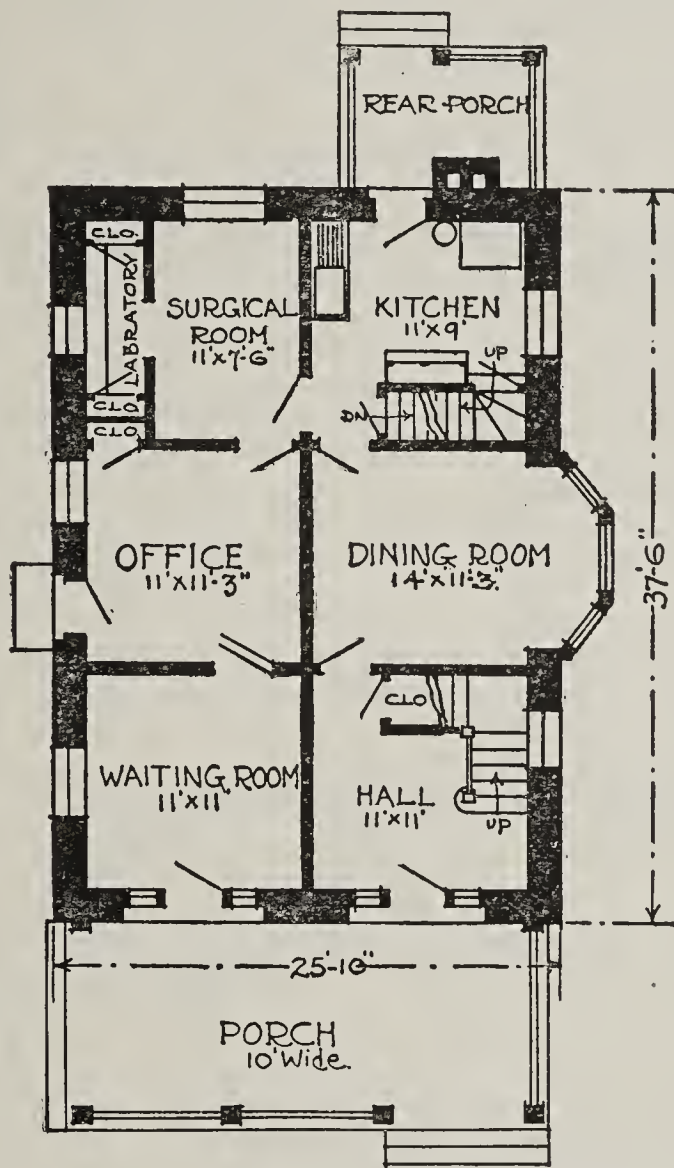


Fig. 3.—Combined office and house at Fort Washington, Pa.

all these rooms and affording entrance to the kitchen. The office hall communicates with the reception hall of the residence. The hall running the entire length of the office rooms permits patients to leave the consultation-room without reentering the waiting-room.

Figure 3 represents a Fort Washington, Pa., house, showing the office and residence portion well isolated in a plan of small area. The office portion has three conveniently arranged rooms, the waiting-room in front, consultation-room next, and surgical-room at the rear which connects with the kitchen. The surgery also has connected with it a laboratory. Plenty of closet room is provided in both consultation-room and surgery. This office does not allow of the exit of the patient without going through the waiting-room, but slight changes in the plan would remedy this. In this plan the living-room would again have to be placed on the second floor, as only hall, dining-room and kitchen are provided for on the first floor.

Figures 4 and 5 represent arrangements which would prove convenient for houses fronting two streets. Only two rooms are provided for office purposes. In these plans the living-rooms are all on the first floor, which, of course, necessitates a larger house.

Figure 6 is the plan of a large house at Melrose, Pa. The feature of this plan is the reception hall between the waiting-room and the office, which would perhaps afford greater

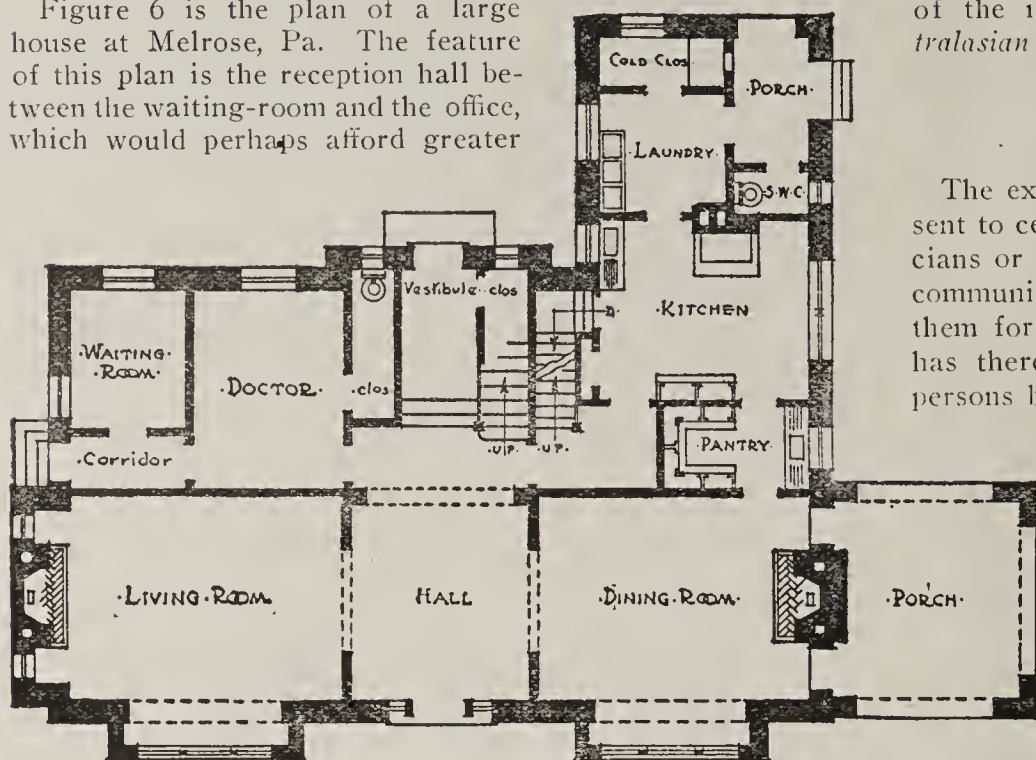


Fig. 4.—Example of combined house and office at St. Martins, Pa.

privacy in the consultation-room but less convenience in the handling of patients. The kitchen is placed back of the office rooms, and in the dining-room must be entered through a pantry which is more or less desirable according to the point of view. This is an elaborate and expensive house. The office and residence portions are well isolated.

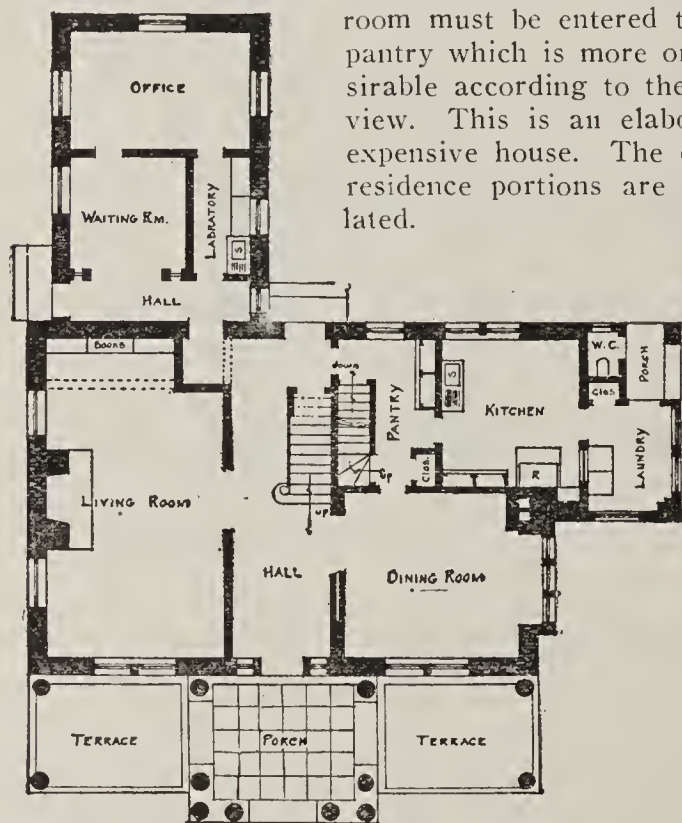


Fig. 5.—A combination at Cynwyd, Pa.

Cultivation of Camphor in Formosa

The staple industry of the island of Formosa is the cultivation of camphor, the exports of which during 1912 advanced from 6,613,700 pounds, worth £354,100 (\$1,720,926), to 8,649,300 pounds, worth £553,600 (\$2,690,496). The principal importing countries were the United States, with 2,370,300 pounds; Germany, with 2,243,400 pounds; Japan, with 1,694,000 pounds, and the United Kingdom, with 1,003,000 pounds, while France, India and Austria also took considerable quantities. In view of apprehension as to gradual exhaustion of camphor forests in Formosa, considerable afforestation schemes are under way. From 1913 about 3,000 acres annually for twelve years are to be planted with young trees; the cost for the first year

is placed at about £11,800 (\$57,348). The development of the mountainous interior and the gradual subjugation of the savage territory are stated to have disclosed new camphor districts which are being carefully investigated and preserved for future use. It is considered that the camphor resources of the island will be equal to all future demands.—*Australasian Med. Gaz.*

Indigent Consumptives in the West

The expense and the care of poverty-stricken consumptives sent to certain portions of the West and Southwest by physicians or friends is a heavy burden on the taxpayers of those communities. Many arrive with insufficient funds to support them for even a short time and become public charges. It has therefore been proposed to provide hospitals for such persons by federal legislation. A bill is now before congress known as the Shafroth-Callaway bill which provides for the use of abandoned military reservations and other government property in the Southwest as hospitals for such patients. These are to be operated under the direction of the United States Public Health Service. The bill also provides that the tuberculosis hospital at Fort Stanton, N. Mex., may be used for the care of consumptives who have contracted their infection in another state and are a menace to interstate commerce. As an indication of the burden these cases may become, it was found that in one Texas city during twenty years there

were 6,959 deaths from tuberculosis, and 33 per cent. of these persons had been residents of the city less than six months, and a much larger percentage residents less than three years. As an amendment to the Shafroth-Callaway bill

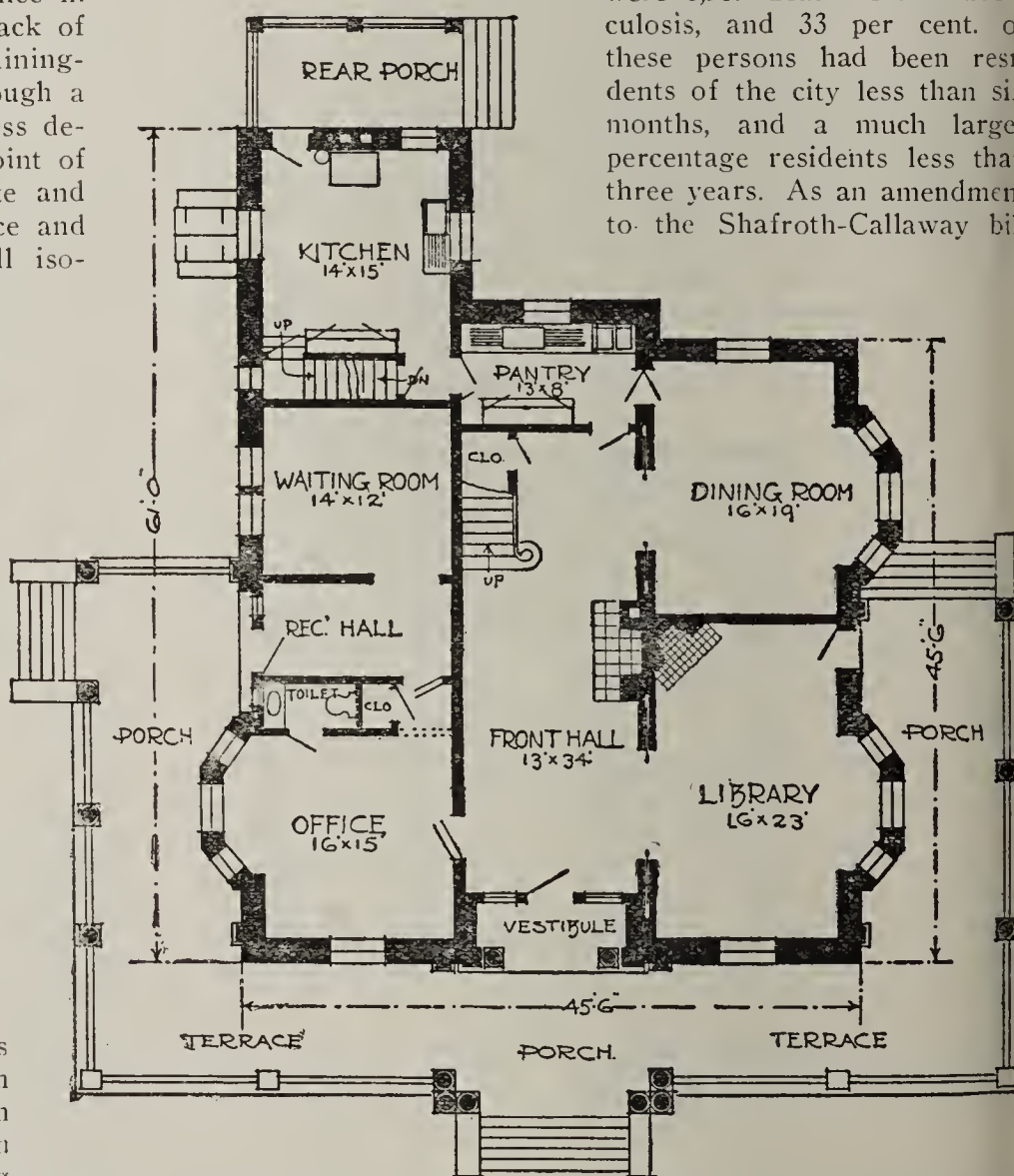


Fig. 6.—Elaborate combined residence and office at Melrose, Pa.

it has been suggested that a certain percentage of the cost of maintaining an indigent consumptive should be charged against the city or county from which he comes. This would discourage sending such patients away as could be cared for more cheaply and as well at home. It would also stimulate the establishment of local hospitals.

Medicolegal

No Evidence of Malpractice in Treatment of Eye

(*Phebus vs. Mather* (Ill.), 181 Ill. App. 274)

The Appellate Court of Illinois, First District, affirms a judgment for the defendant in this action for alleged malpractice in the treatment of an eye. The court says that the plaintiff testified that, after her right eye had been a little inflamed for three or four days, which she attributed to a cold, and she had got a cinder or something in her left eye, she went to the defendant's office, after which the eye continued to get rapidly worse; that he scraped around it with a wooden toothpick, and two days later he told her she must go to the eye and ear infirmary. She also testified that on the occasion of the use of the toothpick her mother had said to the defendant that if he did not think he could cure the eye she would send the plaintiff to a specialist, to which the defendant replied that it was nothing serious and that he knew his business. The defendant, on the other hand, testified that the first time he saw the plaintiff's eye he advised her to go to a hospital, it being apparent that she was suffering from purulent ophthalmia, caused by a gonorrheal infection. It also appeared from the evidence that at that time the plaintiff's husband was suffering from gonorrhea. The law seems to be well settled that in order for the plaintiff to recover in a case of this character it is incumbent on him to prove that the treatment administered by the defendant was negligent or unskillful, and also that the alleged injuries were the result of such treatment. The general rule also is that mere proof that a good result was not obtained is, of itself, no proof or evidence of negligence or lack of skill, of which, and of the fact that the injuries complained of resulted therefrom, there must be affirmative proof. Usually, and especially in eye cases, such proof can be established only by the testimony of experts skilled in the medical profession, and cannot be made by lay witnesses. Nor does the court think that a question for the jury was raised by the testimony of the physician who treated the case at the infirmary, that he thought there would have been a better chance had the case come earlier under his care, but he did not know whether the eye could have been saved. To permit a jury of laymen to speculate as to what result that "better chance" might have produced was clearly improper, especially in view of the expert physician's statement that he had no opinion on that subject. There was no competent testimony tending to show either negligence in the treatment by the defendant, or that the injury complained of was the result of such negligence.

Compensation for Volunteered Emergency Services

(*Schoenberg vs. Rose* (N. Y.), 145 N. Y. Supp. 831)

The Municipal Court of the City of New York, Borough Manhattan, Sixth District, says that during the trial of an action against a corporation the president thereof while stifling fell from his chair unconscious. The plaintiff in this case, a physician making a specialty of treating the eyes, ears, nose and throat, being in attendance as a witness for the other side, volunteered his services, and, with another physician similarly present, sought to restore respiration, but failed, and pronounced the man dead. The president left a large estate, and each of the physicians presented a bill for \$500, but the court adopts the value placed on the plaintiff's services by the executors' experts and gave him a judgment for \$500, which it considers the reasonable value of such services, the latter not being difficult.

The court says it is of the opinion that, while the financial condition of a patient does not alone affect the abstract question of the value of a physician's services, it is a proper element entering into the question as to what charge or what reduction in the charge shall be made by him by reason of such financial condition. So a patient of no means, or of limited means, may prove that his circumstances and station

in life are such as to render a physician's charge exorbitant and out of all reason and proportion to the patient's ability to pay, while the same charge to a person of large means would not be considered unreasonable. The financial condition of a patient is an element that it may be assumed is considered by both physician and patient when the services are contracted for, rendered, and accepted, and may also be considered by the court in determining the reasonableness of the charge; and that element should apply to a case in which there is and was no contract, but a mere fiction of law creating one, else, in a case where services are rendered to an unconscious man who never recovers, the charge against his estate might be so great and unreasonable as to be out of all proportion to the value of the estate.

This court is unable to draw a distinction as to the right of recovery between a case in which the physician is called by a stranger or spectator and one in which he proceeds to treat a person while unconscious, or *in extremis*, without being asked to do so. The right to recover in both cases is the same, and the argument to support such right could be carried to great length. In the court's opinion there is an implied contract in both cases, and, if the physician chooses to stand on his legal rights to recover, he is entitled to enforce those rights and must receive what his services are reasonably worth, regardless of what may be considered the ethics of the medical profession in such a case, with which the court is not concerned. When duty requires the physician to give his aid, and he has given it, he may expect payment by reason of the promise created by law from the patient to do so, although the patient never asked for the aid or consented to it being given. In an emergency case, requiring immediate attention to save life, the physician when called, or when he volunteers his services, should not stop to inquire by whom he will be paid, or to make it known that he expects to be paid. It would be inhuman to do so or to give the subject a thought. Offering his aid does not establish the fact that he intended his services to be gratuitous. Whether or not he did offer aid is a question of fact.

Authority for Physical Examination Does Not Include Taking of Roentgenograms

(*Lasher vs. S. Bolton's Sons* (N. Y.), 146 N. Y. Supp. 321)

The Appellate Division, Third Department, of the Supreme Court of New York, reverses an order directing the plaintiff, a female infant, who was seeking to recover damages for personal injuries, to submit to the taking of a roentgenogram of her right foot. The court says that the plaintiff, through her attorney had consented that a physician might make a physical examination of the foot in behalf of the defendant, and later the order reversed was granted. The court is clearly of the opinion that there is no foundation in law for the order. The examination of witnesses before trial is purely statutory, and authority for a physical examination of a party to an action does not include authority to take photographs or roentgenograms, especially when the defendant has already, by consent of the plaintiff, had the advantage of a physical examination. The general purpose of the statute was to change the rule of the common law, and under well-established rules the authority is not to be extended beyond the clearly expressed intention of the statute. The statute expressly provides that, in the event that the person to be examined is a female, she shall be entitled to have such examination before physicians or surgeons of her own sex, and this rule is not limited to adult females but applies to all females. The order here under consideration simply directed a particular physician, a man, to take a roentgenogram of the plaintiff's right foot, though it appeared from the record that the physician was not a roentgenologist, and the order seemed to contemplate that it should be actually taken by some other person, for it was to be done under the direction of this physician, who was not authorized under the rules of practice to act as a referee, and who had, according to the language of the order, "already made a physical examination of the infant plaintiff for and on behalf of the defendant."

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

American Academy of Medicine, Atlantic City, June 19-21.
American Climatological Association, Atlantic City, June 19-20.
American Gastro-Enterological Association, Atlantic City, June 22-23.
American Laryn., Rhin., and Otol. Society, Atlantic City, June 19-20.
American Orthopedic Association, Philadelphia, June 18-20.
American Proctologic Society, Atlantic City, June 22-23.
American Urological Association, Philadelphia, June 18-20.
Conf. of State and Prov. Boards of N. America, Washington, June 19-20.
Montana State Medical Association, Lewistown, July 8-9.
New Jersey Medical Society, Spring Lake, June 29.
North Carolina Medical Society, Raleigh, June 16.

AMERICAN DERMATOLOGICAL ASSOCIATION

Thirty-Eighth Annual Meeting, held in Chicago, May 14-16, 1914

(Continued from page 1839)

Purpura Annularis Telangiectoides

DR. GEORGE M. MACKEE, New York: This affection attacks young male adults, although two cases have been noted in infants. The eruption is always situated on the anterior and lateral surfaces of the lower limbs, below the knees, with occasional lesions above the knees and on the arms, and very rarely on other portions of the body. The appearance of the eruption is nearly always preceded by rheumatic pains. Otherwise there are no subjective symptoms. The disease is divided into three fairly well-defined stages: first, telangiectatic; second, purpuric and pigmentary, and, third, atrophic. Regarding the differential diagnosis and etiology, many cases give a positive tuberculin reaction, but at the same time many do not. Inoculation experiments have been negative. These facts, together with the clinical and histologic pictures, would seemingly rule out the possibility of tuberculosis. Occasionally, in syphilis, an annular purpuric rash is present, which is due either to the syphilis or possibly to the mercury. This eruption is usually limited to one small area, is evanescent in character and disappears without atrophy and with temporary pigmentation. The etiology of the disease is unknown, but is thought to be either a neurosis or a reaction to some toxic substance. It can be differentiated from any known dermatosis, and is undoubtedly an entity.

DISCUSSION

DR. A. SCHALEK, Omaha: Whatever this skin disease may be, I certainly do not think the name purpura a good one. It does not agree with any of the characteristics of purpura as we know them.

DR. A. RAVOGLI, Cincinnati: It is a beautiful thing to place new names and to try to designate diseases of rare quality by these new names, but we must remember, too, that we have acne necrotica and tuberculids, but whether they have just the same formation of pustule with resulting scar as that described by Dr. MacKee, I do not know.

DR. W. H. MOOK, St. Louis: I have seen four or five of these cases in the last seven years, and placed them under the classification of atrophic dermatosis of unknown origin. One of the cases had quite an ulceration, about the size of a dime, that existed for something like two years, and refused to heal up with any sort of treatment.

DR. M. F. ENGMAN, St. Louis: My attention was first called to this condition several years ago by Dr. Mook, and since then I have seen several cases and have called them "Mook's disease." Then, in looking over the literature about six or eight months ago, I came across some articles about this disease. Most of the cases reported in the literature occurred in railroad men and those who were on their feet a great deal.

The Abderhalden Technic as Applied to the Diagnosis of Syphilis

DR. H. R. VARNEY, Detroit: From seventy-five cases examined experimentally the following conclusions are

drawn: The specificity of the Abderhalden technic applied to syphilis. Syphilitics have in their blood-serum enzyme which react with the protein of the organism. Tissue derived from active human lesions is more specific than syphilitic tissue of the rabbit. Mixed infection in the human lesion give rise to error, as shown in our cases of sinus disease, furunculosis, etc. Further work will be required to determine whether all syphilitics have the power of developing ferment and at what stages of the disease the test is present or absent. We believe that polyvalent antigens prepared from several strains of pure culture of the spirochete offer the best hope for further success with this technic. The degree of success with the test varies in proportion to the care and precision exercised in its execution.

DISCUSSION

DR. UDO J. WILE, Ann Arbor, Mich.: I have undertaken some experiments with the Abderhalden technic in another condition this year, and it was a most difficult technic to carry out. At least, I found it so. The specificity of the spirochete antigen is extremely interesting, in view of the specificity of the test in this as well as other diseases.

DR. H. R. VARNEY, Detroit: The Abderhalden technic is as easy as compared with the original Wassermann, in my opinion.

A Study of the Spinal Fluid with Reference to Involvement of the Nervous System in Secondary Syphilis

DR. UDO J. WILE and DR. JOHN HINCHMAN STOKES, Ann Arbor, Mich.: A large proportion of all patients in the secondary period of syphilis, in our series 63 per cent., showed evidences in the spinal fluid of the involvement of the central nervous system. From the special examinations made, we must conclude that this does not represent the whole number who will at some time show, or who have already shown, a reaction on the part of the central nervous system. The absence of findings indicative of meningeal reaction in a single examination cannot be taken as conclusive evidence of freedom from central nervous involvement. Any of the findings—lymphocytosis, increased albumin and globulin content and positive complement-fixation test, may be present alone or in varying combinations, and each indicates involvement of the central nervous system. Comparing this high ratio of early involvement with the relatively low ratio of late involvement, as compared with the total number of syphilitics, we must conclude that the early involvement is mainly a transitory manifestation. The central nervous system is particularly likely to show involvement in cases in which the eruption is papular or follicular in type. Marked subjective symptoms, such as headache, insomnia and nervous irritability, were usually accompanied by positive findings in the fluid in our series. In a general way, cases in which there had been little or no treatment showed a higher percentage of involvement than those in which vigorous treatment had been inaugurated. Involvement of the central nervous system was found in a relatively high percentage of those cases in which the general health was considerably affected. The commonest finding indicative of meningeal reaction was the increased globulin and albumin content, the positive Wassermann ranking next, and lymphocytosis last. As an aid to diagnosis and as a possible guide to prognosis, the value of the spinal puncture in cases of secondary syphilis can scarcely be overestimated.

DISCUSSION

DR. J. A. FORDYCE, New York: I have for a long time been convinced that there are various strains of the spirochete, and that there is a strain that has a special predilection for the nervous system. Dr. Nichols of the Army Medical School of Washington has recently published a very suggestive article on a strain of spirochete that has given infective power. He has studied the biologic characteristics of this organism, and I think has pretty definitely shown that there is a spirochete which has a predilection for the nervous system. The majority of neurologists believe that there are not more than from 5 to 10 per cent.

philitics who show involvement of the nervous system. If a larger percentage than that show involvement in the early stage of the disease, as Dr. Wile has said, it must be a passing infection, a hyperemia of the meninges, which passes off. I have been making a study of the spinal fluid in late syphilis, in tabes, paresis and various forms of cerebrospinal syphilis for the past two years, but in the last three or four months I have examined the spinal fluid in about thirty cases in various stages of the secondary period of the disease, for the globulin content and lymphocytosis, as well as for the Wassermann reaction. I started out firmly convinced that we should find from 40 to 50 per cent. of involvement of the nervous system, but to my surprise have found it considerably smaller than that. Repeated punctures should be made in the same case, as the fluid may be negative this week, and a month later positive. We should make the examination in the later period of the secondary stage, and especially after treatment with salvarsan. One, two or three injections of salvarsan are apt to develop a latent reaction in the fluid, and you are more apt to get changes after the patient has been under treatment for some time.

DR. J. F. SCHAMBERG, Philadelphia: Dr. Wile's studies show us with what frequency the nervous system is involved, even at a very early stage of the infection. It is necessary to study not only the blood in these cases, but also the cerebrospinal fluid, in order to prevent later disastrous results affecting the nervous system.

DR. UDO J. WILE, Ann Arbor, Mich.: I think, as Dr. Ordway says, that most of these nervous conditions are transitory phenomena, and that for the most part energetic treatment directed to the general syphilis serves to clear up the syphilis of the central nervous system. It is impossible to say just how many of these cases in which the cerebrospinal system is early involved become our late cases of paresis and paresis, or as to whether or not they fall into this group. It is highly probable that of this number 5 per cent. are drawn from these cases of early involvement.

The Use of Calcium Lactate in the Treatment of Certain Dermatoses

DR. CHARLES J. WHITE, Boston: Believing that calcium had shown decided curative powers in certain instances, I decided to make a thorough therapeutic trial of the drug. I have prescribed calcium in many different conditions, but in elimination of the unsatisfactory tests the final trials have been limited to the following diseases and conditions: hyperkeratosis, pernio, herpes simplex, erythema multiforme, urticaria, livedo, purpura and angioneurotic edema. In addition to the calcium salts, patients have been asked to partake as fully as possible of food rich in calcium, and have been advised to avoid raw fruits and all acid foods, for it has seemed to me that many persons suffering from the suspected diseases have been large consumers of these articles of diet. Internal treatment has been prescribed in all cases, a factor which vitiates the scientific value of the whole work, but it must be borne in mind that most of these patients were referred by general practitioners who had been unsuccessful in previous treatment, and, furthermore, that these patients were mostly wage-earners who deserved as speedy restoration to health as was possible. Also, the work was necessarily hampered by the fact that all these patients were non-compliants, who obey or break laws as the spirit moves them. Summing up my experiments, I think it seems fair to conclude that calcium is certainly not a specific for any of the diseases mentioned in any sense of the word, but it is a drug which may render distinct and most welcome service in any one of them, and a drug which should always be tried in obstinate examples of the conditions above cited.

DISCUSSION

DR. W. A. PUSEY, Chicago: Ever since Wright began to notify us with his fascinating theory, I have been interested in the coagulation time of the blood and the use of calcium salts in the conditions suggested by Wright. I have made it a plan for many years in cases of such intoxications

as urticaria, erythema multiforme, purpura and chronic eczemas to make a routine coagulation-time test, and I first became disappointed in that. I have never been able to make out any distinct characteristic relationship between the coagulation-time and the occurrence of any of these conditions, so that I had no delayed coagulation-time as a basis on which to use calcium salts. I used calcium salts for many years in the intractable cases of this sort, especially urticarias, erythema multiforme and intractable eczema, and then let it fall into disuse. Then I took it up again, and must confess to having had practically no evidence of its value. I first used calcium chlorid and later calcium lactate. If Dr. White, however, who is such a careful observer, has found calcium lactate useful in such an intractable condition as hyperhidrosis, I am going to try it again.

DR. M. B. HARTZELL, Philadelphia: I have tried the calcium salts extensively, and regret that I have yet to see a single instance in which I thought my patient had been benefited in the remotest degree. Still, one man's experience does not count for very much, and I shall take renewed courage and try it again.

DR. D. W. MONTGOMERY, San Francisco: I have given calcium lactate in a very interesting case of erythema multiforme due to the *Bacillus coli communis*, and obtained no appreciable amelioration of the symptoms. I have not tried the drug in hyperhidrosis, but I should think, from the vast number of causes of hyperhidrosis, that it would be problematic if it would do good; but it is all a chance, and we might do good by using it.

DR. DAVID KING-SMITH, Toronto: Calcium lactate has been tried in various conditions in the hospital with which I am connected, not only in dermatologic cases, but others as well, and I think I may say that it has been rather disappointing. Probably the best results are obtained, however, when the drug is given in 20-grain doses three times a day, for two days, then stopped for two days, and then repeated for the six doses; if it is going to do any good, as a rule, it will have done it then.

DR. CHARLES G. WHITE, Boston: I have also had a good many failures in the use of this drug, but have had better success than those who have discussed my paper. I do not think the giving of the calcium lactate is the whole thing. You must cut out the acids and give foods that contain calcium, and, above all, you must stop the use of magnesium at the same time. The two drugs are opposed in their results, and many failures have come because you are giving magnesium to clear up the bowels, and calcium with the idea of curing the disease. They neutralize each other and you get no effect.

(To be continued)

NEW YORK ACADEMY OF MEDICINE

Meeting Held April 16, 1914

The President, DR. WILLIAM M. POLK, in the Chair

Medical Aspects of Treatment of Pyloric Stenosis in Infancy

DR. L. EMMETT HOLT: In my series of 57 cases, 52 were breast-fed infants; of these 40 had nothing but the breast and 12 had mixed feeding. Hence bad feeding can scarcely be invoked as a cause of this condition. Of 55 cases in which the sex was noted there were 49 males and 6 females. The mortality was 55 per cent.; 28 patients were operated on, with 14 deaths; 29 cases were treated medically, with 17 deaths. The whole crux of the question between medical and surgical treatment of pyloric stenosis seems to be: Are the symptoms and condition such as to make it probable that the patient will or will not live long enough for the pathologic condition to subside? There are medical as well as surgical risks. The indications for operative treatment are (1) no diminution of the vomiting or the gastric peristalsis by stomach washing and diet; (2) a steady loss of weight of 1 or 2 ounces a day; (3) marked gastric retention;

and (4) absence of fecal stools. My greatest regret is that operation was delayed in so many of my cases and in some was not done at all. To persist with medical treatment week after week when forcible vomiting and marked peristalsis persist and when the weight shows only a slight loss, seems to me to be incurring far greater risk for the child than with operation.

Pyloric Stenosis in Infancy Treated by Gastro-Enterostomy

DR. WILLIAM A. DOWNES: My series embrace 21 cases, 16 males and 5 females. Seventeen were breast-fed entirely; 3 were partly breast-fed and partly bottle-fed, and 1 was bottle-fed. A typical posterior gastrojejunostomy was done in all the cases. I offer the following conclusions: 1. Hypertrophic pyloric stenosis is congenital to the extent that there is an increase in the thickness of the circular muscular fibers at the pylorus. The presence of this thickened muscle-fiber reduces the lumen of the pylorus; therefore, the stomach in order to empty itself contracts more forcibly than normal. This soon causes the mucous membrane to become thickened and edematous, and to assume a more or less spiral arrangement as it passes through the narrowed pyloric channel of from $\frac{1}{2}$ to $\frac{3}{4}$ inch. The result is a valvular action which gradually produces complete closure of the pylorus. The question as to whether or not the pylorus will admit a probe or catheter at operation or necropsy is of little consequence when weighed against the clinical evidence of complete obstruction. 2. There can be no doubt that there is sufficient time between the onset of symptoms and the appearance of complete obstruction for careful observation and the carrying out of any medical measures likely to prove of benefit, provided, of course, that the early symptoms have been properly interpreted. The fear, however, that the condition may have existed longer than has been suspected, and that the vitality of the baby is not so good as appearances would lead one to believe, make me feel that operation is indicated in every case of hypertrophic stenosis as soon as the diagnosis is made. Should depression or early evidence of shock be present, immediate operation is demanded. 3. The babies coming to operation in good condition suffer little or no shock, their convalescence is straightforward, and they are at once restored to normal health. My experience in this respect corresponds with that of other operators.

DISCUSSION

DR. CHARLES L. SCUDDER, Boston: It has been demonstrated that the medical treatment by feeding and by drugs in true cases of tumor stenosis has not been satisfactory. If there is a true tumor present, the sooner surgical measures are instituted the better for the immediate condition and the better for the future of the baby. Cases of stenosis not due to tumor are supposed to be occasioned by a certain degree of pyloric spasm. The tumor cases of obstruction are real mechanical obstructions. The tumor occludes the lumen of the pylorus, and it is probably of congenital origin. Quite recently there was reported one case of a new-born baby in which there was a congenital pyloric tumor. This fact is of considerable importance in the proof of the congenital origin of this tumor. The contrast between the rapid improvement in weight, in general appearance, in growth, and in general development in the cases of pyloric tumor operated on and those cases experimented on by feeding and drugs is so great that one can hardly understand the attitude taken by certain medical practitioners who advocate long experimental feeding in true tumor cases. When the diagnosis of congenital pyloric stenosis is made in these little babies, the earlier surgical measures are instituted the more rapid will be the recovery from the emergency starvation and the more sure will be the saving of the life of the child. Children with only partial obstruction will develop symptoms later than those with more complete obstruction. Children with almost complete obstruction will demand surgical interference earlier than those with less obstruction. In the group of cases in which the diagnosis is doubtful, that is, in that group of babies difficult to feed, it will always be

justifiable and proper to experiment for a limited time with skilled feeding in order, if possible, to arrive at a satisfactory diagnosis. I believe that comparatively few cases of so-called pyloric spasm without the presence of a true tumor will require surgical treatment.

DR. HENRY KOPLIK: There are patients who will recover without operation. Patients with a hard palpable tumor should be operated on as soon as possible. Peristalsis is not an indication for operation; many patients have peristalsis and recover without operation. In others there is peristalsis long after recovery. Some cases present marked peristalsis and are very mild in their course. On the other hand, the amount of stenosis is very important as well as the knowledge of just how much food passes through the pylorus into the duodenum. When no great amount of food passes through the pylorus, the sooner the operation the better. I do not agree that all cases should at once be handed over to the surgeon.

DR. H. M. RICHTER, Chicago: Could we agree as to the underlying pathologic condition it would be easier to decide what course to pursue. Among my 24 cases, 19 were diagnosed before operation as hypertrophied pylorus with resulting obstruction, and in 5 cases the diagnosis before operation was spasm. Of the 19 cases, 18 showed a palpable tumor before operating. In the 19 cases there was in each a definite fixed hard tumor. In 5 cases a diagnosis of spasm was made on the basis of the peristaltic waves of the stomach and the starvation stools. The underlying pathologic condition, however, is surely quite different from that found in the case showing hypertrophy, and probably does not constitute an entity, but is variable. There is a definite intestinal obstruction in the true hypertrophic cases. The mortality of gastro-enterostomy is high, but it is being gradually lowered. The results published show that the death-rate is being lowered continuously. Operative treatment, carried out sufficiently early, enables the breast-fed infants to be saved. The duration of treatment in the non-surgical cases is prolonged, and in a large proportion of these cases the mothers lose their milk.

DR. HOWARD LILIENHAL: I have noted that the location of the tumor in these infantile cases is exactly at the pylorus. The pyloric veins appear at or near the central part of the mass. I have operated in five cases. Two patients died, one from hemorrhage following operation on the mastoid which had to be performed three days after the gastro-enterostomy, the other from some error in technic which resulted in breaking down of the wound.

DR. LINNAEUS E. LA FETRA: My personal experience with this condition comprises fourteen cases. They can be divided into two groups: (1) those in which spasm alone, or spasm with more or less hypertrophy, is a prominent factor; and (2) those with spasm and hypertrophy in which the hypertrophy is or becomes the most important factor. It is altogether possible that the cases change from one group to the other, the long continuance of the spasmodic attacks inducing an increase in the hypertrophy. In all the severe cases more or less hypertrophy is present. Also it is probable that the presence of an original hypertrophy which might be small in amount results in spasm which increases the hypertrophy. Of the cases in the first two groups, those of spasm alone or spasm with some hypertrophy, there were eight patients. All of these recovered without operation except one. The one patient that died had a severe spasm with marked peristaltic waves, but no tumor. Necropsy showed a normal pylorus. Of the cases in which hypertrophy was the prominent feature I have had six; five of these patients were operated on and four died. I should consider that operation is absolutely indicated as the only hope for recovery in all cases in which hypertrophy is the prominent feature.

DR. ELLSWORTH ELIOT: I think we are all agreed that irrespective of pathologic conditions the cases can be divided into three groups: (1) cases which are mild in their course and amenable to medical treatment, and which are under the care of the pediatrician; (2) the hopeless cases that come

the surgeon in the later stages of the disease; and (3) the doubtful cases in which one is undecided as to the propriety of continuing the medical treatment or resorting to surgical measures. I am quite willing to depend on the pediatricists and to be guided by their advice.

DR. ALFRED F. HESS: I have seen about twenty cases of spasm of the pylorus. We have to deal with two groups of cases: (1) organic stenosis with tumor; and (2) functional stenosis. Organic stenosis is of congenital origin. In the fetus the pylorus is large and forms a very great part of the stomach, greater than it does in infancy. If one looks at the picture of the pylorus of the fetus, one is reminded of pyloric tumors. The only way to settle this question is to find these cases in dead-born children, to find instances of pyloric tumors. We should examine the dead-born children more carefully if we wish to solve this problem. Some patients die within one or two weeks, although the operation was successful. I think that this is due to overfeeding, to alimentary intoxication. If a gastro-enterostomy is performed and a large amount of milk is fed into the intestines, alimentary intoxication results, with fever and death.

DR. MAX EINHORN: I have had four cases of congenital stenosis of the pylorus in infants, and success was attained in two of them by stretching the pylorus. This method deserves to be used more. The stretching was performed in all four of my cases. In two patients there was a real stenosis and not a spasm and successful results followed this stretching of the pylorus. In two of the cases the results were just as good as could have been obtained by surgical measures. After the stretching the stomach began to be emptied and the children began to improve. These were cases of pyloric obstruction. In two cases I succeeded in stretching the pylorus, but the patients died. There was no stenosis but rather a spasm. Stretching was done in these two cases, but without the desired results.

DR. WILLIAM A. DOWNES: No surgeon, whether urged by a pediatrician or other medical adviser, would attempt to operate in pyloric stenosis in infants on the basis of tumor and peristaltic wave alone. Data from every point of view should be had before resorting to operative interference.

ASSOCIATION OF AMERICAN PHYSICIANS

Twenty-Ninth Annual Meeting, held at Atlantic City, N. J., May 12 and 13, 1914

(Concluded from page 1838)

The Inspiratory Exaggeration of the Dicrotic Wave in Pericarditis

DR. ALBERT E. TAUSSIG, St. Louis: Ordinarily, the dicrotic wave in the radial sphygmogram does not vary in size with the phase of respiration. In pericarditis, however, it becomes more or less exaggerated, sometimes greatly so, during expiration. In all of five cases studied from this point of view, the phenomenon was observed. Anatomic considerations render its occurrence readily explicable. It may have prognostic significance.

The Influence of Benzol Inhalations on Experimental Pulmonary Tuberculosis in Rabbits

DR. WILLIAM CHARLES WHITE, Pittsburgh, Pa: Benzol, or benzene, is the best solvent for the fat portion of the tubercle bacillus. It extracts a greater percentage of fat than any other single solvent will take from the bacillary substance. Because benzol can easily be vaporized and utilized as an anesthetic, it was thought possible in this way to dissolve the living tubercle bacillus after its entrance into the pulmonary capillary system by way of the ear-vein and before the formation of the tubercle. It was hoped in this way to obtain a solution of all the living portions of the tubercle bacillus within the body and the possible development of a retardation of the process produced by a fatal dose of tubercle bacilli and the establishment of an immunity to a further dose of the organism. Contrary to the desire

expressed in the theory, I found that in every instance whether the infecting tubercle bacilli were of low virulence or of high virulence, the resulting infection in rabbits was very much more severe in those treated by inhalation of benzol than in those infected with the same weight of infecting organism.

The symptoms produced in rabbits by the inhalation of benzol were similar to those described by Sollmann for the inhalation of gasoline vapors. Animals may be given benzol inhalations, 5 c.c. every second day for periods up to three and even four weeks, without resulting in death. The resulting leukopenia varies very much. The lowest white-cell count was 3,800 per cubic millimeter. The red-cell anemia is very variable, the lowest in our series being 3,600,000 per cubic millimeter. The majority retained a normal red-cell count. The blood-smears and blood-counts exhibited changes similar to those described for the injections of benzol by Selling and others.

In all, thirty-three animals were used, twelve controls and twenty-one treated. The pathologic findings in many of these animals were very striking. In 30 per cent. of the treated animals, after receiving 5 c.c. inhalations of benzol every second day for three weeks, and then being allowed to live two or three weeks longer, extreme enlargement of the spleen was found. In one instance the spleen measured 13 by 3.5 by 3 cm., and the circumference of its largest part was 9.5 cm. There was a large hemorrhage in the substance of this spleen. In all twenty-one treated animals there was only a single case of purpura with hemorrhages into the mucous membrane of the stomach and bowel. There were marked fatty changes both in the liver and in the kidneys of the treated animals.

Some Relations of the Brain and of the Olfactory Apparatus to the Processes of Immunity

DR. HENRY SEWALL, Denver: Guinea-pigs sensitized to horse-serum may be desensitized by residence in a horse-stable. It is probable that this reaction may be rapidly achieved through the olfactory sense or more slowly by absorption through the respiratory membrane. The period of antianaphylaxis is of less than two days' duration. The converse of this, sensitization of normal guinea-pigs in stable-air, I have not been able to achieve. Removal of part of the brain of a sensitized guinea-pig produces much more severe shock than the same amount of injury in a normal animal. This shock is apt to be followed by a period of antianaphylaxis of short duration. Section of the olfactory nerves within the cranial cavity preceding the brain operation by a day or more abolishes the tendency to shock. Such nerve section in the normal animal also seems to reduce the shock arising from definite brain injury. [Depression of the olfactory sense through cocaine and the resemblance of symptoms from poisoning with this drug to those of anaphylaxis are discussed]. The body as a whole may be sensitized through the peripheral application of horse-serum after a definite latent period which does not seem to be affected by previous general sensitization.

The Normal Amount of Diastatic Ferment in the Urine and Feces and Its Variation in Diseases of the Pancreas

DR. THOMAS R. BROWN, Baltimore: In healthy persons the diastase-content of the urine falls within quite definite limits. Markedly small amounts of this ferment in the urine, in the absence of renal changes, are suggestive, although not diagnostic, of pancreatic disease. The stool, if a rigorously exact method is carried out as to food (milk), purgative employed, preservation of specimen, estimation of ferment, etc., also furnishes a content within definite limits. Extensive carcinoma of the pancreas showed no diastase in the tube of least dilution in the method which I used, and this absence of ferment should prove of great help in the diagnosis of this condition. In chronic pancreatitis, diastase is present in the stool, but in markedly diminished amounts. In achylia gastrica the diastase-content of the stool was practically normal in all the cases examined.

Aconite as a Vasodilator

DR. WILLIAM HANNA THOMSON, New York: I regard aconite as the most efficacious vasodilator in chronic interstitial nephritis when given systematically in full doses. It at once reduces the blood-pressure, produces a full and compressible pulse, and greatly increases the percentage of the elimination of urea in interstitial nephritis. The most important action of aconite, when administered in interstitial nephritis, is to increase the elimination of urea. The beneficial effects of aconite are particularly pronounced in mental derangements of the nature of melancholia with high blood-pressure.

The Subcutaneous Administration of Oxygen as a Therapeutic Measure

DR. JOHN MCCRAE, Philadelphia: For the last two or three months I have used oxygen in this way, which I believe is the rational method of administering it and I believe that properly placed, it is useful. I employed it in a surgical case after a severe operation. The patient looked as though he might die in a short time. His respiration was 60; he had extreme edema of the lungs, extreme pallor, profuse perspiration, and signs of impending death. With repeated injections of oxygen the man recovered. I have used oxygen in thirty cases and believe it should be a part of the armamentarium of the surgical operating-room.

Current Medical Literature**AMERICAN**

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia
May, CXLVII, No. 5, pp. 625-780

- 1 *Medical Diagnosis in Relation to Surgery. D. Riesman, Philadelphia.
- 2 *Association of Uterine Growths with Goiter: Typical and Atypical Exophthalmic Goiter. H. I. Elsner, Syracuse.
- 3 *Peculiar Undescribed Disease of Nerves of Cauda Equina. F. Kennedy and C. A. Elsberg, New York.
- 4 Primary Tissue Lesions in Heart Produced by Spirochete Pallida. A. S. Warthin, Ann Arbor, Mich.
- 5 Mechanism of Prostatic Retention. E. L. Keyes, Jr., New York.
- 6 Hypertension: Report of Cases Under Prolonged Observation. M. J. Lichty, Cleveland.
- 7 Electrocardiograph as Clinical Instrument. J. E. Talley, Philadelphia.
- 8 *Simple Method for Indirect Transfusion of Blood. W. L. Moss, Baltimore.
- 9 *Rôle of Carotid Arteries in Causation of Vascular Lesions of Brain. J. R. Hunt, New York.
- 10 *Value of Quantitative Estimation of Dissolved Albumin in Gastric Extracts (Wolff-Jungmans' Test) in Diagnosis of Gastric Cancer. F. Smithies, Chicago.
- 11 *Jaundice in Tuberculosis. J. M. Cruice, Philadelphia.
- 12 *Hyaline Degeneration of Islands of Langerhans in Non-Diabetic Conditions. R. L. Cecil, New York.
- 13 Alcoholism and Epilepsy, Also So-Called Acute Alcoholic Epilepsy. N. S. Yawger, Philadelphia.

1. **Medical Diagnosis in Relation to Surgery.**—The value of a medical examination, not only in obscure but also in plain, simple surgical cases is emphasized by Riesman. He says that the physician might find diabetes, nephritis, grave anemia, bronchitis, or serious heart disease, any one of which would influence the surgeon in his work. Many delayed deaths after operation might thus be averted. He also feels that in medical cases which may at any time assume a surgical aspect, the surgeon should be consulted long before an operation becomes imperative. In order to increase his diagnostic skill, the physician should make it a rule to be present at all operations on cases that have come before him.

2. **Uterine Growths and Exophthalmic Goiter.**—Elsner calls attention to the large proportion of uterine growths associated with goiter, typical and atypical exophthalmic goiter, and mentions the frequency of the atypical cases, to encourage the thorough examination of all the organs of the body in the presence of goiter, large or small. He says that if this be done, the number of associated anomalies will prove surprising.

3. **Disease of Nerves of Cauda Equina.**—The histories of the five patients seen by Kennedy and Elsberg are almost exactly alike in the nature and sequence of incident. In the third and fourth patients the symptoms were progressive in each for about two years, in the second for about one year, and in the first for but six months. Pain was present in all from the beginning; it was sharp, shooting, and burning in character, and was felt almost entirely in the backs of the thighs and in the calves. By the last patient it was described also as needling and cramp-like. In the first four patients the pain was, at the beginning, strictly unilateral, being felt in both legs after the lapse of some weeks or months. The leg first involved remained throughout the illness more affected than its fellow. All but the third patient complained much of tingling and numbness, involving sometimes the feet, sometimes the knees, and in the last two patients the entire surface of the lower extremities. Atrophy of the anterior tibial muscles, with loss of the power of dorsiflexion at the ankle, was a prominent feature in four of the series; in the exception there was a spasticity of the lower extremities, which was more marked on the right than on the left side.

The objective sensory changes showed an astonishing uniformity; in all, the main incidence of the disease had fallen on the lowest roots of the cauda, the sacral roots were always affected, and with the utmost severity. In one patient all the lumbar roots were also involved though to a somewhat lesser degree than were their more lowly placed fellows. In three only had the lowest lumbar roots become diseased to such an extent as to abolish or depress function. The more markedly the lower sacral roots were involved the more complete was the sphincter disturbance. The disorganization of the functions of the bladder and rectum was complete in all but the third case, in which precipitancy and frequency of micturition prevailed. The first third and last cases showed that disease had produced destructive changes in the cord itself; in them the plantar reflex was of the pathologic-extensor type. The abdominal reflexes were present in all the patients. In but one were the ankle-jerks obtained in the affected limbs. The knee-jerks became lost as in the last case, coincident with the upward progress of the disease.

None of the patients gave either a history or indication of luetic infection. In all, the Wassermann test was carried out in both the blood and cerebrospinal fluid, with completely negative results in every instance. In only one case did the cerebrospinal fluid give any indication of the presence of a disease condition within the dura and in it was of doubtful interpretation, showing a negative Wassermann test and an increased amount of globulin, with twenty lymphocytes per cubic centimeter, a cytologic count, insufficient to accompany any tuberculous process.

The conditions found at operation were the following. In two patients a large number of the caudal roots and in the other three all the roots were swollen, congested, and of a bluish-red color. The changes seemed to be due to an intense hyperemia on the surface of the nerves, and extended into the nerves themselves. Adhesions between the nerve roots were present in only one case; in the others the only changes were swelling and discoloration. In all five patients the inner surface of the dura was smooth and glistening and without signs of inflammatory change though in two of them a few small areas of hyperemia were observed. The axis-cylinders showed various degrees of swelling, loss of normal staining reaction, some of them showing granular degeneration, fragmentation and absorption.

8. **Indirect Transfusion of Blood.**—The method described by Moss consists of two parts: 1. Obtaining blood from the donor, by means of an aspirating apparatus, and its defibrination by shaking in flasks with glass beads. 2. The introduction, intravenously of the defibrinated blood into the patient. The method is described in detail.

9. **Rôle of Carotid Arteries.**—Hunt urges that in all cases presenting cerebral symptoms of vascular origin, the ma-

arteries of the neck be carefully examined for a possible diminution or absence of pulsation. In the large majority of cases, a sudden obstruction may occur without softening producing nothing more than mild and transient cerebral symptoms. On the other hand, this may so cripple the cerebral circulation in advanced life that functional deficiencies result and the one hemisphere may be more predisposed to softening processes than the other. Hunt emphasizes the occurrence of diminished pulsation of the carotid on the side of the softening as an occasional symptom in cases of thrombotic hemiplegia, and suggests that the impairment of circulation through the carotid so interferes with the general circulation of the hemisphere as to predispose to thrombus formation and encephalomalacia. He also particularly emphasizes the occurrence of unilateral vascular changes, pallor or atrophy of the disk with contralateral hemiplegia in obstruction of the carotid artery. Unilateral headaches and vertigo, especially in assuming the upright posture, epileptiform attacks, failing memory, attacks of threatened hemiplegia, cerebral intermittent claudication, are some of the vascular symptoms which should suggest the possibility of carotid obstruction.

10. Wolff-Junghans' Test for Gastric Cancer.—When carefully performed and interpreted Smithies says the Wolff-Junghans' test for demonstration of dissolved albumin in gastric extracts was positive or suspicious in 80 per cent. of a series of gastric cancer. In this series it was a more constant finding in gastric extracts than were absent free hydrochloric acid, the presence of lactic acid, and the glyco-typtophan test. It was rather more constant than tests for occult blood and the demonstration of gastric motor inefficiency. It was not so consistent in its manifestation as the demonstration of organisms of the Boas-Oppler group or the increase in the formol index. In extragastric malignancy, gastric syphilis and nephritis the Wolff-Junghans' test is constant. In the differentiation between malignant and non-malignant achylia the Wolff-Junghans' test, when interpreted in connection with other clinical and laboratory data, is of considerable value. Positive reactions are rarely obtained in the achylia of primary anemia, simple achylia gastrica, and simple achlorhydrias when such are unassociated with gastric motor inefficiency. Simple gastric and duodenal ulcers, especially when accompanied by pyloric stenosis or gastric atony, may give confusing resources to the Wolff-Junghans' test. The presence of blood in gastric tracts may be a factor in the production of certain atypical positive tests.

11. Jaundice in Tuberculosis.—Cruice has seen 7 cases of jaundice among 1,748 cases of chronic pulmonary tuberculosis. He believes that jaundice occurring in the course of chronic tuberculosis is probably due to some form of tuberculosis of the liver, either extrahepatic or intrahepatic. The shade of the jaundice is helpful in surmising the pathologic condition, intense jaundice being probably due either to pressure of tuberculous glands on the extrahepatic ducts or to some form of the solitary tubercles of the liver; milder forms being produced by a miliary tuberculosis of the liver.

12. Degeneration of Islands of Langerhans.—Six cases of hyaline degeneration of the islands of Langerhans in which there was no evidence of diabetes occurred in subjects aged under 37 years. In addition to the hyaline changes there were found in every case more or less sclerosis of the insular capillaries, and a chronic interacinar pancreatitis of the type usually encountered in diabetes mellitus. The explanation of this phenomenon, which has seemed most likely to Cecil is that hyaline degeneration of the islands, may occur up to a certain point without producing diabetes. When a number of islands sufficient to interfere with carbohydrate metabolism have been involved, diabetes ensues. The hyaline changes in the island of Langerhans, Cecil says, have been associated in every case with hyaline degeneration of the renal glomeruli. The lesions in both instances are possibly comparable to sclerosis of the smaller vessels supplying these structures.

American Journal of Public Health, Boston

May, IV, No. 5, pp. 391-476

- 14 Sociologic Aspects of Health Department Reorganization in New York State. J. A. Kingsbury, New York.
- 15 Sociologic Aspects of Reorganization of Cleveland Health Department. R. H. Bishop, Jr., Cleveland.
- 16 Reorganizing Minneapolis Health Department. F. Bass, Minneapolis.
- 17 Bacteriologic Methods for Meat Analysis. J. Weinzirl and E. B. Newton, Washington, D. C.
- 18 Bacteriologic Analysis of Hamburger Steak with Reference to Sanitary Standards. J. Weinzirl and E. B. Newton, Washington, D. C.
- 19 Milk-Borne Epidemic of Diphtheria. H. H. Waite, Lincoln, Neb.
- 20 Calcium Hypochlorite as Disinfectant of Water. E. J. Tully, Madison.
- 21 Methods of Fighting House Fly. E. C. Levy, Richmond, Va.
- 22 New Shipping Outfit for Iced-Water Samples. F. H. Billings and C. C. Young, Lawrence, Kan.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

May, I, No. 11, pp. 751-814

- 23 Influence of Experimental Trypanosomiasis on Body Temperature of White Rats. L. W. Graham and R. H. Hutchison, Philadelphia.
- 24 *Relationship of Anaphylaxis to Immunity. F. B. Gurd, Montreal.
- 25 Occurrence of Trichonocardias in New Orleans. F. M. Johns, New Orleans.
- 26 Epidemic Climatic Bubo. N. Barlow, Cuyamel, Honduras.
- 27 Impetigo Tropica. N. Barlow, Cuyamel, Honduras.

24. Relationship of Anaphylaxis to Immunity.—For the last two years Gurd, in association with Dr. J. C. Meakins, has carried out experiments in the hope of proving by direct methods the presence in the serum of so-called immune animals, of a substance capable of protecting the sensitized animal against the manifestations of anaphylaxis. He found that the blood-serum of immune animals contains not only sensitizing bodies, but also some substance which is potent to protect the animal from the effects of the cleavage toxic split products. For purposes of explanation Gurd calls the anaphylactic ferment the lysin of the first order. This is the cause of the anaphylactic state. The ferment capable of digesting the toxic split product he has designated the lysin of the second order. It is to the presence in the tissues of lysins of the second order that the repeatedly inoculated animal owes its so-called immunity to the toxin.

With reference to the second order of lysin, Gurd found that with whole proteins used as injection material the lysins of the first order are always produced first. The lysins of the first order are elaborated to a much more marked extent than are those of the second order; all immune animals are therefore potentially sensitized. This is shown by allergic reactions and passive anaphylaxis as well as by direct experiments, such as those reported in this paper. The persistence of the lysins of the second order in the tissues is much shorter than that of the first order. "Immune" animals, therefore, become ultimately markedly sensitive.

Boston Medical and Surgical Journal

May 28, CLXX, No. 22, pp. 821-860

- 28 Diagnosis and Treatment of Disease of Stomach. F. W. White, Boston.
- 29 Significance of Minimal Macroscopic Gastric Stasis. A. E. Austin, Boston.
- 30 Banti's Disease with Report of Successful Splenectomy. M. G. Sturgis, Seattle, Wash.
- 31 Operation for Correcting Aquiline Nasal Deformity. O. A. Lothrop, Boston.
- 32 *Anaphylactic Reactions Occurring in Horse Asthma after Administration of Diphtheria Antitoxin. J. L. Goodale, Boston.

32. Anaphylactic Reactions Occurring in Horse Asthma.—In three cases of horse asthma, reported by Goodale, the application of horse-serum to the nasal mucous membrane, or to a cut of the skin gave rise to an immediate reproduction in miniature of the phenomena of anaphylactic shock, namely spasm of the arterioles, with edema and surrounding congestion.

One case of horse fever gave a delayed but otherwise typical skin reaction, but no disturbance in the nose. One case of horse fever gave a delayed reaction to the nasal test, but was negative for the skin test. Four of the horse-

fever cases without asthma were negative for both tests. Five cases of bronchial asthma and five cases of hay-fever, without sensitiveness to horses, gave negative results.

Goodale is convinced that in horse asthma, an anaphylactic reaction may occur after the administration of horse-serum; in horse fever with nasal symptoms alone, this danger is less or not at all to be feared, and in other types of asthma and of vasomotor rhinitis it is not present.

Colorado Medicine, Denver

May, XI, No. 5, pp. 179-212

- 33 Suspension Laryngoscopy. L. B. Lockard, Denver.
- 34 Bacteriology of Acute Rheumatism. R. C. Baker, Denver.
- 35 Eye Lesions Resulting from Auto-Intoxication. H. M. Thompson, Pueblo.

Journal of Biological Chemistry, Baltimore

May, XVII, No. 4, pp. 413-543

- 36 Behavior of Emulsin in Presence of Collodion. R. E. Clausen, Berkeley, Cal.
- 37 Action of Leukocytes and Kidney Tissue on Pyruvic Acid. P. A. Levene and G. M. Meyer, New York.
- 38 Fate of Alanine in Glycosuric Organism. H. D. Dakin and H. W. Dudley, New York.
- 39 *Formation of Glycocoll in the Body. III. A. A. Epstein and S. Bookman, New York.
- 40 Preparation of Creatin, Creatinin and Standard Creatinin Solutions. O. Folin, Boston.
- 41 Determination of Creatinin and Creatin in Urine. O. Folin, Boston.
- 42 Determination of Creatinin and Creatin in Blood, Milk and Tissues. O. Folin, Boston.
- 43 Creatin Content of Muscle. O. Folin and T. E. Buckman, Boston.
- 44 Creatinin and Creatin Content of Blood. O. Folin and W. Denis, Boston.
- 45 Protein Metabolism from Standpoint of Blood and Tissue Analysis. VII. Interpretation of Creatin and Creatinin in Relation to Animal Metabolism. O. Folin and W. Denis, Boston.
- 46 *Synthesis of Hippuric Acid in Animal Organism. I. In Rabbits on Glycocoll Free Diet. H. B. Lewis, Philadelphia.
- 47 Constitution of Kynurenic Acid. A. Homer, Toronto.
- 48 *"Emotional Glycosuria" in Man. O. Folin, W. Denis and W. G. Smillie, Boston.
- 49 *Theory of Diabetes. III. Glycollic Aldehyd in Phlorizinized Dogs. W. D. Sansum and R. T. Woodyatt, Chicago.
- 50 Velocity of Hippuric Acid Formation and Elimination from Animal Body. A. M. Raiziss, G. W. Raiziss and A. I. Ringer, Philadelphia.
- 51 Reduction of Ammonium Molybdate in Acid Solution. C. W. Miller and A. E. Taylor, Philadelphia.

39. **Formation of Glycocoll.**—The data obtained in experiments by Epstein and Bookman show that alanin, free or combined with a benzoyl radical, fails to yield glycocoll. This result is in accord with work of Magnus-Levy. From the structural character of alanin it is not conceivable that it can be directly converted into glycocoll. The authors' results serve to show, however, that in its decomposition in the body, alanin does not yield cleavage products which can be synthesized into glycocoll. Furthermore, alanin has no direct or indirect effect on hippuric acid metabolism. The increased output of hippuric acid, and hence glycocoll, observed after the administration of benzoyl-leucin the authors suggest is probably not a function of the benzoyl radical of the compound.

46. **Synthesis of Hippuric Acid in Organism.**—In rabbits fed on a glycocoll free diet of milk, Lewis found that the ingestion of sodium benzoate causes no marked rise in the elimination of total nitrogen. The nitrogen eliminated as hippuric acid appears to be derived at the expense of the nitrogen normally present in the urine as urea, since the urea elimination decreases with increased hippuric-acid elimination. The synthesis of glycocoll for the purposes of detoxication of the benzoate results from a deviation of the normal path of catabolism and not from a specialized metabolism. These results are in agreement with those obtained by McCollum and Hoagland in their studies on pigs reduced to their endogenous protein metabolism.

48. **Emotional Glycosuria.**—In order to obtain additional data on the subject of glycosuria in the insane, the authors examined the urine of 192 patients at the McLean Hospital for the Insane. In 22 of these they found unmistakably positive sugar reactions with Nylander's, Benedict's and the

phenylhydrazin tests. The great majority, but not all of those who had sugar in the urine, suffered from depression, apprehension or excitement. Some of them had been in apparently the same condition with reference to the emotional state for several years. Of 664 consecutive urine examinations made at the Danvers State Hospital for the Insane, the number giving a positive test for sugar was 58. Of 34 second-year medical students examined before and after an examination one had sugar both before and after the examination. Of the remaining 33, 6, or 18 per cent had small but unmistakable traces of sugar in the urine passed immediately after the examination.

A similar study was made on second-year women students. Since these students were younger and presumably much more excitable than the medical students it was thought that even more striking results might be obtained. This expectation did not prove well founded. Out of 36 taking the examination and who had no sugar in the urine on the day before, 6 of the 17 per cent. eliminated sugar with the urine passed immediately after the examination. It seems reasonably certain from the results obtained that pronounced mental and emotional strain may produce temporary glycosuria in man.

49. **Glycollic Aldehyd in Phlorizinized Dogs.**—Glycollic aldehyd has been prepared from the crystallin dihydroxy fumaric anhydrid of Fenton and Jackson. Given to fully phlorizinized dogs in single doses of about 5 per cent strength subcutaneously it has apparently caused an increased breakdown of protein as evidenced by a rise in the urinary nitrogen and a corresponding increase of the sugar while G:N remained constant. The initial rise has been followed in later periods by a fall in all the urinary components examined. When given very slowly in dilute 1 per cent solution there has been observed an absolute rise in the glucose excretion out of proportion to the rise in the nitrogen, hence an increased G:N ratio not due merely to lessened nitrogen output but suggestive of a new formation of glucose out of glycollic aldehyd itself. Some 45 to 70 per cent. of the glycollic aldehyd given appears to have escaped oxidation and become converted into glucose in these latter experiments. Judgment is reserved as to whether the small increases of reducing substances seen in these experiments are due to a conversion of glycollic aldehyd into d-glucose or to some other process.

Journal of Cutaneous Diseases, New York

June, XXXII, No. 6, pp. 413-480

- 52 Why We Deferred General Treatment of Syphilis Until Appearance of Secondary Symptoms. H. G. Klotz, New York.
- 53 Kromayer Light in Treatment of Certain Diseases of Skin. A. Clark, New York.
- 54 Mycosis Fungoides Occurring in Negriss. B. Wolff, Atlanta, Ga.
- 55 Dermatitis Herpetiformis with Transitory Pemphigoid Eruption. H. K. Gaskill, Philadelphia.

Journal of Experimental Medicine, Lancaster, Pa.

May, XIX, No. 5, pp. 417-522

- 56 *Significance of Submiliary Myocardial Nodules of Aschoff in Rheumatic Fever. W. Thalheimer and M. A. Rothschild, New York.
- 57 *Experimental Focalized Myocardial Lesions Produced with Streptococcus Mitis. W. Thalheimer and M. A. Rothschild, New York.
- 58 *Experimental Arthritis in Rabbit, Produced with Streptococcus Mitis. M. A. Rothschild and W. Thalheimer, New York.
- 59 *Stage in Migration of Adult Tertian Malarial Parasite. Rowley-Lawson, New London.
- 60 *Nature of Serum Antitrypsin. J. W. Jobling and W. Petersen, New York.
- 61 *Serotoxin. J. W. Jobling and W. Petersen, New York.
- 62 Growth of Bacteria on Media Containing Various Anilin Dyes with Special Reference to an Enrichment Method for Typhoid and Paratyphoid Bacilli. C. Krumwiede, Jr., and J. S. Pratt, New York.
- 63 *Factors of Resistance to Heteroplastic Tissue Grafting. J. Murphy, New York.

56. **Nodules of Aschoff in Rheumatic Fever.**—In rheumatic myocarditis, foci, termed submiliary nodules of Aschoff, are present which are characteristic of the rheumatic infection. They are most frequently found in the walls of the left ventricle, the auricles usually escaping. The nodules were

found by Thalhimer and Rothschild in three cases of chorea without joint manifestations, proving the close relation of this condition to rheumatism. They were absent in fourteen cases of subacute bacterial endocarditis due to *Streptococcus mitis*. They were not found in infections of the endocardium with the gonococcus, staphylococcus, streptococcus or pneumococcus. Even in the absence of a rheumatic history the authors agree with Fraenkel, that the presence of Aschoff bodies signifies a previous rheumatic infection. Aschoff bodies are not always found in rheumatic carditis, where the infection antedates death by a long period, but the healed remains, represented by sclerotic patches ("Schwielsen"), are present. Thalhimer and Rothschild suggest that the cases of arthritis characterized by the presence of the submiliary nodules of Aschoff in the myocardium be placed in one group and called for the time being "rheumatism"; and the cases with articular manifestations, yielding positive bacteriologic findings and no Aschoff bodies, should be classified according to the infecting microorganisms concerned, and not as rheumatism.

57. Experimental Focalized Myocardial Lesions.—By the intravenous injection into 42 rabbits of *Streptococcus mitis*, Thalhimer and Rothschild produced focalized myocardial lesions which are identical with those caused by the injection of *Streptococcus rheumaticus*, and with those produced by Bracht and Wächter with *Streptococcus viridans*. The lesions differ from those produced by injections of streptococci from the Chicago epidemic of sore throat (epidemic streptococcus). They are not identical with Aschoff bodies and are easily differentiated from them. They also differ from the foci produced by Jackson and Coombs, who describe their lesions as being either Aschoff bodies or similar formations. The myocardial lesions of the rabbit appear to be caused by toxins liberated by the streptococci injected and not by the living organisms themselves. The only point of similarity between the experimental lesions and those found in cases of rheumatic carditis in man is their focalized nature.

58. Experimental Arthritis in Rabbit.—Rothschild and Thalhimer produced arthritis in 50 per cent. of the rabbits injected with *Streptococcus mitis*. The character of the arthritis is identical with that produced by *Micrococcus rheumaticus*. The exudate in and about the joints partakes of the same nature as that caused by *Streptococcus rheumaticus*. Bacteriologic studies show that *Streptococcus mitis* can be recovered from about one-third of the affected joints. Arthritis produced by other types of streptococci differs by reason of greater destruction of tissue, by being more permanent in character, and by the exudate containing large numbers of polymorphonuclear leukocytes. The deduction of a distinct variety or species of streptococcus based on the power to cause arthritis in rabbits, the authors claim, is unwarranted.

59. Migration of Adult Tertian Malarial Parasite.—What appear to be certain definite stages in the migration of the malarial parasite from red corpuscle to red corpuscle were demonstrated by Rowley-Lawson thus giving a reasonable explanation of the loss of red corpuscles which cannot be accounted for by the destruction of the infected corpuscles at the time the parasites segment. Migration to other red corpuscles is a satisfactory explanation of the ultimate fate of the young parasites seen in instances of multiple infection of single corpuscles.

60. Nature of Serum Antitrypsin.—The ferment inhibiting action of the serum believed by Jobling and Petersen to be due to the presence of compounds of the unsaturated fatty acids. These fatty acid compounds may be removed from the serum by means of chloroform or ether. Soaps prepared by saponifying the chloroform or ether extracts inhibit the action of trypsin. The anti-enzyme action of the serum can be removed by filtering acid serum through kaolin, and can in part be restored by extracting the kaolin. The decrease in strength of anti-enzyme in old sera is probably due to the action of the serum lipase. Iodin, potassium iodid or hydrogen peroxid remove the inhibiting action of the serum.

Soaps of the unsaturated fatty acids lose their ferment inhibiting action when heated with serum at 70 C.

61. Serotoxin.—Jobling and Petersen found that sera from which the protective lipoids (unsaturated fatty acids) have been removed are toxic for the homologous animal. The toxicity is due to three factors: (a) an alteration in the mechanism of coagulation, with resulting intravascular coagulation; (b) the exposure of the native serum proteins; (c) the formation of toxic split products (primary proteoses) by autolysis. A definite maximum of toxicity can be determined, with a final stage of atoxicity due to continued autolysis. Hirudin and sodium citrate do not protect animals. Heating to 70 C. destroys, or greatly lessens the toxicity of the serotoxin; although the isolated proteoses are toxic after boiling. The return of the extracted lipoids (saponified) neutralizes the toxicity. Unsaturated soaps also neutralize the toxicity. Sublethal doses produce extreme prostration, marked fall in body temperature, no eosinophilia, and an increase of antitrypsin. Sublethal doses of rapidly prepared chloroform sera cause a decrease in coagulation time; sublethal doses of autolyzed sera cause an increase in coagulation time. Previously injected animals are more resistant (increased antiferments). Iodized animals are less resistant (decreased antiferments).

63. Factors of Resistance to Heteroplastic Tissue Grafting.—It has been shown that the chick embryo offers suitable conditions for the growth of implanted tissues whether these be embryonic or adult of the same species or of a foreign one. The chick at about the time of hatching develops a defensive mechanism against the tissue of foreign species. This resistance, Murphy says, can be supplied to the embryo in the early stages if grafts of adult spleen or bone-marrow are implanted. Under these conditions the embryo exhibits the same resistance to foreign tissue as does the adult, and presents the same histologic manifestations about the graft. Furthermore, the same tissues, spleen and bone-marrow, when grafted into an embryo with an established and growing rat tumor, bring about a retrogression and absorption of the foreign tissue. Other adult tissues do not supply this power to embryo.

Kansas Medical Society Journal, Topeka

May, XIV, No. 5, pp. 171-210

- 64 Eye, Ear, Nose and Throat in Exophthalmic Goiter. J. H. Johnson, Coffeyville.
- 65 Case of Diabetes. C. R. Townsend, Centralia.
- 66 Should Pamphlet for Gratuitous Distribution on Venereal Peril be Issued by this Society? E. T. Shelly, Atchison.

Lancet-Clinic, Cincinnati

May 16, CXI, No. 20, pp. 567-592

- 67 Problem of Using Oxytocic Drugs During Labor. W. Gillespie, Cincinnati.
 - 68 Uncinariasis Disease. M. J. White, St. Louis.
 - 69 Medical Inspection of Schools. A. L. Brankamp, Richmond, Ind.
- May 23, No. 21, pp. 593-618
- 70 Removal of Both Superior Maxillae. C. Hiller, Cincinnati.
 - 71 Hypertension as Clinical Entity. L. A. Lurie, Cincinnati.
 - 72 Cerebellar Tumor and Use of New Stitch to Control Hemorrhage of Scalp. W. Griess, Cincinnati.
 - 73 Carnegie Foundation and Education. S. P. Kramer, Cincinnati.

Laryngoscope, St. Louis

April, XXIV, No. 4, pp. 241-484

- 74 Index-Medicus of Oto-Laryngology for 1913.

Modern Hospital, St. Louis

May, II, No. 5, pp. 267-330

- 75 Elizabeth Steel Magee Hospital of Pittsburgh. C. E. Ziegler and T. E. Billquist, Pittsburgh.
- 76 Treatment of Delirium in General and in Special Hospitals. D. Gregg, Boston.
- 77 Dietary Department of Johns Hopkins Hospital. A. P. Atwood, Baltimore.
- 78 Greenpoint Hospital—Part of Brooklyn Hospital System. F. J. Helmle, Brooklyn.
- 79 Purchase, Preparation, and Service of Food Supplies. E. A. Greener, Muskegon, Mich.
- 80 Fire Protection and Fire Drills for Hospitals. C. W. Hejda, Chicago.
- 81 Moving-Pictures in Minnesota State Institutions. M. E. Carey.

New Jersey State Medical Society Journal, Orange*May, XI, No. 5, pp. 217-270*

- 82 Ether Anesthesia by Open Method. F. R. Widdowson, Philadelphia.
- 83 Some Phases of Appendicitis. G. Williams, Atlantic City.
- 84 Physiologic and Psychologic Functions of Artificial Light. F. L. Godinez, Jersey City.
- 85 Utility of Hodgen Splint in Fracture of Thigh. J. A. MacLay, Paterson.

New Mexico Medical Journal, Las Cruces*May, XII, No. 2, pp. 35-62*

- 86 Contagion Among Canon Cito Navajo Indians. C. L. Day, Albuquerque.
- 87 Treatment of Pyosalpinx. W. R. Lovelace, Albuquerque.
- 88 Surgery under Difficulties. J. G. Holmes, Alamogordo.
- 89 Bacillus Bulgaricus in Diphtheria. G. Werley, El Paso, Tex.

New York Medical Journal*May 23, XCIX, No. 21, pp. 1013-1060*

- 91 Treatment of Insane in Tropics. (To be continued.) F. Woodbury, Philadelphia.
- 92 *Inlay Bone Graft in Fresh Fractures. F. H. Albee, New York.
- 93 Relief of States of High Vascular, Muscular and Mental Tension. W. J. M. A. Maloney and V. E. Sorapure, New York.
- 94 Surgery of the Hour-Glass Bladder. J. B. Squier, New York.
- 95 Vagitus Uterinus. Case-Report. G. L. Brodhead, New York.
- 96 Preventive and Curative Treatment of Ophthalmia Neonatorum. A. Brav, Philadelphia.
- 97 Albumin Reaction in Sputum. W. M. Lewis, Baltimore.
- 98 Hyperthyroidism. E. Birdsall, Glens Falls.
- 99 Surgical Relationships of Mouth Infections. T. B. Hartzell, Minneapolis.
- 100 Intestinal Parasites (*Strongyloides Intestinalis*), with Unusual Symptoms. M. I. Moss, Philadelphia.
- 101 Autoserotherapy in Fibrinous Pleurisy. H. M. Fisher, Philadelphia.
- 102 New Psychosis. S. Elock, New York.

92. **Inlay Bone Graft in Fresh Fractures.**—The graft used by Albee is removed from the fractured bone, instead of from the crest of the tibia, by making the segment removed from one fragment double the length of that removed from the other, if possible $5\frac{1}{2}$ inches for the long fragment and $2\frac{1}{2}$ inches for the length of the short fragment.

After stripping up the periosteum overlying the area from which the short segment is to be removed—and this stripping should be done with a sharp instrument to insure the removal of the underlying osteogenic cells—the gutter is started by the twin saws adjusted at a suitable distance apart, depending on the size of the graft and gutter to be formed. The long segment to be removed from the other fragment is outlined with the twin saws, adjusted at the same distance as when outlining the short segment, but the periosteum is removed from only the distal half of the long segment. These parallel saw cuts are now continued through the bone to the medullary cavity, with the single saw held at such an angle as to cause the cuts to converge in approaching the medullary cavity, in order to prevent the graft, when forced tightly into position, from dropping into the medullary cavity beneath. To free the ends of the grafts transverse cuts are made, either with a smaller motor saw or with a chisel.

The breadth of the saw-blade cuts is sufficient to allow the graft, when turned about and placed in position, to sink slightly below the borders of the gutter, thus furnishing a margin along the sides of the long graft into which dowel holes are drilled obliquely outward to receive the autogenous dowel pegs made by splitting the removed short segment into fragments and running them through the doweling instrument.

When these pegs are driven into place, the graft is held securely, and proper alignment of the fragments is insured by the leverage action of the accurately fitting graft to its gutter bed. The periosteum is then drawn over the denuded portion of the graft and held by a few catgut sutures; also the periosteum left at the site of the short fragment is drawn across the gap and sutured with catgut.

Surgery, Gynecology and Obstetrics, Chicago*May, XVIII, No. 5, pp. 529-660*

- 103 *Difference between Older and Newer Treatment by Roentgen Ray and Radium in Gynecologic Diseases. B. Kronig, Freiburg.
- 104 Treatment of Blood-Vessel Injuries. W. W. Grant, Denver.
- 105 *Surgical Repair of Blood-Vessels: Its Technic, Its Uses and Limitations. J. S. Horsley, Richmond, Va.
- 106 Cancer of Breast in Boy Fifteen Years Old. R. C. Bryan, Richmond, Va.

- 107 *Eventration of Diaphragm. I. F. Steir, Chicago.
- 108 Complications Following Surgical Operations. E. H. Beckman, Rochester, Minn.
- 109 Hysteromyectomy, Its Evolution and Perfection. L. S. McMurtry, Louisville, Ky.
- 110 Efficiency Engineering in Pelvic Surgery: One- and Two-Suture Operations. R. L. Dickinson, Brooklyn.
- 111 *Experimental Work in Bone Transplantation. E. J. Lewis, Chicago.
- 112 Transplantation of Bone in Pott's Disease. E. W. Ryerson, Chicago.
- 113 Bone Transplant. H. B. Thomas, Chicago.
- 114 Supernumerary Ureter Opening Extravesically. H. D. Furniss, New York.
- 115 Influence of Ectopic Pregnancy on Uterus, with Special Reference to Changes in Its Blood-Supply and Uterine Bleeding. J. A. Sampson, Albany, N. Y.
- 116 *Education and Publicity Through Council on Health and Public Instruction of American Medical Association. F. R. Green, Chicago.
- 117 *Congenital Pyloric Stenosis. R. Hill, St. Louis.
- 118 Operative Treatment for Malformations of Uterus and Vagina. J. M. M. Kerr, Glasgow, Scotland.
- 119 *Method of Exposing Pelvic Portion of Ureter. J. M. Birnie, Springfield, Mass.
- 120 Technic Employed in Excision of Carcinomatous Urethra. S. Stark, Cincinnati.
- 121 *Simple Heat Method of Sterilizing and Storing Catgut. W. Bartlett, St. Louis.
- 122 *New Operative Procedure for Treatment of Suppurative Salpingitis in Young Women. W. B. Bell, Liverpool.
- 123 Treatment of Fractures by Fixation with Animal Bone Plates and Bone Screws. E. J. Brougham and A. C. Ecke, Chicago.
- 124 Treatment of Case of Birth Fracture of Shaft of Femur. V. P. Blair, St. Louis.
- 125 Personal Experiences with Coagulene-Kocher-Fonio. G. de Tarnowsky, Chicago.
- 126 Some Recent Tests for Gastric Carcinoma. R. M. Carter, Green Bay, Wis.

103. Abstracted in THE JOURNAL, Dec. 6, 1913, p. 2098.

105. Abstracted in THE JOURNAL, Jan. 17, p. 233.

107. **Eventration of Diaphragm.**—In Stein's case examination revealed a typical eventration of the diaphragm with the stomach, the greater part of the small and large intestine, the spleen, the left lobe of the liver, the tail of the pancreas, and the upper pole of the left kidney in the chest. The heart was found greatly enlarged and pushed extremely to the right. The lungs were found above and to the right of the diaphragm, all compressed except the lower lobe of the right lung. The diaphragm on the left side was found to be a fibrous dome, thin and gray in appearance, extending to the level of the second interspace, in which no muscle fibers were seen. The remaining abnormality was that of undescended testes, which were found in the abdomen.

111. **Experimental Work in Bone Transplantation.**—The following conclusions based on experiments are submitted by Lewis: 1. That cortical bone, free of its periosteum, endosteum, and marrow will retain its vitality and proliferative powers when subdivided into small fragments and replaced in the tissues. Also that contact with living bone is unnecessary for the growth of these transplants. 2. That larger pieces of bone may be transplanted and remain alive—not being merely grown into by the bone in which they come in contact. 3. That bones may unite after fracture or a space fill in after resection without the aid of any periosteal or bony bridge, and that transplanted fascia may be made to take up the nutritional and limiting functions of the periosteum.

Lewis reports an observation of a case in which a portion of bony shaft 3 centimeters in length was removed and the adjacent periosteum of the ends of the shaft thoroughly scraped away. The interval between the ends was then surrounded by a transplant of fascia which was made to extend up and down along the shaft for some distance. At the post mortem nine weeks later complete bony filling in of the space with excessive callus formation had occurred. The fascia transplant had fused above and below with the periosteum and could not be differentiated from it. In another experiment the same method was followed except that no fascia transplant was used, the space between the periosteum and could not be differentiated from it. In this case no periosteal or bony bridge was allowed to remain, in spite of which fact, at post mortem nine weeks later, a good bony filling in of the space was found to have occurred.

116. Abstracted in THE JOURNAL, Dec. 6, 1913, p. 2099.

117. Abstracted in THE JOURNAL, Jan. 31, p. 405.

119. **Exposing Pelvic Portion of Ureter.**—With the patient in the Trendelenburg position Birnie makes a median incision beginning close to the pubic bone and extending upward, exposing the space of Retzius in the usual manner. No muscle fibers are cut but the recti are retracted to either side. The point where the parietal peritoneum is reflected onto the bladder is noted and care taken not to open the peritoneal cavity. Starting at the bladder, the peritoneum is wiped away toward the median line separating it from the bladder and pelvic wall, thus exposing the ureter. With retraction one gets a complete exposure of the ureter and any necessary procedures may be carried out under the guidance of the eye. Drainage, if necessary may be instituted through the original incision or through a separate stab wound.

121. **Method of Sterilizing and Storing Catgut.**—The process is divided by Bartlett into three definite steps: drying, sterilization and storage. The ordinary commercial 10-foot catgut strand is divided into four equal lengths, each of which is made into a coil about the diameter of a silver quarter. By twisting the last free end three or four times around the components of this little coil the latter is enabled to maintain its shape. These coils are then strung like beads on a thread so that any desired number can be conveniently handled by simply grasping the thread. The string of catgut coils is dried in a bacteriologist's dry sterilizer for four successive hours at a temperature of 80 F., 90 F., 100 F. and 110 F. centigrade. Let thin gauze be interposed between catgut and metal. This should not be attempted on a damp day or in a room which steam enters. The catgut is immediately placed in liquid albolene (petrolatum liquidum) where it is allowed to remain until "clear" in the sense that the term is used in the preparation of histologic specimens. This is usually accomplished in a few hours, though it has been Bartlett's custom to allow the gut to remain in the oil over night. Thin paper must line the receptacle so that the catgut may not touch its walls.

The vessel containing the oil is placed on a pan of sand and the temperature raised by a gas-flame during one hour to 160 F. centigrade, which temperature is maintained for a second hour. By seizing the thread with a sterile forceps the gut is lifted out of the oil, an excess of which is allowed to drip off, the thread is cut and the coils dropped into a solution of iodine crystals in Columbian spirits (deodorized methyl alcohol), the proportion of iodine varying according to the diameter of the catgut. For No. 00 it should be 1 to 100; for No. 0, 1 to 600; for No. 1, 1 to 500; for No. 2, 1 to 400; for No. 3, 1 to 300; for No. 4, 1 to 200; the iodine being taken by weight and the alcohol by volume. The material becomes ready for use in a few hours, and should remain in the solution indefinitely without deterioration. A few coils may be removed at any time with no risk of contaminating those left behind.

122. **Operative Procedure for Suppurative Salpingitis.**—Bell's method aims at removing diseased structures as widely as possible, while one ovary, or a portion of it, is preserved, together with sufficient endometrium to ensure the subsequent occurrence of regular menstruation. In other words, both tubes, one ovary and a wedge-shaped portion of the fundus uteri are removed.

West Virginia Medical Journal, Wheeling

May, VIII, No. 11, pp. 361-394

- 27 Syphilis. M. Mendeloff, Charleston.
- 28 Salvarsan. W. S. Robertson, Charleston.
- 29 Life-Insurance Examinations. J. T. Thornton, Wheeling.
- 30 Morphin and Alcohol Affect Brain Cells. J. W. Williams, Richmond.
- 31 Common Errors in Neurologic Diagnosis and Treatment. T. A. Williams, Washington, D. C.
- 32 County Medical Society. G. W. Swinley, Bunker Hill.
- 33 Bowel Movements after Abdominal Section. I. Hardy, Morgantown.
- 34 Medical Temperance. E. M. Chalfant, Shinnston.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

May, XI, No. 125, pp. 193-240

- 1 Group of Cases of Chronic Recurrent Diarrhea in Childhood. F. J. Poynton, R. R. Armstrong and D. N. Nabarro.
- 2 Food Value Required by Growing Girls, Aged Four to Fifteen. Result of Investigations Carried on for Seventeen Years, with Analysis and Comments. (To be continued.) J. G. Sharp.
- 3 Congenital Familial Cholemia without Splenomegaly. G. R. Ward.

British Medical Journal, London

May 16, I, No. 2785, pp. 1053-1104

- 4 *Phenomena Attributable to Spasm of Cerebral Vessels (Angiospasm). W. Russell.
- 5 Oxygen Want and Means of Its Relief. A. G. Auld.
- 6 *Relation Between Epilepsy and Tuberculosis. B. H. Shaw.
- 7 *Strychnin-Tuberculin Treatment of Hospital Tuberculous Cases. J. H. Whelan.
- 8 *Cutaneous Tuberculin Reaction of Von Pirquet. A. J. B. Leckie.

4. **Phenomena Attributable to Cerebral Angiospasm.**—The special condition discussed by Russell is spasm constriction of the arterial channels in localized areas of the brain; the term "cerebral angiospasm" is given to the condition. Although the cerebral vessels cannot be seen, the vessels of the retina can be examined by means of the ophthalmoscope, and it has been clearly established that angiospasm occurs in these vessels. Various observers have noted that a temporary loss of vision of one-half of the retina may be associated with marked diminution in the size of the retinal vessels corresponding to the blind field, and that vision returns with the relaxation of the constricted vessels and the reestablishment of the normal blood-supply to the part. From these observations alone Russell believes it is fair to postulate that corresponding constriction can take place in the arteries in localized areas of the brain.

6. **Relation between Epilepsy and Tuberculosis.**—An analysis of 100 deaths among epileptics by Shaw taken seriatim shows that tuberculosis was the cause in 33 cases. A similar analysis of 290 deaths among non-epileptic patients gives the figure 24.1. The tuberculosis mortality is therefore nearly 10 per cent. greater among epileptics. He tried the tuberculin test on 60 epileptics; the resultant reactions were negative in 3 cases, doubtful in 7, and positive in 50. The corresponding figure for 10 non-epileptic patients resident in the epileptic ward was 50.0. A very noticeable peculiarity among epileptics is the marked depression of temperature after even a comparatively small initial rise and the quick response to the tuberculin in the first place. In 7 cases the temperature dropped to 96 F. and below (one reaching 95.4 F.), in 4 cases to 96.2 F., and in 6 to 96.4 F. In 15 cases it dropped to between 96.8 F. and 97.2 F. so that in 31 cases, or over 50 per cent., this sudden depression was marked. In all these cases the epileptic seizures were very severe and frequent, and in the 7 cases in which the temperature fell to 96 F. and below exceptionally so.

The frequency of subnormal temperatures among epileptics was also very marked. Out of the 60 cases under consideration this condition was present in 35; physical signs were present in 22, doubtfully so in 6, and apparently absent in 7 cases. Of all those showing a positive reaction to tuberculin, physical signs were present in 61.6 per cent., and the number of cases in which the right apex was involved as compared with the left is remarkable; out of the total number showing signs of tuberculous deposit (namely, 38), in 33 the right apex was involved. This is a fact of very great interest when it is recollected that it is mainly on the right side that the tracheo-bronchial glands are implicated in children. It is contended by Shaw that epilepsy may be an evidence of tuberculous infection in childhood, probably affecting the bronchial glands, initially, and that the convulsions are due either to reflex irritation so set up or to the resulting toxemia acting on an unstable nervous system, either inherited or acquired. Further, that the constantly recurring seizures not only establish a vicious habit as far as the nervous system is concerned, but also effect tuberculin autoinoculation, thus tending to keep the tuberculous process in check, so that,

instead of a fatal termination epilepsy results. Consequently, the advisability of carefully searching for tuberculous foci in children the moment epileptic fits develop, and also the immediate use of tuberculin in their treatment, should receive consideration.

7. Strychnin-Tuberculin Treatment of Tuberculosis.—Whelan gives strychnin injections to all kinds of tuberculous patients, including cases in which tuberculin injections are contraindicated, with the best results. He gives strychnin in acute and chronic cases, in the pyrexial and the apyrexial, in the early stages and in the most advanced, and with invariably good results. It always improves the appetite and general condition. Patients who have a loathing for food soon regain their appetites under its influence. Strychnin, Whelan states, will frequently do away with the painful necessity of adopting gastric lavage and over-alimentation. But the drug must be given by intramuscular or subcutaneous injection, preferably the former. Administered by the mouth it has not the same effects and in large doses will cause tormina and diarrhea, with possibly disastrous results in advanced cases. These effects are never produced by the injections. Hemorrhages from the lungs, Whelan says, are found to be no contra-indication for the strychnin injections. He has given them in such cases with remarkably good effects when the circulation had been quieted by morphin. The following is the solution he invariably uses: \mathcal{R} Liquor strychnin hydrochlorid (B.P.) 100 minims; sterile normal saline solution made with camphor water, add to make 400 minims; Signa: 1 in 400 strychnin solution. Dose, 18 to 25 minims.

8. Von Pirquet Cutaneous Tuberculin Reaction.—Leckie holds that the cutaneous reaction is of no prognostic or diagnostic value; that results are more frequently obtained in women and children than in men; that the older the individual the less likely is the reaction to be obtained; old-standing lesions, as distinguished from advanced cases, usually fail; cases of rheumatism give more positive results than tuberculous individuals; late and early reactions have no clinical significance.

Journal of Laryngology, Rhinology, and Otology, London
May, XXIX, No. 5, pp. 225-280

- 9 Intranasal Operations for Frontal Sinus Suppuration. P. Watson-Williams.
- 10 Intranasal Treatment of Empyema of Frontal Sinus. H. Tilley.
- 11 International Collective Investigation of Ozena. A. B. Kelly.
- 12 Reports for Year 1913, from Ear and Throat Department of Royal Infirmary, Edinburgh. J. Hewat.

Lancet, London

May 16, I, No. 4733, pp. 1373-1440

- 13 *Development of Heart in Man in Relation to Its Functional Activity. D. Waterston.
- 14 Diagnosis of Appendicitis. W. H. Battle.
- 15 Common Errors in Treatment and Diagnosis of Dietetic Disorders in Infants. E. Pritchard.
- 16 *Subtotal Gastrectomy for Cancer of Stomach. C. M. Moullin.
- 17 Pedunculated Intrabronchial Tumor (Sarcoma), Causing Bronchiectasis. J. A. B. Hicks.
- 18 Cases of Exophthalmic Goiter Treated by Operation. A. J. Walton.
- 19 *Malignant Tumors of Bones: New Method of Conservative Operative Treatment. R. Wenglowksi.
- 20 Influence of Roentgen Rays on Some Cases of Persistent Suppuration. E. P. Cumberbatch.

13. Development of Heart in Man.—In the first stage of its development the heart according to Waterston is a self-regulating organ. Its rhythmic activity is shown by peristaltic waves of contraction which sweep over it from end to end; at this stage it possesses a continuous muscular coat. It is quite independent of the central nervous system. In the next stage—i.e., when the primitive chambers are being divided—a new mechanism arises in the form of a node of specialized tissue situated at the junction of sinus venosus and atrium, which passes thence to the dorsal wall of the atrium and the region of the pulmonary veins. This is the first of the nodal tissues to appear, and is the precursor of the sinu-atrial node of the adult heart. The a-v bundle and node make their appearance about the time of the further division of the chambers of the heart, as a bundle of fibers lying under the posterior endocardial cushion of the atrial

canal, and extending from the atrial wall to the ventricular muscular septum. The evidence goes to show that this bundle is derived from the tissues in which it appears, and that from the first it is surrounded by a sheath of loose connective tissue. Fibers and cells from the central nervous system invade this bundle, and also go to other portions of the heart wall, but the intrinsic regulating mechanism appears to arise independently of the nervous system, and is connected only secondarily through that system with other parts of the body.

16. Subtotal Gastrectomy for Cancer.—Five years ago Moullin did a subtotal gastrectomy on a woman, 51 years of age and rather stout, for gastric cancer. A guarded prognosis was given, chiefly because of the persistence and severity of the pain. An incision was made across the stomach, running from the right side of the esophagus downward and slightly to the left, so as to remove the whole of the stomach except a small portion at the cardiac end. The upper portion of this incision was closed with a double row of sutures; the lower end was sutured to the edges of an incision of corresponding length in the jejunum, so as to form a gastro-jejunosomy. The patient was sick once forty-eight hours after the operation, bringing up some bile, but in other respects recovery was quite uneventful. In the portion of stomach removed there was a characteristic carcinomatous growth originating on the margin of an old chronic ulcer. The patient is alive and well today with no evidence of recurrence.

19. Malignant Tumor of Bones.—In malignant tumors which affect bone, to avoid the resection of the affected portion of bone Wenglowksi sterilizes the bone to kill all the elements of the tumor, and then to allow the dead bone to remain in its natural connection with the healthy part of the bone. The sterilization is performed by means of steam under high pressure. For this purpose an ordinary autoclave is used, or even a steam kettle may be employed; in it steam is formed under a pressure of from 3 to 5 atmospheres. On the spout of the kettle Wenglowksi puts a thick walled rubber tube from 1½ to 2 meters long, and on the other end of this tube he fastens a piece of metal tubing. This metal piece has many holes for the escape of the steam. For the sterilization of the front side of the bone, he uses a straight metal tube with terminal holes; for the under surface of the bone he uses a larger flattened tube which is slightly curved, and the concave side has the holes for the escape of the steam. After the removal of the tumor in the soft parts he scrapes off the rest of the tumor on the bone and lays bare the bone as for a resection. To protect the soft parts from burning he covers them with three or four thicknesses of gauze; on this he puts a thin sterilized layer of asbestos, and finally a metal plate. This metal plate is used to guard the soft parts from the hot condensation water which might trickle through the gauze and the asbestos. Then the curved metal tube is passed under the bone and the steam is turned on.

To heat the tibia to from 75 to 80 C. it is necessary to apply the steam for three minutes, for the lower jaw-bone one and one-half minutes, and for the condyles of the femur eight minutes. At 2 cm. distant the temperature is only 45 to 50 C., and at 3 cm. distant from 35 to 40 C., so that the effect of the steam only extends to about 2 cm. from the tumor. If the greater part of the bone is to be sterilized the sterilization must be effected bit by bit, the metal tube being pushed along the bone. It is not necessary to sterilize the front surface of the bone by itself, for it is included in the sphere of activity of the steam which has sterilized the medullary cavity.

Quarterly Journal of Medicine, London

April, VII, No. 27, pp. 209-323

- 21 *Paroxysmal Tachycardia. H. G. Butterfield and G. H. Hunt.
- 22 Cholesterin: An Account of Its Relations to Pathology and Physiology. J. W. McNee.
- 23 *Bilateral Salivary Swellings (Mikulicz' Disease). H. Thursfield.
- 24 *Prognosis of Acute Articular Rheumatism, Special Reference to Cardiac Manifestations. C. G. Kemp.
- 25 Anaphylaxis and Its Bearing on Medicine. J. McIntosh.
- 26 Bacterial Endocarditis. I. Simons.

21. **Paroxysmal Tachycardia.**—Four cases of paroxysmal tachycardia are described by Butterfield and Hunt in three of which the heart was examined histologically. In the first case the focus from which the ectopic beats arose was diagnosed as being situated in the ventricles. Post-mortem, the interventricular septum was the site of the most extensive disease. In the second and third cases the tachycardia was supraventricular in origin, in one case being auricular, in the other, either auricular or nodal. In both these cases the most marked lesions were found in the neighborhood of the sino-auricular node. The histologic examination thus confirms the diagnosis made from the electrocardiograms. The fourth case was one of auricular origin; in the intervals between the attacks the patient enjoyed fairly good health.

23. **Bilateral Salivary Swellings (Mikulicz' Disease).**—Clinically, Thursfield says, it is possible to recognize at least eight groups of cases in which bilateral swellings of the salivary glands, either with or without an accompanying enlargement of the lymphatic glands, form the most characteristic symptoms: 1. A congenital, hereditary, or family affection. 2. Mikulicz' disease proper. 3. Mikulicz' disease with involvement of the lymphatic apparatus. 4. Leukemia. 5. Tuberculosis. 6. Syphilis. 7. Gout. 8. Sialodochitis fibrinosa; intermittent or periodic salivary swelling. In addition there are from time to time met with cases which do not appear to belong to any of these groups. The treatment which appears to promise the best results is to remove carefully any possible source of chronic infection, e. g., decayed teeth; to seek to establish the general health; to give arsenic in the largest doses which can be tolerated, and to treat the actual swelling with Roentgen-ray applications.

24. **Prognosis of Acute Articular Rheumatism.**—Kemp claims that 23 per cent. of patients go through one or more attacks of acute rheumatism without any clinical affection of the heart, irrespective of the age when first attacked; 22 per cent. develop signs of carditis in the acute stage, these signs disappearing during convalescence; 18 to 20 per cent. of the cases which develop signs of endocarditis, not clearing up before patient leaves hospital, have no permanent valvular lesion, the murmurs being due to myocarditis, or incompetence from temporary hyperemia of the valves, associated with dilatation. If a synovial membrane can recover, why should not a heart valve, asks Kemp. In 14.5 per cent. of cases with acute rheumatic endocarditis of severe type, the murmurs undergo a change, resulting in the disappearance of one or more of the murmurs, such murmurs being due to associated dilatation. As a rule, the murmurs due to myocarditis are softer in character than those due to valvular disease.

Cases in which the heart is going to recover completely show signs of such recovery within twelve months of the acute attack, though the process may not be completed till some years later. Graupner's test for the estimation of the cardiac efficiency has not been proved to be of any value in enabling one to recognize the presence or degree of cardiac weakening, not appreciable by the methods already in general use. The amount of physical work which each individual can do in earning his or her living is a far more reliable and efficient test of the heart's working capacity.

Archives des Maladies du Cœur, etc., Paris

May, VII, No. 5, pp. 289-366

27 *Endocarditis of the Anemia Type. C. Achard and C. Foix.

28 *Heart-Block from Inherited Syphilis. A. Nanta.

29 *Transient Heart-Block in Acute Infectious Disease. (Bradycardie par block partiel. Dissociation auriculo-ventriculaire transitoire. Troubles du rythme cardiaque chez des malades atteints de rhumatisme articulaire aigu.) L. Gallavardin, Pallasse, D. Routier, C. Esmein, C. Pezzi and E. Donzelot.

30 Changes in Electric Phenomena of the Ventricle in Heart-Block. L. Gallavardin.

27. **Anemia with Endocarditis.**—Achard and Foix compare two cases from their own experience with several similar ones on record, all having in common anemia of or approximating the pernicious type in connection with malignant endocarditis. A streptococcus was responsible for the trouble in one of their cases. An intense anemia in the course of a subcontinuous febrile state, remittent or inter-

mittent, sometimes with long intervals, should suggest the possibility of malignant endocarditis. Their patients were a man and woman of 28 and 26, with extreme anemia, debility, edema and gastro-intestinal derangement, but there were no erythematous spots such as Osler described as the "finger sign." The fever was moderate but highly irregular, with intervals of normal temperature, but the pulse kept at about 120 all the time, even during the intervals. A double aortic murmur of long standing was not modified by the endocarditis in one case; in the other a mitral murmur developed just before death. Otherwise the heart gave little sign of its diseased condition. The clinical picture was dominated throughout by the severe anemia.

28. **Heart Block from Inherited Syphilis.**—The possibility of an inherited taint was not suspected in Nanta's case until the woman was over 20, although she had developed anemia at 7, a suppurating joint affection at 9, and Adams-Stokes syndrome at 11, and at 20 and 22 she gave birth to children dead or dying soon after. Her pregnancies were followed by multiple scattered gummas, some of which suppurated and burrowed deep, confining the woman to bed for three years, rebellious to all forms of treatment until a vigorous course of neosalvarsan and mercury put her on her feet again. Although the jugular pulse was 87 and the apex beat only 39, the patient had always led an active life until the last four years.

29. **Transient Heart Block in Acute Infections.**—In Routier's cases the complete heart-block developed in the course of acute articular rheumatism or pneumonia. In the first case amyl nitrite gave no relief but the heart-block subsided under atropin, and in the second case spontaneously.

Bulletin de l'Académie de Médecine, Paris

April 28, LXXVIII, No. 17, pp. 609-636

31 Tuberculous Peritonitis Under Age of 6. A. B. Marfan.

32 Aseptic Puriform Pleural Effusions. Dopfer.

33 Technic for Transfusion of Blood. (Recherches sur les réactions sanguines, à considérer à propos de la transfusion du sang.) V. Wallich and C. Levaditi.

Presse Médicale, Paris

April 11, XXII, No. 29, pp. 273-284

34 Thrombosis of the Central Vein of the Retina. F. de Lapersonne.

35 *Indications and Contra-Indication for Digitalis Deduced from the Heart Rhythm. A. Martinet.

36 Tuberculosis plus Cancer on Back of Hand. N. Lapeyre.

May 9, No. 37, pp. 349-360

37 Treatment of Chronic Mastoid Disease. (Evidement pétro-mastoidien.) G. Mahu.

May 13, No. 38, pp. 361-368

38 *Ocular Sympathetic Disturbances. (Le sympathique oculaire.) A. Cantonnet.

35. **Heart Rhythm as Guide for Use of Digitalis.**—Martinet gives a number of diagrams to explain the mechanisms involved in various forms of arrhythmia and the effect of digitalis. He summarizes the practical conclusions in the statement that digitalis is formally contra-indicated whenever there is a tendency to heart block, total or partial. It is also generally better to refrain from its use in cases of bradycardia and extrasystoles. It is moderately useful in paroxysmal, emotional or febrile tachycardia, while it may be regarded as almost a specific for tachy-arrhythmia from any cause, perpetual, total arrhythmia and auricular fibrillation.

38. **The Ocular Sympathetic.**—Cantonnet urges study of the symptoms from irritation or paralysis of the sympathetic innervation of the eye, emphasizing the information liable to be derived therefrom in regard to an affection in the neck, chest, abdomen or spine, of which the oculosympathetic symptoms may be the first warning sign. The paralysis may be preceded by a period of irritation, and may be revealed by exophthalmos or enophthalmos, drooping or retraction of the upper lid, pallor or redness and dryness or moisture of the face. The mydriasis induced by instillation of two drops of a 4 per cent. solution of cocain shows up well any differences between the pupils when they are examined with a dim light eight minutes later. If there

is spasmodic mydriasis from irritation of the sympathetic there will be maximal dilatation after an atropin collyrium and the pupils grow a little smaller under eserine while the reverse occurs with paralytic myosis; atropin causes only slight dilatation and eserine maximum contraction. With paralysis there is also intense mydriasis with the epinephrin test. His personal experience suggests that when the lesion in the sympathetic is in the upper portion, only motor symptoms are observed. When the lesion is below the neck region, vasomotor and secretory disturbances are observed in addition.

Semaine Médicale, Paris

May 6, XXXIV, No. 18, pp. 205-216

- 39 Amputation of the Breast. (Impotences, douleurs et oedèmes des amputées du sein.) R. de Bovis.

May 13, No. 19, pp. 217-228

- 40 *Camphor in Pneumonia and Tuberculosis. L. Cheinisse.
41 *Uncontrollable Uterine Hemorrhage in Large Apparently Fibromatous Organ. (Les gros utérus saignants, d'apparence fibromateuse.) F. Lejars.

40. Camphor in Pneumonia and Pulmonary Tuberculosis.—Cheinisse reviews a number of articles that have been published in the last year or two on the therapeutic value of camphor. Crouzon advocates adding a little ether to camphorated oil to render it more fluid and thus promote its absorption when injected intravenously; Schule uses ether alone for the vehicle. Subcutaneous injections of camphorated oil have been applied with apparent success in pneumonia by four Russian physicians and by several in Germany. Evidence is accumulating that camphor has a bactericidal action on pneumococci. Hötzel injected subcutaneously twice a day 10 c.c. of camphorated oil in thirty cases of pneumonia and is convinced that it had a specific action. The pneumococcus cannot be cultivated on culture medium containing 1 per ten thousand camphor. Rabbits inoculated with the pneumococcus were saved by a series of subcutaneous injections of camphor without which the controls died. Weihrauch ascribes the antipyretic influence of camphor to its bactericidal action on the mixed infection. When in pneumonia the heart action is good, Svoiekhov gives the camphor by the mouth every two hours up to the crisis and then at longer and longer intervals for a few days. If the pulse is already up to 120, he begins at once with subcutaneous injections of camphorated oil.

41. Abnormal Uterine Hemorrhage without Fibroma or Cancer.—Lejars compares with his own experience the findings recently reported by Briggs and Hendry in 104 uteri after hysterectomy for uncontrollable hemorrhage. They found pedunculated adenomas in fifteen and sessile adenomas in five, and Lejars expatiates on the disturbance liable to be set up by a little tumor of this kind. It acts like a foreign body and tends to induce hypertrophy. In one such case a large median tumor could be felt above the pubis and supravaginal amputation was done as the only measure appropriate for the supposed fibroma. Nothing of the kind was found, however; merely a small polyp implanted in the fundus. The thickened and congested wall had simulated a fibroma on palpation. In a quite recent case a woman of 49 had severe hemorrhages and pain persisting outside of the periods of hemorrhage, with extreme pallor and anemia. The uterus was large as a man's fist but movable, and he removed it as a typical fibromatous organ. The surface proved to be smooth and there were no fibromas except a minute one, very low down. But the uterine wall was abnormally thick and large, measuring almost 5 cm. The mucosa was thickened and edematous. A pedunculated polyp grew near the fundus and a sessile polyp low down. The practical importance of such cases is that examination of the interior will disclose the polyp, and its removal will obviate the necessity for a more serious operation when the woman is still in the child-bearing age. The perfect regularity of the surface of the uterus and its uniform consistency are the only findings which cast a doubt on the assumption of a fibromatous uterus as the explanation of the hemorrhages.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXX, No. 3, pp. 363-490. Last indexed May 23, p. 1696

- 42 *Inspection and Palpation of the Thorax in Diagnosis of Pulmonary Tuberculosis. S. Galecki.
43 No Benefit from Mesbé Treatment; Eight Cases. (Behandlungserfolge mit Mesbé.) K. Weihrauch.
44 Varying Susceptibility to Different Tuberculins. (Beziehungen der Empfindlichkeit Tuberkulöser auf Partialantigene (Deycke-Much) und auf Alt-Tuberkulin zur prognostischen Form der Lungentuberkulose und zur Prognose (Diagnose) und Therapie von Tuberkulosekrankheit.) H. Kögel.
45 *Analysis of the Reaction to Tuberculin. F. Klemperer.
46 *Human Plus Bovine Tuberculin Tests. H. Nothmann, G. Landmann, C. Siebert and P. Römer.
47 Virulent Tubercle Bacilli in Blood-Stream in Children. P. Lehmann.

42. Inspection and Palpation of the Chest.—Galecki tabulates his findings in 300 cases of pulmonary tuberculosis omitting his first 150 cases. He noted a sinking in of the chest wall and of the supra and subclavicular fossae in 43.6 per cent. of the chronic cases in the first stage; in 50.5 in the second and 48.6 in the third stage, confirming the occurrence of this sign with chronic shriveling processes in the lung. The shoulder on the affected side was lower than the other in 190 cases, that is, in 63 per cent. Kuthy's acromion sign was evident in 81 per cent. of all the patients, and in 75 per cent. of the quite recent cases. This sign consists in the lagging behind or total lack of movement in the acromion, the point of the shoulder, as the patient takes a deep breath. Galecki regards this sign as extremely instructive and important, especially when both shoulders present it. He regards it as the most characteristic and striking sign of pathologic interference with the respiratory movements. He found it marked in 69.6 per cent. in the first stage, in 81.9 in the second and 91 in the third, but it gives no hint as to the nature of the process in the lung. He found a difference in the excursions of the ribs on the two sides only in 39 per cent. and mostly in the third stage of the disease. Rigidity of the muscles over the affected area was found in 93 per cent. of the recent cases and not at all with extinct foci. Between these extremes he noted the abnormal local tonus in the muscle in 67 per cent. Local atrophy of muscle was apparent in most of the old chronic cases, corresponding to some degree in extent with the process in the lung. Light touch palpation gave positive findings in 245 of the 346 lung processes with rigid muscles above, but only in 21 of the 132 without local rigidity. Dilated veins were found unreliable as a sign of a pulmonary process.

45. Research on the Tuberculin Reaction.—Klemperer found it impossible to render non-tuberculous animals susceptible to tuberculin by preliminary treatment with tuberculin. He concludes from this that the reaction to tuberculin is not a phenomenon of anaphylaxis. He reports further that animals with a local tuberculous process lose their susceptibility to tuberculin for a time after the local process is excised. This seems to demonstrate that the tuberculin reaction is not due to antibodies circulating in the blood. He gives the tracings and tabulated details of his experiments on rabbits and guinea-pigs and some clinical experiences.

46. Skin Tuberculin Test, Both Human and Bovine.—Nothmann applied the Pirquet test with both human and bovine tuberculin to 207 children. A negative response was obtained to both in 27 per cent.; 64.2 per cent. reacted positively to both; 0.97 to the bovine alone and 4.3 to the human alone, and 0.5 per cent. to first one and then the other. The significant fact was observed that a reaction to both was obtained at a single trial only in 82.1 per cent. while at the second or third test 91.7 per cent. gave a positive reaction.

Berliner klinische Wochenschrift

May 11, LI, No. 19, pp. 869-916

- 48 The Toxicology of Corn. (Zum Studium der Maistoxikologie.) B. Gosio.
49 The Mechanism of Internal Ear Functioning. (Art der Labyrinthtätigkeit.) O. Goebel. Concluded in No. 21.
50 Serodiagnosis of Pulmonary Tuberculosis Not Practicable to Date. (Das Abderhalden'sche Dialysierverfahren bei Lungentuberkulose.) M. Wolff and K. Frank.

- 51 The Physiologic and Therapeutic Action of Pancreas Extracts. F. Müller and S. N. Pinkus.
52 *Collective Inquiry on Goiter. W. V. Simon.
53 *Experimental Rachitis. J. Koch. Commenced in No. 17.

52. **Collective Inquiry on Goiter in Silesia.**—Simon here gives the conclusions drawn from the question-blanks sent to all medical men in Silesia and returned by nearly all, carefully filled out. Twenty-two questions were asked in regard to the prevalence, age incidence, etc., of goiter in each physician's district. A total of 251 cases of goiter were thus listed and a number of goiter nests were discovered. A connection with the drinking water seems more plausible on analysis of the data than the assumption of contact transmission.

53. **Experimental Rachitis.**—Koch injected the *Streptococcus longus* into young animals and an acute infection followed at once, gradually entailing a chronic disease of the bones which apparently was the same as rachitis in man. The dogs allowed to run about freely did not develop the bone trouble or not in the same degree as the dogs kept in stalls. Domestication undoubtedly favors the development of the disease. His experience confirms further the injurious influence of secondary infection after the process of normal ossification had once been upset by the acute infection. The ossification centers are for a long time in a condition of lessened resistance, and an intercurrent whooping-cough, chronic enteritis or the like adds further fuel to the flame. According to his experience, the injurious influence of infections alone—without calling on metabolic derangement—is enough to explain the trouble. Further research will show whether the *Streptococcus longus* alone is capable of this malign influence on the ossification centers or whether other germs may be involved. The pathologic changes in the skeleton after acute infectious diseases in children will repay study, and much may be learned from the veterinarians in this line.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 2, XLIV, No. 18, pp. 545-576

- 54 *Induced Pneumothorax. (Grundsätze und Durchführung der Pneumothoraxtherapie in der Behandlung der Lungentuberkulose.) U. Carpi.

May 9, No. 19, pp. 577-608

- 55 The Dementia with Dementia Praecox. O. Hinrichsen.
56 Whooping-Cough Cured by Casual Laparotomy. (Zur Kenntnis der Pertussis.) F. Rusca.

54. **Induced Pneumothorax.**—Carpi was able to make an artificial pneumothorax in 18 of the 25 cases in which he attempted it, and the results were extremely favorable in 13. He gives an illustrated description of the most interesting cases, including one in a girl of 9. Carpi knows of only 12 other cases on record in which pneumothorax was induced in a child. Her fever began to go down almost at once and by the sixth day the temperature was normal and there was soon no further expectoration. At the sixth month she seems clinically cured.

Deutsche medizinische Wochenschrift, Berlin

May 7, XL, No. 19, pp. 937-992

- 57 Acute Threatening Conditions with Otitis Media. (Behandlung akut bedrohlicher Erscheinungen bei eitriger Mittelohrentzündung.) W. Kümmel.
58 *Pathogenesis and Treatment of Otosclerosis. A. Denker.
59 Importance of Exterminating the Spirochetes Localized in Primary Focus. (Widerstandsfähigkeit lokaler Spirochätenherde gegenüber reiner Salvarsantherapie.) W. Wechselmann and G. Arnheim.
60 Death from Acute Arsenic Poisoning after Injection of 0.8 Gm. Salvarsan in Seven Days in Non-Syphilitic. F. Lube.
61 Influence of Calcium Salts on Production of Transudates and Effusions, Unfavorable Rather than Otherwise. R. Levy.
62 The Uric Acid in the Blood. (Blutharnsäure.) E. Steinitz.
63 Gastric Cancer as Consequence of Industrial Accident. (Magenkrebs, Unfallfolge.) E. Franck.
64 Technic for Implanting New Eyelashes. (Einpflanzung lebender Haare zur Wimpernbildung.) F. W. Krusius.
65 The Factors in Freud's Psycho-Analysis. P. Engelen.
66 The Lymphatic-Exudative Diathesis and Prophylaxis of Tuberculosis. M. Bockhorn.
67 Etiology of Psoriasis. Jaerisch.

- 68 Pressure on Growing Testicles from Double Varicocele Probable Cause of Tardy Eunuchoid Condition in Case Reported. G. Schwacr.
69 Organic and Mental Development. S. Meyer.

58. **Otosclerosis.**—Denker says that all the mechanical and local operative measures that have been applied to cure otosclerosis have given such poor results that he cannot recommend any of them, particularly as an aggravation of the deafness from their action lies well within the possibilities. Of internal measures, Politzer advises 1 gm. of potassium iodid daily for ten or fifteen days, repeating this four or five times a year. Some have reported benefit from thyroid treatment; others have been less fortunate with it. Denker had found phosphorus useful, alone or combined with bromid. The progress of the deafness was often arrested and the subjective noises subsided. Patients with otosclerosis should be urged to take a course in lip-reading before the hearing is entirely lost. The main point with otosclerosis is prophylaxis. It has a pronounced familial and hereditary tendency, and is liable to increase in severity during periods of special stress and more active bone growth, as at puberty and during a pregnancy. Derangement of the circulation, as with vasomotor neuroses, syphilis and arteriosclerosis, may also contribute. The physician should warn with special emphasis against the intermarriage of persons with a tendency to otosclerosis. They should guard against catching cold and should avoid cold douches on the head and keep away from the seashore. The question of preventing conception should also be considered, as pregnancy usually brings an aggravation of the trouble.

Medizinische Klinik, Berlin

May 10, X, No. 19, pp. 795-836

- 70 Diphtheria. (Postgraduate Lecture.) B. Bendix.
71 *Present Status of Paresis. (Die jüngsten Fortschritte auf dem Gebiete der Lehre von der progressiven Paralyse.) A. Pilcz.
72 Electric Treatment of Obesity. (Das Bergoniésche Entfettungsverfahren.) A. Fürstenberg.
73 Pregnancy Undisturbed by Abdominal Operations. (Toleranz des graviden Uterus.) A. Haymann.
74 Influence of Diuresis on Elimination of Salvarsan. (Ausscheidung des Salvarsans im Urin bei intravenöser Injektion konzentrierter wässriger und konzentrierter Serum-Salvarsanlösungen.) K. Kötter.
75 Salvarsan in General Practice. R. Lenzmann. Commenced in No. 18.
76 Influence of Radio-Active Substances on Immune Serums and Infected Animals. J. Kemen and F. Diehl.
77 *Reaction to Luetin is Specific for Syphilis; the Wassermann Reaction Not Specific. (Ueber Lues.) H. Much.

71. **Paresis.**—Pilcz regards progressive paralysis as more than an affection of the brain alone; the cerebral-nervous symptoms are merely one element in the syndrome. This has been established beyond question, he says, by the positive findings with the Abderhalden test in respect to kidney, heart, spleen and liver tissue in addition to brain tissue. The predisposition to paresis may lie in the individual or in the special strain of spirochetes or in climatic or other modifications of the spirochetes, or in all these factors combined; "paralyticus nascitur et fit." The assumption of an individual predisposition is sustained by the frequent observation that the persons who develop paresis had an unusually mild form of syphilis in its earlier stages, showing an inherent abnormal mode of reaction to the infection. Pilcz cites recent authorities who announce that paresis seems to be becoming more prevalent in tropical countries and Japan, and also cases of conjugal progressive paralysis and tabes are becoming more frequent everywhere. Further experience is confirming also the lack of any febrile affection after the syphilis was acquired, in the history of a long series of patients with paresis, while a history of some febrile infection was almost invariably encountered among their syphilitic mates who had escaped progressive paralysis. This is the basis of von Wagner's tuberculin-fever therapy in treatment and prophylaxis of paresis, and Pilcz reiterates that favorable reports on this are accumulating from Tamburini and Battistessa in Italy, Siebert and Glouschkoff in Russia, Hudovernig and Wachsmann in Hungary, and Meyer, Friedländer, Röper and Pilcz himself in Germany and

Austria. The fever therapy with staphylococcus vaccine, with nuclein or salvarsan might be usefully combined with the tuberculin-fever therapy. Nonne emphasizes the logical favorable action of the induced febrile reaction with its leukocytosis now that Noguchi has shown that the spirochetes in the brain lie in tissues which otherwise are almost entirely reactionless.

77. The Luetin and Wassermann Reactions as Guides to Treatment.—Much summarizes his conclusions from study of these reactions in syphilis in the statement that when it is a question of ascertaining whether the patient has ever had syphilis, the response to the luetin test is most instructive. But when it is a question of ascertaining whether the organism is still under the influence of the syphilis toxin, then the Wassermann test is more instructive. As a guide to treatment, the effort must be made to render the Wassermann negative, as this is a manifestation of destruction of tissue. On the other hand, the luetin reaction—as the expression of production of specific immune bodies—should be kept positive.

Mitteilungen aus den Grenzgeb. der Med. und Chir., Jena

XXVII, No. 5, pp. 807-933. Last indexed May 23, p. 1698

- 78 *Increased Resistance of Peritoneum to Infection in Treatment of Appendicitis. S. Solieri.
- 79 *Organic Basis for Epilepsy. (Beziehungen von organischen Veränderungen der Hirnrinde zur symptomatischen Epilepsie.) W. Denk.
- 80 Operations for Benign Stomach Disease; 128 Cases. (Zur Chirurgie der gutartigen Magenerkrankungen.) M. Krabbel and H. Keinitz.
- 81 Embolic Aneurism as Complication of Acute Endocarditis. O. Lindbom.

78. Enhanced Resistance of the Peritoneum in Acute Appendicitis.—Solieri was a pioneer in efforts artificially to increase the resisting powers of the peritoneum preliminary to operations and in treatment of acute infections. Various chemicals have been used to rally the phagocytes in the region, but his experimental work seems to have demonstrated that a sterile culture of the colon bacillus is by far the most efficient of all substances tested to date to accomplish this purpose. Preventive injection into the guinea-pig peritoneum enhanced twenty-fold its resisting powers against living and virulent cultures of the same species. On this basis he assumed that the colon bacillus toxin already in the peritoneum in acute appendicitis would answer the purpose of a preliminary treatment from without, attracting the phagocytes and generating agglutinins, and consequently that after excising the appendix the peritoneum can be left tranquilly unmolested from without, leaving the appendectomy incision completely sutured, without draining, when there is reason to assume the organism is capable of vigorous phagocyte action and agglutinin production. After removal of the disease focus in the appendix the peritoneum, under the influence of the colon bacillus toxin, finds its resisting powers so enhanced that it needs no further aid from without. In a series of 336 acute appendicitis operations he found only twenty-seven cases in which the conditions were favorable for this, namely, the patients were young and vigorous; they had had previous attacks of appendicitis testifying to abundant bacillus-toxin production; the delay before operation was not over twelve to forty-eight hours after the first symptoms; the blood showed pronounced leukocytosis and pronounced reaction to the Rivalta serum test; there was also considerable febrile reaction; the pulse was strong and regular; the urine showed that the kidneys were in good condition; there were no signs of other disease, and the appendix had not perforated and the reaction of the peritoneal serosa, as estimated during the operation, was regarded as adequate for the purpose. The details of the series are tabulated, all showing rapid and complete recovery and almost invariably by primary intention.

79. Connection between Organic Changes in the Brain Cortex and Symptomatic Epilepsy.—Denk gives an account of considerable experimental work on dogs and rabbits and analysis of 33 clinical cases of brain tumors, only 5 of

which were without epilepsy, and 28 cases of epilepsy with operation or necropsy findings in nearly all. All this material is sifted and compared, and certain common traits are thus rendered evident. Aseptic organic changes in the brain do not seem able of themselves to induce epilepsy. There is always some accessory factor in the cases in which the epilepsy develops. This may be an inherited predisposition; this alone is liable to be enough to start the epilepsy without any organic changes. Alcoholism is liable to be the subsidiary factor which, superposed on the organic changes, may bring on the epilepsy even in the not otherwise predisposed. Tumors, inflammation and mechanical irritation may bring it on with a natural predisposition. The cicatrix from an operation is liable to induce epilepsy when superposed on alcoholism or a predisposition, even in cases in which there had been no tendency to epilepsy before the operation on the brain. The above conclusions impose the necessity for an early operation without delay when internal measures have failed, seeking to forestall the development of extensive pathologic changes in the brain. Another practical conclusion is that it is immaterial what living material is selected to close defects in the skull and interpose between tissues; all are absorbed in time, whether dura, fascia or other living material is used. The favorable reports from plastic operations of the kind with dura are the result, Denk insists, of the buffer action of the interposed tissue as long as it persisted, the blood drawn during the operation and the manipulation of the cortex.

Münchener medizinische Wochenschrift

May 5, LXI, No. 18, pp. 969-1024

- 82 Small-Pox Infection and Vaccination as they Influence Each Other. (Pockeninfektion und Vakzination in ihrer gegenseitigen Beeinflussung.) C. Bäumler.
- 83 Intracutaneous Tuberculin Test on Guinea-Pigs More Instructive than Cutaneous. P. Esch.
- 84 Percutaneous Tuberculin Therapy. A. Kutschera.
- 85 Treatment of Paralysis of the Respiration by Intratracheal Insufflation of Oxygen. (Behandlung von Atemlähmungen mit Sauerstoffeinblasung in die Luftröhre.) E. Leschke.
- 86 Negative Effect of Vaccine Therapy on Developed Typhoid; Eight Cases. E. Allenbach.
- 87 Serodiagnosis of Pregnancy by Nitrogen in the Dialysate. (Zur quantitativen Ausführung der Abderhaldenschen Schwangerschaftsreaktion mittels der Stickstoffbestimmung im Dialysate.) W. Griesbach.
- 88 Serodiagnosis of Pulmonary Tuberculosis. (Das Abderhaldensche Dialysierverfahren bei Lungentuberkulose.) J. Gwerder and O. Melikjanz.
- 89 Commercial Vitamins. (Zur klinischen Bedeutung der Vitamine.) P. Hüsey.
- 90 In What Form Is Calcium Found in the Blood? (Kalk im Blute.) O. Loew.
- 91 Heart and Vessel Tonics May Be Effectual in Bronchial Catarrh. (Gefäß- und Herzmittel bei Bronchialkatarrh.) M. Saenger.
- 92 Tuberculous Processes at Pylorus and in Stomach Wall. H. Schlesinger.
- 93 Gamma Radium Rays Produced in Roentgen Tubes. F. Dessauer.
- 94 Elastic Rubber Ball for Pessary to Correct Prolapse. (Einfacher Retentions-Apparat bei Senkung und Vorfall des Uterus und der Scheidewande.) Doldi.

Therapeutische Monatshefte, Berlin

May, XXVIII, No. 5, pp. 309-388

- 95 *Systematic Restriction of Fluids in Treatment of Bronchiectasia and Chronic Bronchitis. G. Singer.
- 96 *Benzol in Myeloid Leukemia. N. D. Liberow.
- 97 Subcutaneous Injection of Calcium Lactate Helps to Cure Inflammatory Processes. E. Landsberg.
- 98 Corpus Luteum Extract in Treatment of Uterine Hemorrhage. E. Landsberg.
- 99 Scientific Cooking for the Sick. (Die diätetische Küche.) W. Sternberg.
- 100 *Treatment of Associated Gout and Diabetes. C. von Noorden.
- 101 Addition of 0.13 per cent. Salicylic Acid Alleged to Keep Emulsions for a Week. (Zu der Zersetzung von Emulsionen.) E. Apolant.
- 102 *Danger of Error from Similarity of Names of Certain Proprietarys. (Ähnlich klingende Arzneinamen.) W. Heubner.
- 103 *Lay Appreciation of German Commission on Pharmacy and Chemistry. (Die Arzneimittelskommission.) W. Heubner.

95. Treatment of Bronchiectasia and Chronic Bronchitis.—Singer is enthusiastic over the benefit derived in cases of this kind from reduction of the intake of fluids. The expectation decreased at once and with it the cough in cases of chronic bronchitis and purulent bronchiectasia. The

patients are given abundance of mixed food but the total amount of fluid in the twenty-four hours, in soups, beverages, etc., is restricted to 600 c.c. On the fourth day the patient is encouraged to drink at will, thus thoroughly flushing out the system. Then he is restricted anew in the intake of water, down to 400, 300, or 200 c.c. for the next three days. It is sometimes advantageous to give in the form of wine the quantum of fluid allowed.

Slices of lemon or orange also help to quench the thirst, and certain bonbons. The thirst may also be combated by a sedative taken into the stomach, but he was very seldom compelled to resort to these measures. When the patient once gets accustomed to the restriction he can keep it up for weeks without discomfort or harm; the interposed days of unlimited fluid intake twice a week keep the system washed out so there seems to be no danger of uremia, etc. Brauer and Hochhaus also report gratifying results. Singer has seven patients who have been completely cured for two years, and a number of others keep in clinical health by repeating the "thirst cure" for several weeks two or three times a year. No by-effects were ever observed. In the majority of cases the patients gain from 20 to 25 pounds in a few weeks as the drain from the sputum production stops. Certain forms of pulmonary tuberculosis accompanying the chronic bronchitis seem to be benefited along with the latter by the thirst cure. An unsuspected suppurative process in the maxillary antrum kept up the bronchitis in one case until it was discovered and cured after which the bronchitis rapidly subsided under the restriction of fluids. A syphilitic factor does not interfere with the treatment and the latter does not exclude application of superheated air and other measures, including calcium, and inhalation of oxygen to combat putrefaction bacteria.

He has found the "thirst cure" effectual also in a number of cases of asthma long rebellious to all other measures. He regards asthma as a manifestation of the constitutional tendency known as the exudative diathesis. The transudation of fluid into the bronchi is an important element in the clinical picture of asthma, and this element can be abolished by restricting the intake of fluids. His theory that the "thirst cure" modifies osmosis has been confirmed by his findings in six cases after intravenous injection of a hypertonic salt solution. This had the same only a much more intense effect than restriction of fluids. Even slight changes in the concentration of the body fluids and serum suffice to attenuate or arrest completely the paroxysmal or continuous flooding of the bronchi with fluid. When this is accomplished, he adds, there is no further asthma, bronchitis heals, and the suppuration in bronchiectasia ceases.

96. Benzol in Leukemia.—Liberow reports a case showing an unmistakable improvement under benzol but he warns that it should not be given except with constant oversight over the blood and urine. He did not give large doses, keeping usually at 2 or 1.5 gm. When the leukocytes had dropped to 13,000, he reduced the dose still more, so that there was no further decline of leukocytes and the reds rose and kept above 5,000,000, the hemoglobin at 62 per cent. The patient was a woman of 34 with extreme ascites, probably from pressure on the portal vein by a leukoma; as the latter subsided under the influence of the benzol the circulation grew better and the ascites disappeared.

100. Treatment of Associated Gout and Diabetes.—Von Noorden states that in his experience with 6,000 diabetics in the last twenty years he has encountered scarcely a dozen with actually severe gout. As a general thing, associated gout and diabetes are both in a mild form, but there seems to be a special liability to serious complications: cardiovascular or kidney disturbance, cataract, retrobulbar optic neuritis, neuralgia and neuritis. The two last are most common and severe. The physician is apt to regard these painful affections as the work of the gout, and consequently directs treatment at the gout, when in reality hyperglycemia is responsible for the neuralgia and neuritis in most cases. This is what should be combated; the gout can be disregarded; the main point is to put the patient on an anti-

diabetic diet. Under this the glycosuria rapidly subsides; the hyperglycemia persists much longer—longer under these conditions than otherwise. But rebellious and chronic neuralgia, especially sciatica, can be cured in this way in the course of a few weeks when previously all kinds of treatment had given only transient improvement at best. The manifestations of the gout and any kidney trouble improve on the antidiabetic diet; it may be advantageously supplemented by physical measures when the hyperglycemia has subsided. This cannot be anticipated until after four or five weeks. To keep the patient in good condition afterward, at least on one day a week he should refrain from purin and carbohydrate food and every second month should have a purin-free two-week period. If the gout and diabetes are both severe he advises a diet to combat each in turn for two weeks. In conclusion he warns that persons with both gout and diabetes are unable to tolerate colchicum preparations as a rule.

102. Possible Dangers from Confusion of Names of Proprieties.—Heubner remarks that manufacturing chemists seem to be running out of names for their productions, as so many of the new names are the same except for the change of a letter or two. Rabow, writing recently in the *Chemiker Zeitung*, comments that the handwriting of physicians is not always very distinct, and when medicines have closely similar names there is liable to be confusion. Heubner cites as examples "the laxative Darmol; the sedative, Dormal; the wood-preserving mixture, Dormial; the hypnotic Dormiol and the remedy Dormonal; the hypnotic, Chinoral; the internal antiseptic, Chinorol; the external antiseptic, Chino-sal, and the remedy Chineonal."

103. See Propaganda Department.

Wiener klinische Wochenschrift, Vienna

May 7, XXVII, No. 19, pp. 597-644

- 104 Experiments on Animals Fail to Sustain Mechanical Origin of Arteriosclerosis. H. Schmiedl.
- 105 Local Differences in Temperature of the Skin within Normal Range with Apical Affections. W. Heinz.
- 106 *Roentgen-Rays and Benzol in Leukemia. A. Pulawski.
- 107 *Treatment of Chronic Leg Ulcer with Radium Emanations. J. Saphier.
- 108 *Favorable Effect of Intravenous Injections of 10 per cent. Salt Solution to Arrest Hemoptysis. J. Moczulski.
- 109 Suggestions for Internal Equipment of Hospitals. M. Setz.

106. Treatment of Leukemia.—Pulawski's case of lymphatic leukemia emphasizes the importance of combining roentgenotherapy with benzol. His patient was a woman of 51 who for two years had had enlargement of lymph-nodes in various regions and an abdominal tumor. Her present complaints were of sacral pains and pain in the left abdomen, weakness and cough, with signs of mild kidney trouble and the blood findings typical of lymphatic leukemia. Under six Roentgen exposures in nine days the whites dropped from 425,600 to a third; this was followed with 50 gm. benzol in sixteen days and the whites dropped to 8,400. There was some fever during the last week or so of the benzol course. Then the Roentgen exposures were resumed, four being given in nineteen days. After suspension of the benzol the whites continued their decline, finally reaching 1,100 and then 2,600 by the end of the three months' course of treatment. The general condition has continued to improve as well as the blood-picture, the lymphocytes dropping from 90 to 41 per cent., the neutrophils climbing from 10 to 49 per cent. The lymph-nodes have returned to normal size and the spleen to a quarter of its first size. The anemia was quite pronounced when the benzol course was concluded, but improved under iron, arsenic, calcium glycerophosphate and cod liver oil.

107. Radium Emanations for Leg Ulcer.—Saphier states that in ten of twenty-one rebellious cases of old leg ulcer a complete cure was realized under a course of radium emanation treatment. Material benefit was realized also in six other cases. No effect was apparent in five.

108. Hypertonic Saline Infusion for Hemoptysis.—Moczulski states that in nine cases of hemorrhage from the lungs

the tendency to hemoptysis was favorably influenced by intravenous infusion of 10 c.c. of a 10 per cent. salt solution. The effect is not apparent at once and it does not protect against recurrence of the hemoptysis. No influence was apparent in purpura and other hemorrhagic affections.

Zentralblatt für Chirurgie, Leipsic

May 9, XLI, No. 19, pp. 801-840

- 110 Improved Technic for Resection of Lower Esophagus. (Witzel's Verfahren für die Resektion des Oesophagus im kardialen Abschnitt.) H. Schwes.

Zentralblatt für Gynäkologie, Leipsic

May 9, XXXVIII, No. 19, pp. 681-712

- 111 Hypophysis Extract to Stimulate Peristalsis after Operations. E. v. Konrad.
112 Coitus Interruptus as Cause for Ovarialgia. A. Herzfeld (New York).

Gazzetta degli Ospedali e delle Cliniche, Milan

XXXV, Nos. 50-54, pp. 521-576

- 113 *Action of High Frequency Currents on the Blood-Pressure in Connection with the Permeability of the Kidneys. M. Fontana.
114 Epigastric Hernia. N. Federici.
115 Cysts of the Spermatic Cord Originating in Connective Tissue. R. Mosti.

113. **Electric Currents and the Blood-Pressure.**—Fontana comments on the contradictory experiences related by different clinicians in respect to the action of the high frequency currents on the blood-pressure, some reporting considerable reduction in abnormally high pressures while others have observed nothing of the kind. He had similar contradictory experiences himself and he set out to discover the cause for this variability in the action of the currents. Analyzing forty-seven cases he found that the blood-pressure was constantly reduced when the kidneys were normally permeable, but that they failed in this influence when the kidney functioning was below par. The current causes slight dilatation of the vessels, and this in connection with the stimulation of metabolic processes which it induces, causes a throwing off of waste products through the kidneys if they are equal to this task. The result is a marked drop in the blood-pressure. The outcome therefore depends on the permeability of the kidneys.

Policlinico, Rome

April, XXI, Surgical Section No. 4, pp. 153-204

- 116 Blocking the Inferior Maxillary Nerve. (Nuova tecnica per le iniezioni neurolitiche nel tronco del nervo mascellare inferiore a livello del foro ovale.) F. Bonola.
117 Starch-Digesting Properties of Urine Unreliable Index of Kidney Functioning. (La determinazione amilolitica nelle urine come metodo di diagnosi della funzione renale.) E. Pirondini.
118 Echinococcus Cysts in Muscle or Kidney; Three Cases. L. Longo.

Riforma Medica, Naples

May 2, XXX, No. 18, pp. 476-504

- 119 Chronic Progressive Bone and Joint Disease. (Endocrinopatologia e patogenesi delle osteo-atropie croniche progressive.) R. Masalongo. Commenced in No. 17.

Brazil Medico, Rio de Janeiro

April 15, XXVIII, No. 15, pp. 143-152

- 120 Treatment of Ozena by Intravenous Injections of Tartar Emetic. G. Vianna.
121 Development of the Toxoplasma Canis in the Animal Body. (Toxoplasmoses. Evolução do toxoplasma canis no systema nervoso do pombo e as lesões por elle produzidas.) J. B. Arantes.
122 *The Liver in Chronic Malaria. (O figado no paludismo chronico.) C. Fraga.

122. **The Liver in Chronic Malaria.**—Fraga's extensive experience with chronic malaria has demonstrated that this disease has a tendency to spare the liver. True malarial disturbances in the liver are comparatively slight. The cirrhosis of the liver so often encountered in chronic malaria is due mainly to the same causes, alcoholism, etc., which induce it under other conditions. The anemia in chronic malaria is often due to helminthiasis which is particularly prevalent in the malaria zones. His functional tests applied to the liver in chronic malaria, including the alimentary lipemia or hemoconiae test, all revealed merely compara-

tively slight disturbance in liver functioning, curable by the ordinary measures.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

LVIII, No. 4, pp. 237-304

- 123 Chemotherapy of Cancers. C. Vermeulen.
124 *Familial Orthostatic Urobilinuria. F. A. Steensma.
No. 5, pp. 305-376

- 125 Fibrin as Factor in the Coagulation of the Blood. E. Hekma.
126 Fatal Electric Accidents. (Iets over den electrischen dood.) D. Brocx.

No. 6, pp. 377-460

- 127 Congenital Megacolon. (Ziekte van Hirschsprung.) A. E. Sitsen.
128 Epidemic Poliomyelitis in the Netherlands. F. H. van Loon.
129 Collapse after Injection of Pituitrin. A ten Doesschate.

No. 7, pp. 461-528

- 130 Unreliability of the Urobilinogen Reaction with Ehrlich's Aldehyd Reagent. F. A. Steensma.
131 Advantages of Returning to Work at once after Clinical Recovery from Accidents to Ward off Traumatic Neuroses. J. A. Korteweg.
132 *Complications Liable with Reduction of Congenital Dislocation of the Hip Joint. P. Redard.
133 Anthropologic Research on Island Near Sumatra. J. P. K. de Zwaan.
134 *Prevalence of Tuberculosis among the Elderly with Bronchitis. J. Sanders.

124. **Familial Orthostatic Urobilinuria.**—Steensma gives a family chart through five generations with sixteen members who have orthostatic urobilinuria: that is, there is urobilin in the day urine and not in the night urine. Somewhat similar findings were encountered in a second family. He thinks that there must be a family tendency in these cases for the ductus venosus not to become impervious as under normal conditions. The patent duct would permit some of the blood from the intestines to get into the blood stream without passing through the liver.

132. **Tardy Complications after Reduction of Congenital Hip Joint Disease.**—Redard refers to the development of ostitis or osteomalacia in the joint after apparently successful reduction of congenital dislocation. Five, eight or ten years later a tendency to coxa vara may become apparent, with more or less atrophy and deformity of the head and upper end of the femur. The ossification centers probably were injured to start with. Such cases teach the necessity for keeping patients long under supervision and not to have the immobilizing appliance worn too long, not over six months at most.

134. **Tubercle Bacilli in Apparently Non-Tuberculous Elderly Persons.**—Sanders examined the sputum of all the inmates over 60 years old of a Rotterdam hospital who were apparently free from tuberculosis but had signs of chronic bronchitis. He obtained sputum in thirty-nine cases and found tubercle bacilli in them in nine. This shows that the apparently harmless bronchitis of the elderly may be an unsuspected source for infection of others.

Hospitalstidende, Copenhagen

May 13, LVII, No. 19, pp. 577-608

- 135 Technic for Determination of Nitrogen in the Urine. (Klinisk Metode til Kvælstofbestemmelse i Urin.) M. Krogh.
136 Improved Technic for Determination of Alveolar Carbon-Dioxide Tension. (En klinisk Metode til bestemmelse af Kulsyrespændingen i Lungeluften.) L. S. Fridericia.

Norsk Magazin for Lægevidenskaben, Christiania

May, LXXV, No. 5, pp. 505-648

- 137 History of Medicine and Medical Profession in Norway, 1814-1914. (Hundreårets utvikling av Norges lægevæsen og lægevidenskap.) F. G. Gade.
138 Congenital Diverticula in Intestines and Their Consequences: Two Cases. N. A. Nicolaysen.
139 Transposition of the Viscera. (Utebleven rotation av colon. Coecum mobile. Ileus.) R. Ingelbrigtzen.
140 Improvement under Benzol in Case of Myeloid Leukemia. N. B. Koppang.
141 Salvarsanized Serum in Treatment of Syphilis of the Nervous System. G. H. Monrad-Krohn.

Ugeskrift for Læger, Copenhagen

May 7, LXXVI, No. 19, pp. 839-910

- 142 Dietetics in Hospital Treatment. (Dietbehandling paa Hospitaler.) V. Scheel.

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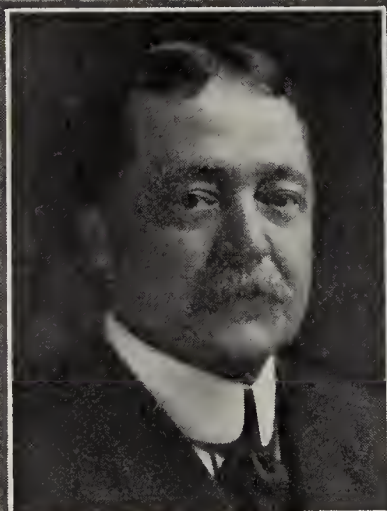
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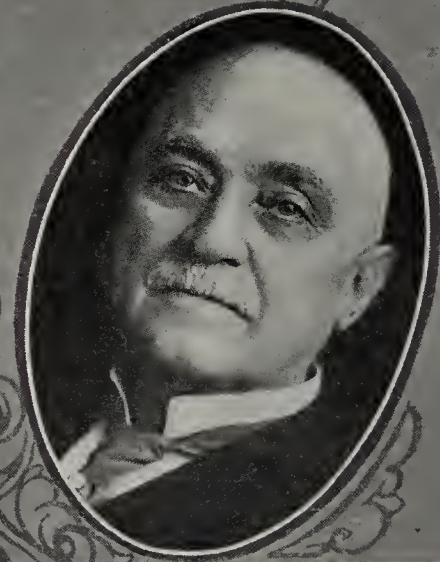
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HOOKWORM DISEASE

ITS RAVAGES, PREVENTION AND CURE *

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WASHINGTON, D. C.

Hookworm in sections in which it prevails is one of the most common, most insidiously harmful, and most easily prevented diseases known to man. It causes human suffering and economic waste altogether out of proportion to its apparent death-rate. Many ills which have been attributed to mental and moral weakness of whole bodies of people are now definitely known to be due to this infection, and curable with its cure. Its eradication is one of the most important and pressing problems before the people of the southern half of the United States and of other semitropical and tropical lands. Moreover, the progress which has been made in recent years completely demonstrates at once the vast benefit, in terms both of human happiness and of industrial efficiency, attendant on stamping out of the disease, and also the complete adequacy, in stamping it out, of perfectly simple precautions prescribed by the primary rules of health and even of common decency.

WHERE HOOKWORM DISEASE IS FOUND

Hookworm disease is found more or less prevalent in the entire zone lying within 30 degrees north and 30 degrees south of the equator, or in practically all the tropical and semitropical countries, in which are more than half the people of the globe. In many of these countries this anemia-producing infection is extremely prevalent, in a severe form. In Porto Rico and the low-lying districts of Colombia, and in many of the sugar plantations of Ceylon and Dutch Guiana, for example, infection was found to involve 90 per cent. of the entire population. Since 1904 more than 300,000 persons have been treated for hookworm disease in Porto Rico, with the result that, whereas in 1900 and 1901 the deaths from anemia numbered 11,875, or 33.2 per cent. of the total deaths in the island, and in 1902 and 1903, after some treatment for hookworm, 6,830; they had fallen in 1904 and 1905 to 4,693, and continued to decrease until they were in 1906 and 1907 only 1,134, and in 1907 and 1908, 1,785. The majority of Porto Ricans, long noted for laziness and shiftlessness because of this anemia, are now

known to have been the victims of a specific infectious disease; the wholesale treatment of which is revolutionizing the island, and bringing health and prosperity where almost universal misery and poverty reigned.

In the United States, the disease is found throughout the states south of the Potomac and Ohio rivers, in Arkansas, Missouri, Oklahoma, and Texas, and also in California. Its prevalence and severity vary widely within the state and even in a county, in some localities less than 1 per cent. of the people being infected, and in others more than 90 per cent. Generally speaking, the heaviest infection is found on the light, sandy soil of the coastal plains, the lightest infection on the stiff, clay soil of the Piedmont region, and an intermediate infection among the foothills and mountains. It is peculiarly a disease of the agricultural districts, which goes far to explain the long-puzzling lack of physical and intellectual vigor to be noted among large classes of people in what ought to be one of the healthiest and most prosperous sections of the country (Figs. 1, 2 and 3). Examination of more than 415,000 school children during the four years 1910-1913 in 413 counties of the eleven Southern states has revealed 43 per cent. of them infected. Of more than 700,000 persons of all ages taken at random in the same territory, 35 per cent. were found to be suffering from this disease, and in a vast majority of cases were completely cured.

When individual treatment has been accompanied by simple sanitary reforms to prevent reinfection, most noteworthy benefits have been derived by entire communities. For example, in the camps of the Continental Coal Corporation, at Pineville, Ky., where 1,800 men were on the company's pay-rolls, in June, 1911, about 65 per cent. were infected with hookworm, there were about 150 cases of typhoid, and cases of bowel complaint were numerous. Soil pollution through lack of sanitary water-closets was practically universal, the water-supply was contaminated, and flies had free range. Measures were taken to eradicate the hookworm by providing sanitary closets, which stopped soil pollution and prevented flies from carrying the infection back into the houses, and the water supply was also safeguarded. As a result, in the year following, the same force of men loaded over 33 per cent. more coal on the cars than they did in the year before. Also there was not a single case of typhoid in the camps during the summer of 1912, and cases of diarrhea were reduced to about one-half.

HOW THE HOOKWORM AFFECTS ITS VICTIMS

For generations hookworm disease has been insidiously spreading unrecognized and unchecked over the countries of the globe having a mild climate. Its victims, numbering many millions, have through centu-

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ries, no doubt, been hosts to the small blood-sucking intestinal parasite which causes the disease. Their strength has been sapped, their vitality lowered, their physical and intellectual growth stunted. They have been mastered in war, commerce and industry by the more hearty people of colder latitudes to the north. The social and economical importance of the disease is therefore almost beyond comprehension. The infection is in most instances so insidiously acquired by the unsuspecting victim that he and the members of his family, who are probably likewise being infected, do not know just when the effects of the disease began to manifest themselves. In the course of a few summers, however, a once healthy family has become pale and puny; a once industrious family has become languid and backward in its work; a once prosperous family has fallen into debt; a once proud family, owning valuable property, has been reduced by an easily

that he found scores of infected men there who could pick only from 100 to 250 measures a day, and the manager of one of the great haciendas, or plantations, told him that the disease had reduced the average efficiency of labor on the coffee estates to from 35 to 50 per cent. of normal. One of the largest cocoa plantations in Ecuador reports that 300 laborers on the place were so reduced by the anemias of hookworm and malaria as to be able to do not more than one-third of a reasonable day's work. The manager of a large British Guinea sugar estate reports that treatment for hookworm has doubled the working power of the gangs. A single California mine employing over 300 men is estimated to have lost 20 per cent. of the wages paid, or \$20,000 a year, because it had to carry on the pay-roll a large body of men to replace those periodically unable to work because of hookworm anemia. In the South Atlantic and Gulf states the infection is



Fig. 1.—Effects of hookworm disease: *A*. Small boy is H. M. of Heber Springs, Ark., called “Chalky” from the extreme pallor of his face. “Chalky” is 18 years old, weighs 82 pounds, and uses chewing-tobacco, snuff and profane language. He is uncle of the larger boy, is two months older and 50 pounds lighter than his nephew, who is not infected. *B*. Three heavily infected children, aged 13, 9 and 7 years, of Wise County, Va. The boy was treated for consumption. Twenty grains of thymol brought 234 hookworms, a dwarf tapeworm and almost complete recovery. *C*. Boy, I. S., of Stokes County, N. C., severely infected. Note the “angel wings” shoulder-blades and the “pot-belly,” characteristic symptoms.

curable and easily preventable disease to tenancy and to poverty. The children, once bright and well advanced in their school classes, begin to lose their zeal and their mental alertness when gradually robbed of their vitality. They fall behind in the struggle with their healthier classmates, and, finally discouraged and perhaps abused, give up school work in despair.

GREAT ECONOMIC LOSS DUE TO THE HOOKWORM

This is no exaggerated picture of the harm wrought by the disease. The economic loss already stated in the case of the Kentucky coal-miners is to be found wherever the disease prevails. The physically sound coffee-picker in Porto Rico picks from 500 to 600 measures of coffee a day. Dr. Wickliffe Rose reports

heavier than in California, and the loss on the farms and in the cotton factories is enormous. The weavers in the Southern mills are not naturally inferior to the European immigrants who operate the New England looms. Their labor is less efficient in some instances because vast numbers of them are victims of the hookworm. The Southern farms are not lacking in fertility, nor are their owners, whose fathers fought under Lee and Jackson, lacking in sterling virtues; but thousands of men and women with the best blood of the land in their veins are made improvident and slothful by this infection, and the hundreds of cases in which these supposed faults of character have been reformed by hookworm treatment prove beyond question the enormous moral and economic cost of the disease.

GROWTH OF CHILDREN RETARDED

Hookworm retards the development of children to a remarkable degree. School and college records show that infected students, even though not apparently ill, average lower in their studies than those found free from infection. In one woman's college the average standing of fifty-six girls found infected was 77.75 per cent., whereas fifty-six girls taken at random from those in the institution found free from infection averaged 89.28 per cent. Similarly in an academy, a group of twenty-five infected men and boys averaged 64 per cent., and a non-infected group beside them averaged 86 per cent. Teachers in all parts of the South report marked improvement in zeal and intelligence, as well as in weight and physical appearance of children immediately on being freed from the parasites. One case from the field director of the hookworm campaign in Prentiss County, Miss., may be given as fairly typical of the experience of physicians in this work.

"A young man that we treated furnished us the best recommendation that we could have had. He came to the office about the third week looking as if he had an advanced case of tuberculosis, and with a cough that appeared serious. He was such a picture of dejection, misery and lost hope, that he attracted the attention of the whole courthouse crowd and many of them watched eagerly to see the results of the examination. One man asked me after he left, if I could cure him, and I replied that we would do our best. This man then kindly stated that he thought that I was doing the boy an actual wrong by holding out hope, as it was his belief that the boy would die in a very short time. This boy was instructed to return every week for his treatment until informed that he was cured. He did; and it was a standing request by the courthouse officials that they be called each week as W. L. came in, so that they could see for themselves whether he was improving or not. On his first trip, one week later, he came in, and there was evidence of much improvement. He came in with a smile, showing more interest in things around, telling jokes to fellows in the office, when just one week before he had stood listless without a word to any one except to answer 'yes' or 'no' when a question was put to him. He informed us that on this trip, although he had taken his medicine only a week ago, he was feeling a great deal better; and when placed on the scales, I found that he had gained a number of pounds in weight. He was given three treatments, one week apart, and after waiting two weeks following the third treatment, he was found free from infection, and weighed 18 pounds more than he did previous to the first treatment. On the day that he first appeared at the dispensary he could hardly walk, and the last time that I saw him he started with another boy to walk 7 miles to his home."

THE PENALTY OF IGNORANCE AND NEGLECT

Such facts, of which hundreds of the same import might be cited, show the heavy price which the people of the South have been paying in loss of money, health and intellectual power, for ignorance and carelessness concerning a disease which is easily diagnosed, easily

cured and easily prevented. It is due solely to neglect of sanitation which permits the eggs of the small intestinal worms which pass with the excreta from the bowels of infected persons to find lodgment on the soil, and then hatch into infective larvae ready to carry the disease to some other human being or reinforce the infection of the original victims.

There is no other disease perhaps which is so well understood in every detail, and which can be so satisfactorily explained to a layman. Nor is there any other widely prevalent disease against which the lay community can so readily and surely protect itself by simple precautions. Its conquest virtually resolves itself into a problem of education against soil pollution.

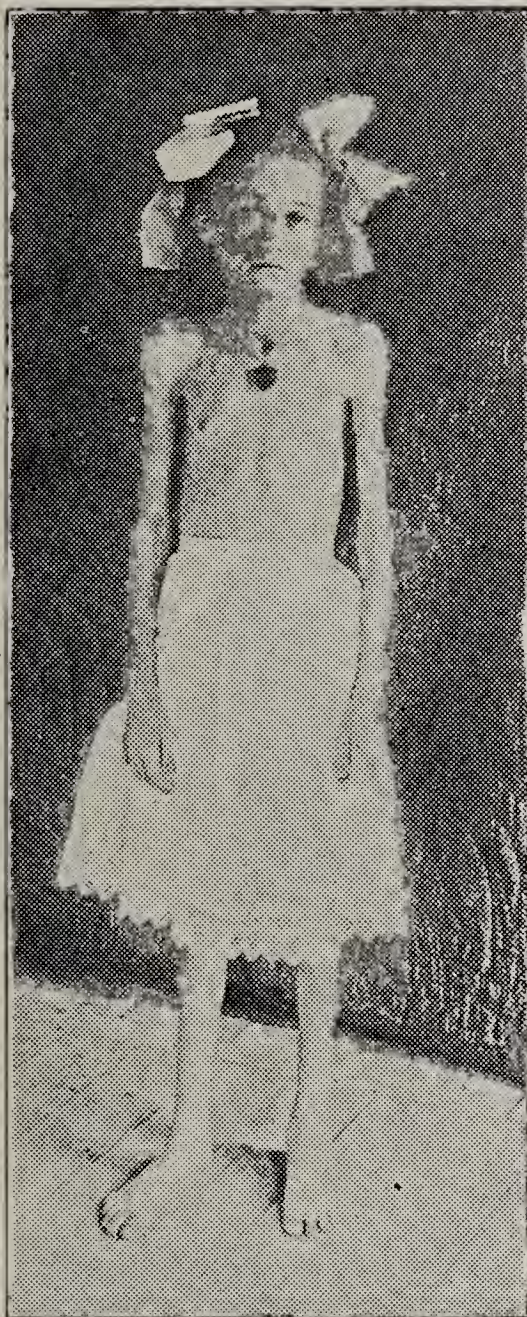


Fig. 2.—D. C. of Grant County, Ark., aged 16, practically an invalid from childhood, has been treated for malaria and tuberculosis. She was found heavily infected with hookworms and was given treatment.



Fig. 3.—D. C. as she is to-day.

The largest possible public therefore should be brought to know in detail the history of hookworm disease; the distribution and life cycle of the parasite causing it; its symptoms, method of cure, and, most important of all, means of absolute prevention.

HOW HOOKWORM DISEASE WAS FOUND

Hookworm disease is not new. It is only newly understood. The symptoms of the disease were described in the records of the Egyptian Empire, but its cause was not known. The hookworm itself was discovered in 1838 by Dr. Angelo Dubini, an Italian,

who while making a necropsy found the small white worm with its head buried in the membrane of the small intestine; but that this worm had anything to do with anemia was not suggested. When, however, in 1877, Grassi, another Italian physician, identified the eggs of this worm in the feces of anemic patients, it was suspected that the parasite was the cause of the disease. About the same time, Dr. Colomiatti, studying an obscure disease which had caused the death of many workmen on the St. Gothard Tunnel, discovered in the intestine of one of the tunnel victims more than fifteen hundred hookworms. This parasite, known as the Old World hookworm and named *Ankylostoma duodenale*, was carefully studied, its responsibility for certain types of anemia in Southern Europe demonstrated, and successful treatment for the disease developed.

The prevalence of hookworm disease in the New World was not recognized till much later. Nov. 24, 1899, Major Bailey K. Ashford of the United States Army Medical Corps, while treating anemia supposedly due to starvation caused by the hurricane in Porto Rico, identified the hookworm as the real cause of the wide-spread disease. He, however, supposed the parasite found by him to be the Old World type. In 1902 Dr. C. W. Stiles of the United States Public Health Service, having found the same disease in the Southern States, identified its cause as a different species of worm, now known as the New World type, or *Necator americanus*. It was then discovered that the worm found in Porto Rico was of this species.

Subsequent discovery of the same worm as the cause of anemia among the victims of the African lowlands suggests that the so-called New World type was brought to Porto Rico and the Southern states by the slave trade. This form also prevails in India, and has been carried to Jamaica, Trinidad and British Guiana by the Hindoo coolies brought there as laborers. The disease caused by one or the other of the two types of hookworm is now known in practically all tropical or semitropical countries, but all the worms look alike to everybody except the expert zoologists; they produce practically the same symptoms; substantially the same treatment is effective with all, and they can all be prevented by the same means.

HOW THE HOOKWORM LIVES AND WORKS

The hookworm in adult life is a small, round intestinal parasite about $\frac{1}{3}$ inch in length, and about the size of No. 30 sewing thread. As a type it is found to infect man and numerous animals, such as the dog, the fox and the cow; but the particular species infecting man have not been found in animals, nor those of the lower animals in man. Only the type infecting man will be discussed here.

The life of the hookworm is made up of two periods. During the first period the worms are microscopic in size and live in the soil. It is in the soil that they hatch from microscopic eggs (Fig. 4) which were deposited there with the excrement from some person having hookworm disease. Neither the eggs nor the larval worms hatching from the eggs can be seen with the unaided eye. These minute worms will live for perhaps ten or twelve months under favorable conditions of warmth and moisture; but they cannot develop beyond this point unless they gain entrance into the body of some human being and find their way into the intestinal canal, usually the upper por-

tion of the small intestine. The drying heat of the sun and the freezing weather of winter are destructive both of the development of the hookworm eggs and to the life of the larvae. For this reason the disease is rare in deserts and in countries having protracted cold weather. A porous, sandy loam soil, having reasonable shade, affords the most favored habitat for the hookworm larvae. Though in stiff clay soil conditions are much less favorable to these little worms, we often find that enough of them have lived and entered into the second period of their life's existence to cause heavy infection.

The second period of the hookworm's life is spent within the body of a human being. The great majority of the worms never reach this stage in their development. In fact, many of the eggs never hatch. Yet when we stop to consider that in some localities 90 per cent. of the people are severely infected, and that each infected person will daily cast off with the excreta from one to four million eggs on the soil, we can appreciate that even with this loss it will be almost impossible for one to escape infection in a section where wastes from the human body are not properly disposed of.

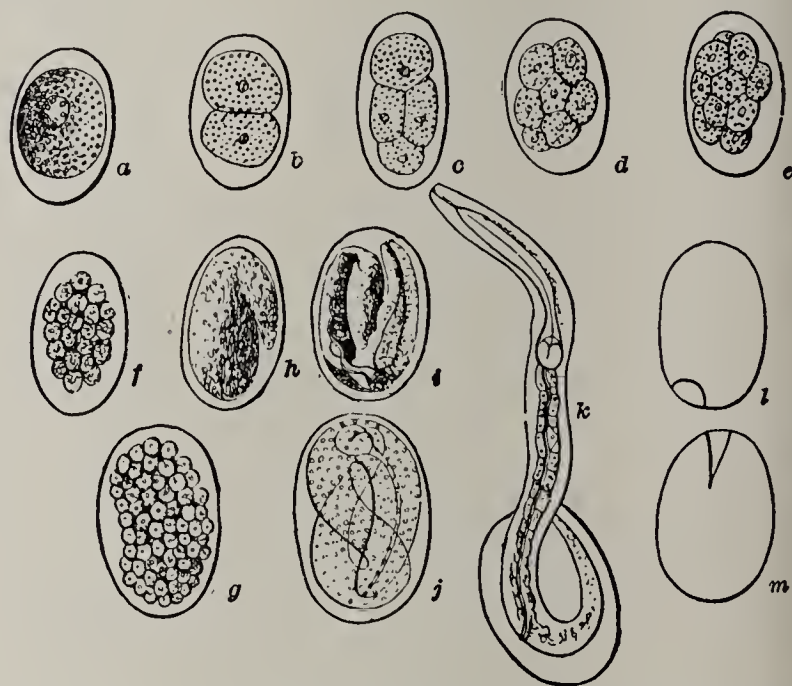


Fig. 4.—Development of Old-World hookworm: a-g, changes occurring in egg preparatory to developing of little worm; h-k, stages of the worm's development until it emerges from the egg-shell; l, m, empty egg-shells; greatly enlarged. (After Peroncito. Courtesy of C. V. Mosby Publishing Company.)

With these facts before us we at once want to know how these invisible filth-borne pests find their way to our small intestines. The answer may be a short story, but generally it is a long one.

It may be short because the little worms may cling to food which is swallowed by the unsuspecting victim. They may be carried on soiled hands; or, perhaps more frequently, may be swallowed along with uncooked foods, such as strawberries, plums, celery and lettuce, grown in or left to lie on ground polluted by human excreta.

Though some infection is thus taken through the mouth, the most of it is acquired through the skin in a very interesting way. In brief, this is the story of the hookworm's most common progress: Within a week of the hatching of the larvae they molt and shed their skin twice. They are protected by the second sheath, and are very tough. In this stage they possess the wonderful ability to burrow (Fig. 5) in a few minutes through the skin and to enter the tiny blood capillaries, where, carried along by the blood-

current, they make a long journey through the body to the heart and to the lungs. In the lungs the blood-vessels are too small to permit them to pass through, so they begin to burrow again, and soon find themselves in the air-spaces of the lungs. Crawling along these they reach the wind-pipe and then the throat. Once there the worms are swallowed with saliva and food, and thus by this long journey find their way to the intestine, where they fasten on its walls and begin their blood-sucking.

One would think that the hookworms would have great difficulty in penetrating the skin and the blood-vessels in the lung, yet they do it. The fact can be easily demonstrated by experiment. If the polluted soil in which the larvae are known to be is moistened and applied to the skin, the point at which they enter will become inflamed and an eruption will appear, which is commonly known to the barefoot boys and girls as "ground-itch." Moreover, by the end of eight weeks, examination and treatment will show the person to be harboring adult hookworms, even though it may have been demonstrated that he was not infected up to the time he was brought in contact with the polluted soil. It should be remembered that the presence of "ground-itch" or "dew-itch," even though the skin may heal quickly, usually means that hookworms have entered the body and are beginning to rob the victim of his blood and vitality.

The second period in the life history of the hookworms begins with their entrance into the intestinal canal. There the male and female worms, after molting twice again, develop to adult life. From five to eight weeks is usually required for their growth. When grown they may usually be seen with the unaided eye. At this stage they fasten on the wall of the intestine, live for many years, and do the harm to be described next. Besides this the females deposit thousands of eggs, which, being mixed with the excreta, pass out on the ground to spread the disease.

Now that we have followed the complete life cycle of the parasites, let us study the disease caused by the adult worm in the intestine.

THE EFFECTS OF HOOKWORM DISEASE

When we consider that several hundred hookworms may live in the intestine at one time, and that they may live there for from six to ten years—sapping the blood, wounding the intestine, and poisoning the body—it is not strange that the body becomes diseased. The blood is needed to collect oxygen in the lungs and the food from the intestine, and distribute them over the body. In the disease much blood is lost. Some of it is taken into the bodies of the worms, and a great deal more is lost by bleeding from the small wounds made by the worms. In severe cases of the disease, the blood is reduced to one-fourth or one-sixth of what it should be. In such cases we find the victim's normal color replaced by a pale, sallow complexion; the lips are pale; the mucous surfaces generally are pale, and the skin is of a pale, yellowish hue. The eyes are listless, the pupils dilated and not very responsive to light; often they present a blank stare, fish-like in character. The hair is dry and scant, especially in the armpits. The face and the ankles are often swollen, anemic ulcers frequently appear on the legs, and the abdomen is prominent, giving rise to the term "pot-belly." The chest is flat, and the shoulder blades stand out prominently, suggesting "angel wings." When the disease occurs during the growing period there is a marked

retardation in development; that is to say, a boy or girl may not be developed at 18 beyond what would be expected of one at 13 or 14 years of age. The appetite is often perverted, so that the sufferer has a craving for a particular kind of food, and often for certain substances not foods. For example, victims of the disease frequently crave clay, and for this reason are termed "dirt-eaters." Again, coffee-grounds or salt may be the substance desired.

The intestinal wall is considerably damaged by the worms, and becomes tender to pressure over the pit of the stomach. Where the worms bite, raw surfaces are left, so that it is easy for any germs, such as may cause typhoid fever or tuberculosis, to get into the body and set up a disease more violent in character, and more frequently fatal, than hookworm disease. There may be severe headaches, lassitude, dizziness and inability to sleep. The heart is poorly nourished by the impoverished blood, yet it is called on to do the work necessary to keep the body supplied with oxygen from the lungs and food from the digestive

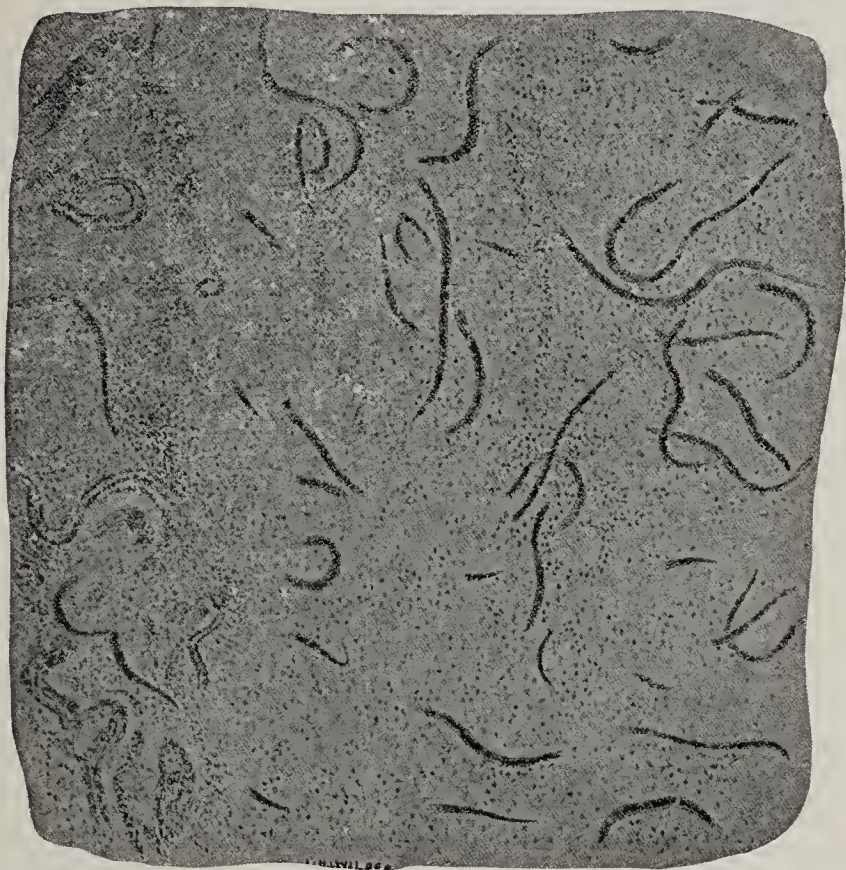


Fig. 5.—Slice of skin as seen under the microscope. Note how the younger hookworms are crawling through the skin. This is how "ground-itch" or "dew-itch" looks. (U. S. P. H. Service.)

tract. As a result, the heart's action becomes labored, so that hookworm disease is frequently mistaken for heart-disease or Bright's disease. Most of these cases can easily be cured by getting rid of hookworms.

It must not be inferred that every person who is infected with hookworms suffers with all the symptoms mentioned. Much of the infection is so mild that the presence of the disease might not be suspected. In cases of medium severity one or more of the symptoms will be present, but the existence of the disease cannot be confirmed until the eggs of the worms are demonstrated in the excreta by microscopic examination.

The disease, however, even in very mild cases, is a menace for two reasons: First, any infection exerts a handicapping influence on the victim. This has been shown among students who, though mildly infected, were underdeveloped in size and were backward in their studies; and, being below the standard, they were more subject to other diseases. Second, the persons mildly infected are carriers and distributors of the

hookworm eggs, and may become responsible for the disease in a severer form in themselves and in other persons.

HOW HOOKWORM DISEASE SPREADS

We have seen how each of the female hookworms living in the intestines deposits hundreds—often from twelve to fifteen hundred—of eggs daily; that these eggs do not hatch while they remain in the bowel, but after they have passed out on the soil, where there is moisture and warmth—but not too much—they hatch into larvae. Both the eggs and larvae are too small to be seen with the naked eye. The larvae remain invisible in size unless they can get into the intestine, which they may reach by being swallowed with food or by entering the skin, usually of the feet, there producing “ground-itch” or “dew-itch,” and then making a long journey through the body until the intestine is reached.

When infected persons go from place to place they spread the infection. It is thought that the negro slaves brought the disease to America from the West Coast of Africa. Likewise, the disease may be carried from one community to another. Suppose we have a school district at A where there is no infection, and the people are healthy and thrifty; and from this community the son and daughter of Mr. Jones visit the Smiths in the distant community of B, where 75 per cent. of the residents have hookworm disease, and the soil is teeming with the larvae; that is to say, there is heavy soil pollution. Neither the Smith nor the Jones family pays much attention to the use of privies; indeed, there is much doubt if either has one; for out of 189,586 rural homes in the Southern states inspected by the Rockefeller Sanitary Commission, 95,988 were found to have no privies at all and 87,156 to have open privies which allowed wastes to spread freely through the soil. The sun is warm, and the Jones children go barefooted and contract “ground-itch.” They eat strawberries and plums which have been on the ground. By the time their visit is over they have become infected with grown hookworms. Returning, they begin to pollute the soil at their home. The other members of the Jones family get the infection, and by the end of the summer they are all becoming pale and puny. The district school at A opens. The Jones children, though not in their usual health, go to school. The school has been equipped with many of the modern conveniences, but has not been provided with privies. The need of them was not really felt. The boys concealed themselves in woods and undergrowth to the east, and the girls to the west of the schoolhouse. The Jones children, not knowing they have a disease, of course, do not know they are spreading one when they use the common hiding-grounds. In ignorance of the disease and in ignorance of sanitation, which the school should be teaching in a practical way, the soil around the school becomes heavily polluted, and a center for spreading the disease from one family to another. Soon the community has hookworm disease. Sometimes every pupil in a school gets it. The people become sick, backward, lazy, poverty-stricken and “trifling”; no one seems to suspect when, how or why “hard times” overtook the community. Had there been sanitary privies in use by all the people of the district, the disease would have been limited to the two Jones children, and their infection would have been mild. This is so, because when

the hookworm eggs are collected in a sanitary privy they never reach the soil where, by hatching into larvae, they can do the harm.

HOW THE DISEASE IS RECOGNIZED

Hookworm disease is recognized with certainty in two ways. If it is suspected from the clinical symptoms already described, the treatment, which is very simple and inexpensive, may be given. If the disease exists, the worms which cause it will be poisoned and dislodged by the medicine, and may be found in the stools. By washing the stools through one or two thicknesses of cheese-cloth, the worms will be left on the cloth, and may be seen and collected with ease.

The second method is the one commonly employed. Nearly a million persons have been examined in eleven Southern states by its use during the last four years. A small portion of the bowel movement is spread out thinly in water on a glass slide, and placed under a microscope. If the hookworm eggs, which are very characteristic in shape and size, are found, it is known that the hookworms are in the bowel, and that treatment for their removal should be taken. Hundreds of the best people, men, women and children in the South are seeking examination by this method, and are putting aside all squeamishness in the determination to rid themselves and their communities of this pest.

HOW HOOKWORM DISEASE IS PREVENTED

There are two ways to get rid of hookworm disease: one is to prevent it, the other to cure it. Unfortunately as a people we are slow to apply preventive measures against disease. This means that we have too much disease, and, of course, that we rely too much on treatment. Preventive measures against hookworm disease are very simple. All that is necessary is to have the excreta of every person collected and disposed of in a way which will keep the hookworm eggs from developing. If this should be done in every case the hookworms, not multiplying in the intestine, would die in a few years of old age and the disease would become extinct.

Until this can be accomplished much infection can be prevented by wearing shoes. The barefoot boy is a great gatherer of hookworms. But the really effective protection from the disease is to be found in clean soil. That can be secured when sanitary privies are constructed and regularly used by all the people. Even if those persons now infected should refuse treatment, but could be induced or required to use sanitary privies, the country would in a few years be freed from the disease.

The common pollution of the ground about schools and farmyards must be stopped. The tumble-down shack and surface privy which allow their contents to be spread over the soil, by rains, hogs and chickens or carried by flies to the houses, must be abolished, and replaced everywhere by the sanitary privy, the essentials of which are that it have a water-tight, fly-screened receptacle, and that the contents be disposed of in a sanitary way, by burning, fermenting, or burying away from and below the water-supply. Human excrement should not be used as a fertilizer unless thoroughly treated under competent direction; otherwise it may carry hookworms to fruit and vegetables.

An inexpensive privy which can be easily provided for the most simple farm or cottage has water-tight pails, tightly closed in, close-fitted door, and all openings covered with wire mesh to exclude flies

Many communities are already putting in such privies, and there is a growing movement for placing them in every rural schoolyard of the South as a protection against hookworm, typhoid and other diseases.

All plans for privies approaching the ideal thus far presented seem to be too expensive or otherwise impractical. The feeling is growing that some practical arrangement should be recommended, even though from the point of view of the idealist it is not without danger. We know that trains, automobiles and elevators are dangerous to a degree, yet no one would be so foolish as to advise that we avoid the use of these conveniences of civilization until the element of danger is absolutely eliminated. Working on this principle, sanitarians are now recommending as a minimum for a privy, first that a hole be dug in the ground; second, that a substantial box with a hole in the bottom be turned upside down over the hole in the ground and dirt banked around the lower edge of the box; third,

per on the evening before the thymol is to be administered. As early at night as is convenient he should take a dose of Epsom salt. The next morning as early as the salt has acted, half the number of capsules of thymol prescribed for the whole treatment should be taken. Two hours later the remaining capsules should be taken. Two hours after the second dose of thymol, another dose of Epsom salt should be taken, which will expel the hookworms that have been forced to loosen their hold on the intestinal wall by the action of the thymol, and will also get rid of the excess of thymol before it has had time to produce any harmful effects on the patient. Nothing should be eaten on the day the capsules are taken until the final dose of Epsom salt has acted well. A little water or strong coffee, *without* milk, should alone be allowed.

As alcohol and oils dissolve thymol, making it actively poisonous to the patient, the use of them in any form would be exceedingly dangerous. Gravy,



Fig. 6.—Tennessee family, all infected. All were cured with thymol. They had spent \$1,500 for patent medicines.

that the hole in the box be covered when not in use; fourth, that the box be moved from time to time and the pit filled up with dirt. This privy may be built out in the bushes or it may be within expensively constructed walls. For all practical purposes an arrangement of this kind will eliminate hookworm eggs as a source of danger, and so long as it is fly-proof it will guard against the spread of typhoid fever by flies. If located a reasonable distance from the spring, or well, and below it, the danger of pollution is negligible, except perhaps in certain areas where the formation is largely limestone.

HOW HOOKWORM DISEASE IS CURED

Hookworm disease is usually treated with Epsom salts, and with powdered thymol given in capsules. The object of the Epsom salts is to free the intestine from mucus or other substances surrounding the hookworms and protecting them from the action of the thymol. The patient should take little or no sup-

butter, milk, all alcoholic drinks and patent medicines, which generally contain alcohol, should be forbidden on the evening before and on the day of the treatment. Moreover, as many hookworm patients have dilated stomachs which do not readily empty themselves and it is important that the thymol reach the small intestine at once, the patient should lie on the right side for at least half an hour after taking each dose of thymol.

| DOSE OF THYMOL | | | | |
|---------------------|--------|-------|---------|---------|
| Age, Years | Grains | Grams | 6 a. m. | 8 a. m. |
| 1 to 5..... | 7.5 | .5 | ½ dose | ½ dose |
| 5 to 10..... | 15. | 1. | ½ dose | ½ dose |
| 10 to 15..... | 30. | 2. | ½ dose | ½ dose |
| 15 to 20..... | 45. | 3. | ½ dose | ½ dose |
| 20 to 60..... | 60. | 4. | ½ dose | ½ dose |
| 60 and upward | 45. | 3. | ½ dose | ½ dose |

The dose of thymol varies with the age of the patient. As the disease retards development and per-

sons 18 years old often have only the normal growth of 13, apparent and not actual age determines the dose. A competent physician, of course, should supervise the treatment. The accepted scale of doses is shown by the accompanying table.

The thymol is powdered and given in capsules. If sugar of milk is added grain for grain, the thymol operates better.

In a majority of cases two treatments like the one just described will expel all the worms. In 1,518 out of 3,630 patients treated in Porto Rico, a single treatment effected a cure; a second treatment was sufficient in 1,166 cases; 518 required a third; 247 a fourth; 104 a fifth; 47 a sixth, and so on until the last case was freed from hookworms by the eleventh treatment. Frequently the worms not killed by the thymol are sickened to a degree that they do not deposit any eggs for approximately two weeks. By a microscopic examination, made two weeks or longer after the last treatment, it is possible to know when all of the worms are destroyed, and the treatment completed. When a microscopic examination is not possible, the feces expelled by each treatment can be examined for hookworms in the manner already described. When no more worms are seen, one extra treatment for good measure should be given.

INDUCED PNEUMOTHORAX *

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The rational basis of induced pneumothorax as a treatment for certain pulmonary diseases is the fact that clinicians have noted for many years that consumptives are often relieved and sometimes cured by the spontaneous occurrence of hydrothorax or pneumothorax. Such observations have been recorded to a considerable number, both by old and by modern observers, including Bach, Goodhart, Hall, Jochman, Pepper, Webber, West, Osler, Hamman and Sloan. The presence of even pus in the pleura — empyema — is no longer considered *per se* an indication for surgical interference. Indeed, Murphy and other surgeons counsel delay in such cases until the underlying disease of the lung has had an opportunity to profit by the rest incident to its collapse. I myself have noted the excellent results that follow delayed operation in empyema complicating tuberculosis of the lungs. In the treatment of joint tuberculosis nothing is regarded as more essential than rest; indeed, in many cases fixation alone is sufficient to procure healing. The value of rest is not a whit less important in pulmonary tuberculosis. Once this principle has been grasped, the treatment of pulmonary tuberculosis by securing organ rest through mechanical measures appears quite rational. It remains only to determine by which mechanical means this object shall be obtained.

Various mechanical methods have been devised. Several styles of roller bandages, usually designed to compress one-half of the thorax by using the opposite shoulder for counterpressure, have been offered, but have never gained wide acceptance. Adhesive straps have also been employed and are to-day the accepted method of fixation of the chest wall in fractures of the ribs and in acute pleurisy. Plaster casts, cumber-

some as they are, have been fashioned, and even a curious spring clip similar in conception to the ordinary paper clip, has been tentatively offered by an Englishman, to restrict movement of half the thorax. These methods are all open to both theoretical and practical objections, and therefore have gained but little recognition. Such tinkering devices were soon cast aside as inadequate in the presence of so serious a disease as consumption, and attention was concentrated on massive surgical operations. Suffice it here to say that they are not generally resorted to as efficient cures for pulmonary tuberculosis. Their object has been either the removal of diseased tissue, a task surrounded by unusual difficulties, or fixation of the lung.

More recently attention has been directed to fixation of the lung by another method — the introduction of gases or fluids into the pleural space. On account of the well-known physical law that gases exert their pressure in all directions equally, gases have been employed almost to the exclusion of fluids.

HISTORY OF THE PROCEDURE

The first record of such a procedure is attributed to James Carson, an English physiologist, who in 1821, while experimenting on lung elasticity, inflated the pleural sac of animals and foretold the value of induced pneumothorax in the treatment of pulmonary diseases, especially tuberculosis, but did not apply it clinically. In 1882, Forlanini of Pavia, Italy, reported a number of spontaneous cures by intercurrent pneumothorax, and advised that pneumothorax be induced artificially. In 1887, Adams reported a case of hemoptysis controlled by spontaneous pneumothorax, and advised its artificial induction. In 1892, Forlanini actually began to employ artificial pneumothorax; he made his first report in 1894. By 1895 he was able to offer a cure of well-advanced pulmonary tuberculosis by this method. Meanwhile, and without knowledge of Forlanini's work, Murphy of Chicago devised and applied the same treatment in five cases, in all of which he reported improvement in 1898. In the same year Schell reported a case of hemoptysis controlled by induced pneumothorax. Murphy, being a surgeon, and not desiring to be led into the field of internal medicine, turned his work over to Lempke, who reported fifty-three cases in 1889. About seven years ago Brauer made his first report, and since then has added much to the literature.

Since the publications referred to above, a number of tuberculosis workers on the Continent, in England, and more recently in America, have adopted the procedure. The principal credit of demonstrating the value of induced pneumothorax belongs to Murphy and Forlanini, although Brauer's work did more to popularize the method.

APPARATUS

While various forms of apparatus have been devised for introducing gas into the pleura, the simplest, and I think the best, are modeled after Murphy's original form. I shall therefore present such an apparatus, which is the form I have constantly used. Figure 1 represents two graduated bottles *W* and *N*, connected by tubing so that water flows from the upper to the lower, displacing gas from the latter, and forcing it through the tubing and needle into the pleural sac. The accessories are a cotton filter, *F*, for the gas, and

* Read before the meeting of the California State Medical Association, April 15, 1914.

manometer, *M*, for recording intrathoracic pressures. A three-way stopcock, *C*, permits one to connect the patient at will with the manometer or with the gas container, *N*. In the tube leading from *C* to the manometer, is inserted the capillary device, or link, for controlling oscillations.

GAS

Various gases have been tested out. Unverricht found experimentally that when air is injected into a bag, the oxygen content is absorbed first, then the carbon dioxide and last the nitrogen. Not only is nitrogen slowly absorbed, but it is also inert and non-irritating, and therefore well suited to pneumothorax. My work has all been done with nitrogen, sterilized by being passed through red-hot tubes, washed and warmed immediately before use by being placed in a container which has been filled with hot mercuric chlorid solution, and filtered through cotton just before passing through the needle.

NEEDLES

In many cases some difficulty is met in getting the tip of the needle into the pleural sac, which before inflation is of course not a cavity, because the two pleurae cling together both by virtue of the vacuum in the sac, and by capillary attraction. The adhesion is such that even when the parietal pleura is cut, the lung does not immediately collapse. The layers still cling together even in the presence of atmospheric pressure. It is readily understood, therefore, that a dull instrument is more serviceable for finding the sac, as it is more likely to push the visceral pleura before than to penetrate into the lung.

Manual dexterity and experience are here of great value. The experienced hand judges by the feeling of the tissue the needle is penetrating. An educated tactile sense distinguishes with considerable certainty the feeling due to passage through the fascia, the resistance of the pleura and the feeling when the needle is embedded in the lung.

After the sac has once been inflated, subsequent punctures are easily made with a sharp needle, provided the gas has not been absorbed. It is injection of the empty sac that is difficult. A form of dull needle that has been serviceable in my hands is the Bauer needle modified by Floyd (*B*, Fig. 1). It has the advantages of an attached obturator for clearing the way, and a separate branch for the tube leading to the controller. Although the dull needle has its advantages, experience makes it easy to find the sac with a sharp needle. In my inflations, numbering over 614, I have used a sharp needle far oftener, even for first inflations.

MANOMETER

The heart of the apparatus is the manometer. When properly observed and followed, the readings of this instrument render the operation safe from accident. It serves two main purposes: when the needle has been introduced properly so that its lumen lies in the sac, the manometer announces the fact by free oscillations and a sustained negative pressure. To proceed without this information is to invite disaster. The second purpose served by the manometer is to indicate intrathoracic pressures, thus serving as the indicator and guide during the operation.

The manometer (*M*, Fig. 1) consists simply of a glass U-tube graduated in centimeters and filled with a

fluid, usually water. Thoracic pressures are transmitted through the tube *X* (Fig. 1), and depress or suck up the fluid according to whether the pressure is positive or negative. Inasmuch as the patient continues to breathe, the pressure varies constantly, and therefore the columns of fluid are in constant oscillation. Inasmuch as not all operators are reading the manometer the same way, it may not be amiss to refer to this point.¹ Physics made clear long ago that pressure is measured by the column of fluid supported. Now the column supported is that portion of the longer column above the shorter. But as the columns are oscillating, one may record the maximum length of the column or its minimum length. But what is better than either,

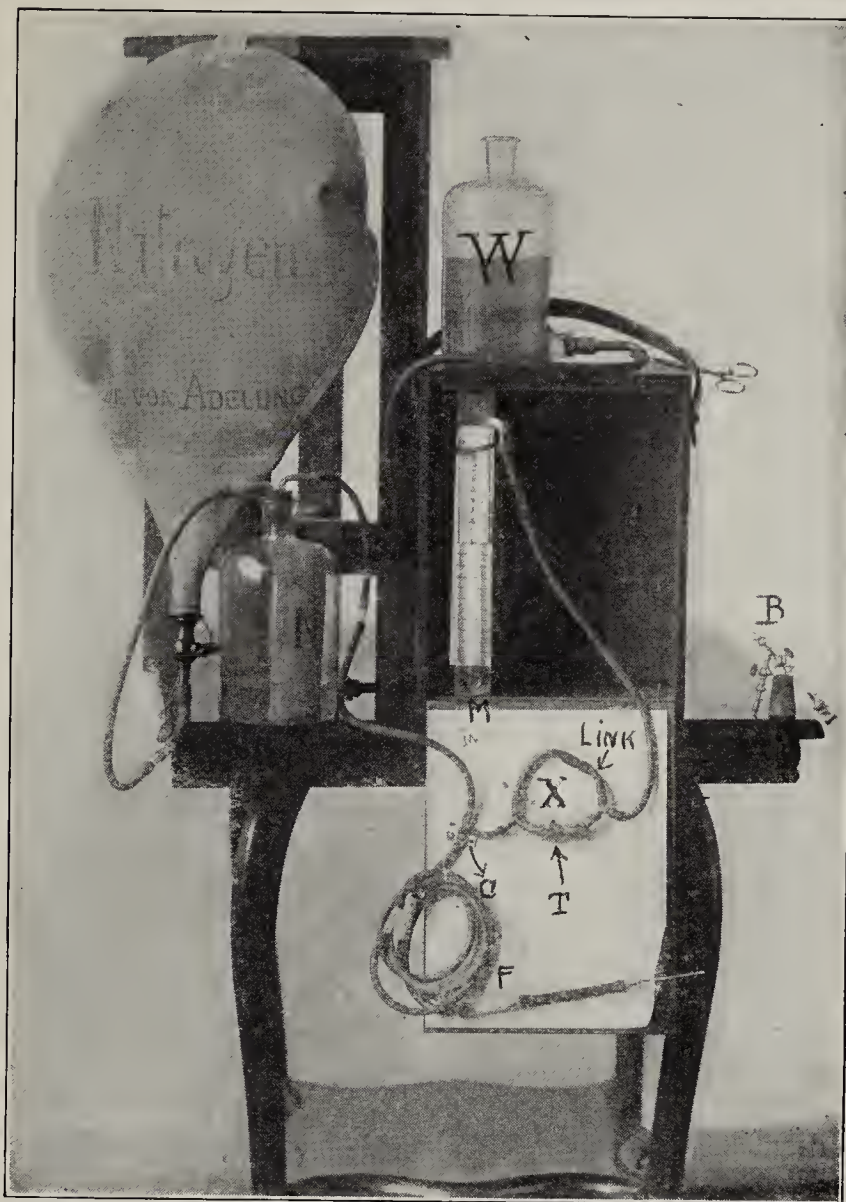


Fig. 1.—Portable apparatus; *W*, water-bottle; *N*, nitrogen bottle; *M*, Manometer; *c*, three-way stop-cock; *F*, filter; *B*, Floyd needle; *X*, tube leading from *c* to *M*, divided into two portions, on one of which is inserted the "link," the other branch furnished with a pinch-cock, *T*. The whole apparatus except the bag of gas is carried in the small box.

because it varies less, is the mean pressure. To secure uniformity and simplicity, it is here suggested that mean pressures be the figures recorded.

Fortunately, by employing a simple attachment,² shown in Figure 2, mean pressures can be read directly, that is, free from oscillations. Thus a positive-reading manometer for mean pressures is readily available. The attachment consists of a capillary tube fixed in a larger tube (for protection) or any similar device that forces registration through a minute opening, *C*. This device is placed in one limb of the divided tube leading to the manometer (Fig. 1). When the rubber tube, *T*, is pinched off, forcing all pressures to reach the

1. Von Adelung, Edward: Interstate Med. Jour., 1913, xx, No. 11.
2. Von Adelung, Edward: The Pneumothorax Manometer, THE JOURNAL A. M. A., Sept. 6, 1913, p. 771.

manometer through the link, mean pressures will be recorded with no oscillations. But, as all workers know, the oscillations are necessary for several purposes, and are indispensable to prove the position of the needle—to show when it is in the pleural sac. If the tube, *T*, is left open, oscillations occur as usual. Thus both uses of the manometer are readily available.

The advantages of this link are (1) ease of reading; (2) uniformity of records; (3) protection of manometer against overflow when patients cough, and (4) greater accuracy, inasmuch as the mean pressure varies less than either maximum or minimum, namely, than either the expiratory or inspiratory pressures.

When the language of the manometer has been mastered the following information is available from its readings:³

1. When the needle is in the pleural space, a negative mean pressure with free oscillations is recorded.
2. When the needle is in the air-space of the lung, free oscillations occur that are equally above and below the zero point.
3. It indicates the size of the pleural space; a free pleura requires many hundred cubic centimeters of gas before the pressure becomes positive. If a few hundred cubic centimeters of gas produce a positive pressure, it indicates a small pleural space.
4. If the needle is embedded in adhesions or if it is extrapleural, no oscillations will occur.
5. The readings indicate the absorptive power of the pleura by the amount of gas that must be injected to regain the terminal pressure of the previous inflation.
6. It indicates the degree of elasticity of the compressed lung: during subsequent filling, if the pressure rises very gradually on introducing 100 c.c. at a time it indicates that the lung had expanded with the diminished pleural pressure. Had the lung remained collapsed, there would have been but slight rise of pressure until after considerable gas had been refilled.
7. A slow increase in pressure with wide oscillations indicates an elastic mediastinum, while the reverse indicates a rigid mediastinum.
8. Rarely, the rupture of adhesions during inflation is indicated by sudden fall of pressure, or still more rarely, rupture of the lung or of the mediastinum.
9. Occasionally, reversed oscillations occur—that is, a higher pressure with inspiration than with expiration. This is due to paradoxical diaphragm movements.
10. If, when the patient takes a deep breath or coughs, the column is moved several degrees but fails to oscillate, it is an almost certain sign that the apparatus is obstructed—usually in the needle.

TECHNIC

As far as the operation is concerned, the main difficulty is the entry of the empty pleural sac, which is frequently obliterated by adhesive pleurisy. And even if it is patent and normal, it is a mere line between two serous layers in apposition. Two procedures are recognized: (1) the Brauer, or open method, which consists of exposing the parietal pleura by incision,

and dissection, and the introduction of a catheter between the two pleurae, under guidance of the operator's eye, and (2) the Forlanini method, or blind operation, which consists simply of passing a hollow needle through the chest wall into the pleural sac, the operator being guided by the sense of touch and the manometer.

American operators prefer the Forlanini method. I have not used the Brauer incision, though I have no doubt that it might succeed when the puncture method fails. The objections to it are that it consumes time and requires incision, dissection, suturing, careful asepsis and dressings. Furthermore, it is more likely than is the blind method to be followed by subcutaneous emphysema. Finally, more patients object to cutting than to the needle.

In contrast, Forlanini's puncture is simple, safe in careful hands and successful in nearly an equal number of cases. If an adherent pleura is encountered, subsequent attempts in new sites means simply painless needle-punctures instead of incision operations. No dressing is needed after the puncture, and less fear is engendered than by the knife.

AUTHOR'S TECHNIC

Information gained from roentgenoscopy, from physical signs and from the patient's statement which side was first affected, guides me in selecting the worse side for operation. The patient usually lies down. The exact site is chosen by finding a place that is resonant, yields breath-sounds and is away from important organs. It is impossible, however, to foretell the presence of adhesions. The chosen spot is sterilized with tincture of iodine, and then a few drops of novocain in epinephrin are slowly injected, first intracutaneously, then subcutaneously, intramuscularly and finally into the pleura. If the dull needle is to be used, the skin is first punctured with a sharp instrument. If the pleura already contains gas, a sharp,

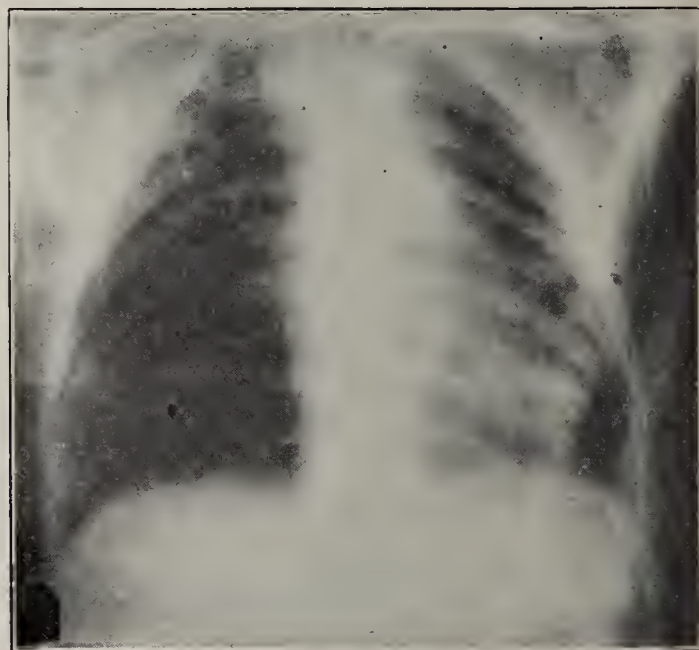


Fig. 3.—Case 553, W. Before treatment.

short aspirating needle, with obturator, is pushed directly into the pleural sac. If, however, it is a first injection, I use either a Floyd needle, or preferably the sharp needle, pushing it very slowly through the skin, muscles, fascia and finally through the parietal pleura, judging of its location largely by tactile sense, but always depending on the manometer. When the manometer records a negative mean pressure with free



Fig. 2.—Capillary opening in small tube sealed into larger tube.

3. Adapted from Hamman and Sloan: Johns Hopkins Hosp. Bull., 1913, xxiv, No. 264.

oscillations I know that the needle is properly placed. After noting the initial mean pressure, I inject gas slowly to a variable amount, usually not more than 200 or 300 c.c.

The terminal mean pressure is then recorded and the needle withdrawn. Should it happen that too much gas is introduced, the removal of the surplus is a very

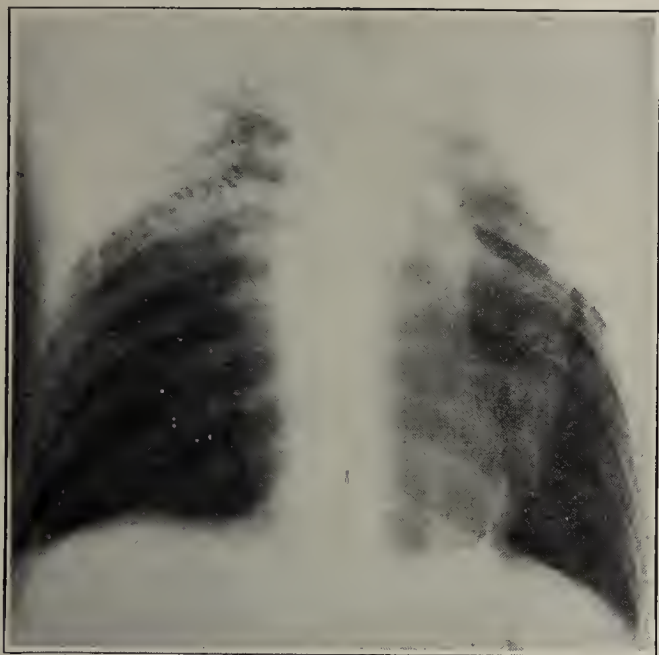


Fig. 4.—Case 517, W. Adhesions allow only small pneumothorax, yet good results followed.

simple matter, requiring only that one reverse the position of the bottles (*W* and *N*, Fig. 1). No dressing is applied. As soon as the needle has been properly placed, the manometer becomes the guide and is consulted frequently during the introduction of the gas. Injections are repeated as frequently as needed, depending on the rapidity of absorption, every two or three days up to once a month, the object being to maintain collapse of the lung. At first the intrapleural negative pressure, usually from 2 to 10 cm. water, is reduced to 3 or 5 cm. negative mean pressure. Only after several treatments is a neutral or a positive pressure produced, thus allowing time for thoracic organs to accommodate themselves to the new pressure and to their inevitable displacement, and to allow the other lung to prepare to compensate.

When a positive mean pressure has been attained, I take the second roentgenogram as a record, to indicate the size and shape of the pneumothorax. Other roentgenograms are taken when needed for information. The lung is kept collapsed for many months — a year, or even longer in some cases. Brauer fixes the period from one to two years, but says that he has seen good results in six months. Improvement, however, is not infrequently sets in shortly after the beginning of treatment. When the treatment is discontinued, the lung usually expands and functionates again as well as the fibrosis of the healed parts can be expected to follow.

In some bilateral cases, after compressing one side for several months, I have allowed the lung to expand, and have then treated the opposite lung in the same way. Recently, in a few desperate cases of bilateral infection, I have done a partial inflation of the two sides *simultaneously*, the result thus far being apparently beneficial.

PATHOLOGY

The pathologic changes found after continued compression of the lung indicate the value of the pro-

cedure. According to Forlanini, Saugman, Graetz, Warnecke and Kistler, the most striking changes resulting from compression are the following: There is marked fibrous formation and no evidence of advancing disease; old caseous areas are surrounded by dense fibrous tissue; the alveolar epithelium is transformed into the cuboidal or columnar type; the lymphatics are dilated and richly pigmented, a condition indicating marked stasis in the lymphatics; the circulation of blood is likewise altered. In spite of long-standing atelectasis, the alveolar walls, though pressed together, do not adhere. That the process in the other lung may also be arrested, although doing the work of two, is vouched for by nearly all observers — Hamman and Floyd, Brauer, Spengler, Forlanini and many others.

The immediate results of pneumothorax are often unfavorable: the cough increases, the sputum augments, the toxemia increases as evidenced by rise in temperature and pulse, dyspnea grows worse, and the patient loses in weight and appetite. After a few weeks, however, the benefits become apparent. The collapse of the lung has secured physiologic rest, and the walls of cavities are approximated, thus aiding their healing and abolishing hemorrhages. The lung contents — air, pus, secretions and detritus, with their rich bacterial flora — are mechanically expelled, reducing or abolishing cough and sputum; the lymphatics and blood-vessels are compressed, inhibiting the spread of the infective germs and of their toxins, often rendering the sputum clear of tubercle bacilli and elastic fibers, reducing or abolishing fever and sweats, and permitting the appetite to return, the weight to increase, the pulse to drop to normal, cyanosis to disappear and the opsonic index to rise. The opposite lung enlarges to compensate for the defunctionated lung area, and in favorable cases general clinical improvement follows, as expressed by a sense of well-being, and increased weight, strength and energy.

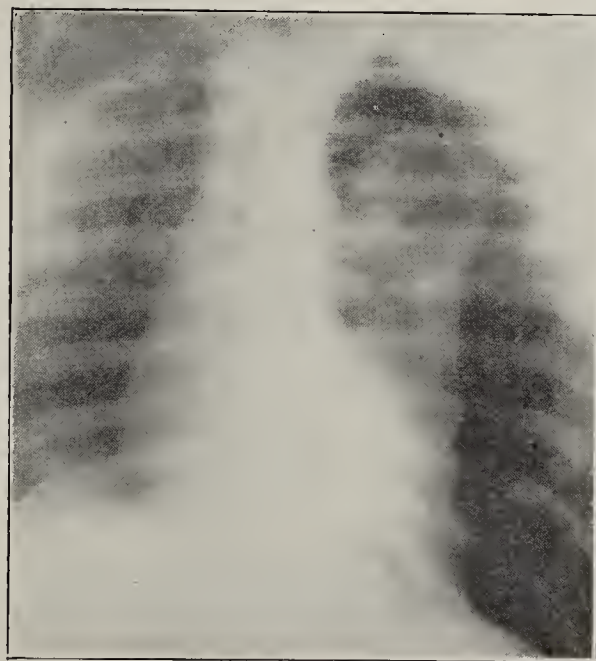


Fig. 5.—Case 523, Ch. Incomplete left pneumothorax; large cavity; diaphragm adhesion; fibrosed upper lung; result excellent.

ACCIDENTS

I have now to refer to some accidents that may befall in artificial pneumothorax, and to indicate how they are to be avoided. Pain from the needle can be entirely avoided by careful local anesthesia as previously described; but pain occurring during or after an injection, probably because of tension on pleuritic

adhesions or to displacement of organs, is often unavoidable. It is rarely of long duration, and is best minimized by gradual attainment of the desired pressure.

Subcutaneous emphysema results from inducing considerable positive pressure, or from coughing, straining, etc., and is due to leakage from the pleura back through the puncture into the tissues. It is more common after the Brauer incision than after the Forlanini puncture, but will ensue after either if much positive pressure is induced. Strapping a hard pad over the puncture will often prevent the return of gas. Digital pressure continued for from ten to thirty minutes is entirely successful. A spring pad like a hernia truss is useful. When subcutaneous emphysema invades the neck and face, it becomes distressing, but is never a danger.

Bleeding from the opposite lung, in bilateral cases, due probably to compensatory stretching of the lung, is usually regarded as a rare accident. It occurred in two of my cases.

Puncture of the lung is to be avoided, though it commonly causes no difficulty. It is easily conceivable

but untoward symptoms have been attributed to this anatomic cause. Distress from this cause is to be avoided by inducing the complete compression gradually, so as to allow the organs time to adjust themselves to new conditions, and also by avoiding high pressures. In my experience a positive mean pressure of over 5 c.c. is likely to cause some disturbance in bilateral cases. Higher pressures are liable to cause subcutaneous emphysema and distress.

Dyspnea is liable to appear in all cases after the early inflations; it is not usually serious, and is always slight with low pressures. It is rapidly relieved by absorption of gas, and later by compensatory functioning of the opposite lung, or by adjustment of the circulatory organs. It is noteworthy that dyspnea need not follow an inflation until an hour or more later. Its appearance is frequently delayed and often manifest only during exertion. In certain unsuitable cases, or when high pressures are used, dyspnea may become an important complication. The interesting question of the least lung capacity compatible with life has been investigated by Le Play and Mantoux, who report that whereas Courmont destroyed, surgically, three quarters of the lungs of animals without death, they were able, by induced pneumothorax, to render atelectatic all but one-sixth of the lungs of a dog without killing him. The physiologic adjustment of the lungs is possible therefore within wide limits.

PLEURAL REFLEX AND GAS EMBOLISM

There now remain to be discussed two accidents, the most important of all; pleural reflex and gas embolism. All authorities mention these as the most dangerous of the accidents. Fortunately, only a few deaths have been reported. Forlanini reported 1,454 inflations with four pleural reflexes, only one of which was serious. In another series of 500 inflations there were three fatalities. Saugman reported 970 with no pleural reflexes; this he attributed to avoidance of high pressures. The distinction between the two accidents is not clear. Some authors hold that pleural reflex is nothing but air embolism. The usual post-mortem examination fails to show air in the blood-vessels, even when it is known to have entered. So Brauer resorted to an examination of the brain under water, by which expedient he demonstrated bubbles in the blood-vessels. Clinically, pleural reflex and gas embolism yield the same syndrome: fainting, pallor, convulsions and perhaps temporary or permanent paralysis (usually hemiplegia) and occasionally death. Indeed, while Forlanini regards "pleural reflex" or "pleural shock" or "pleural eclampsia" as a distinct entity, and though animal experimentation is said to confirm the possibility of such a reflex syndrome, still Sampson and Brauer attribute the syndrome to air embolism in all cases, and declare that it is entirely avoided by the open method of operating. Saugman states that gas embolism does not occur unless the amount of gas introduced into the blood exceeds 20 or 30 c.c. In over 614 injections, I have not yet had such an accident, though I have seen the syndrome in a dog. There are four principal ways to avoid this serious accident:

1. A preliminary hypodermic injection of morphin is recommended as a preventive, but is objectionable for obvious reasons.

2. The Brauer incision, which enables the operator to see where the instrument delivers the gas, is urged as a preventive.

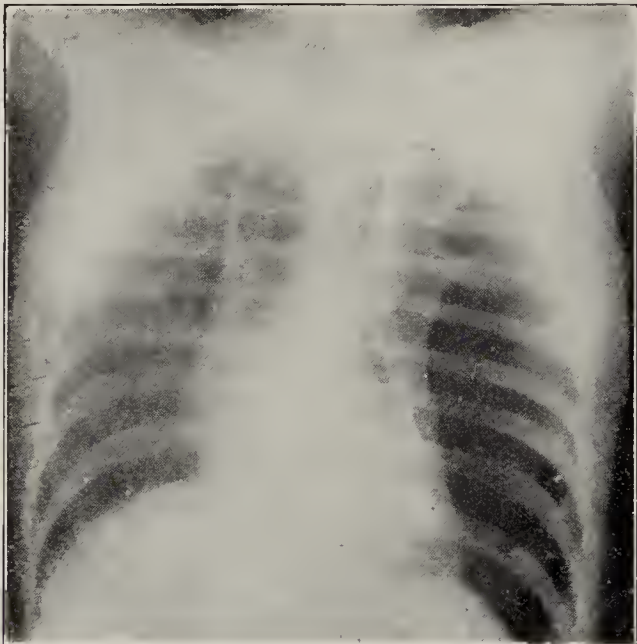


Fig. 6.—Case 508, O. Almost complete left pneumothorax; adhesions at apex, diaphragm and third rib; result excellent.

that the pleura might be infected by wounding the diseased lung, but most observers do not find that serious results follow this accident. Hamman and Sloan state that "simple puncture of the lung with an aspirating needle, even when the lung is diseased, is associated with little danger." My experience leads me to believe that lung wounds from punctures are rarely followed by more than temporary pleuritic pain, or by bloody sputum.

But the pleura can doubtless be infected by an unclean needle or other surgical septic error. No operator can afford to neglect strict asepsis in this operation, especially as it is stated that 50 per cent. of pneumothorax cases develop pleuritic effusion. I think this figure may be too high. In a series of forty-two cases with 614 punctures, I encountered a pleuritic effusion consequent to pneumothorax only six times. Effusions are nearly always reabsorbed after a time, and are not a hindrance to lung healing.

Displacement of the heart and aorta and mediastinum naturally occurs to some degree with inflation of one pleural sac. In most cases no distress results,

3. Saugman and some others aspirate before turning on the gas to see whether or not the needle is in a blood-vessel.

4. It has also been recommended that one first inject saline solution or oxygen until satisfied that the needle is not in a blood-vessel. My conviction is that air embolism and real pleural reflex, such as results experimentally from the injection of irritating fluids into the sac, are both to be avoided by using warm, moist nitrogen, careful local anesthesia of the pleura and proper observation of the manometer. Not until the latter records free oscillations with persistent negative mean pressure can one feel sure that gas may be introduced safely, unless one is using the open method.

INDICATIONS AND CONTRA-INDICATIONS

If one seeks a consensus of opinion on the cases which are appropriate for induced pneumothorax, he will soon see that a great difference of opinion prevails. Practically all observers agree that we have in pneumothorax an excellent means of controlling hemoptysis. In the few cases of hemoptysis that I have treated by this method, the result has been immediate success.

The presence of fever, even high, is not a contra-indication for induced pneumothorax. On the contrary, the temperature frequently drops under this treatment with surprising promptness.

The presence of fluid in the sac must be regarded as Nature's effort tending toward the same end as pneumothorax, namely, to secure lung rest, and is therefore to be removed only when symptoms demand intervention. On the other hand, a small effusion may be augmented by adding gas, thus inducing more complete lung rest.

Pleuritic adhesions, if extensive, constitute a mechanical barrier of a serious kind. Extensive adhesions prevent lung collapse and render pneumothorax impossible. If only partial, they may sometimes be broken down by gas pressure, carefully applied, or perhaps sufficient free pleura may exist to allow of a therapeutic result.

All writers agree that laryngeal tuberculosis is not a bar to the treatment. The larynx usually improves as the lung improves, but tuberculous infection of the bowels is a grave complication. Nevertheless, some report improvement even in these cases.

If the patient is already dyspneic, pneumothorax is *a priori* irrational, unless the dyspnea is attributable to the toxin and not to the limited lung area. Generally, such cases are unfavorable.

Miliary tuberculosis is regarded as a contra-indication, and so are serious cardiac disorders and marked planchnoptosis.

The main discussion has centered on the question of how early in the course of pulmonary tuberculosis the patient should begin this treatment. While at present most writers agree that the best results are to be expected in unilateral cases, still they are not willing to restrict its application to this class of cases, nor are they willing to recommend its use in the early stages. It is therefore reserved for moderately advanced unilateral cases, and for some bilateral cases. Still I note that there is a growing tendency to extend the treatment to earlier cases, and to grant what alleviation it may offer even to those in the last stages. Some surprising results have been recorded in this class, usually considered as hopeless; but before

expressing myself on these points let me quote a few authors on the indications and contra-indications.

Forlanini regards as favorable the uncomplicated unilateral cases free from pleural adhesions (unless these can be cleared by gas pressure) running a slow or subacute course, and provided the lesions are not far advanced. Claude Lillington admits cases of extensive and acute disease if unilateral, or nearly so; but he also finds that some cases with extensive bilateral disease are benefited. Klemperer says to try medical treatment first, but not to wait too long. He confirms the indication in unilateral cases, and thinks that the best results are in moderately severe cases, but in a comparatively early stage. Still he advocates the procedure in all cases with continuous fever and much expectoration, when the condition is not too desperate. Herbert Rhodes recognizes its value in recurrent hemoptysis, in unilateral cases and in some bilateral cases. Volhard endorses the suitability of unilateral cases even though involving the whole lung. He also endorses the treatment in bronchiectasis, but finds abscess and miliary disease contra-indications. Robinson and Floyd say: "Certainly the unilateral cases are the best adapted and promise the best results; but many of the good results reported by Brauer and Spengler in their series of 102 cases have occurred in bilateral cases. None of our own group were strictly of unilateral involvement, and yet the progress of six cases is most promising." Shortle reports much improvement in fourteen out of twenty-two cases, although all the patients were advanced in disease.

From the evidence thus far adduced, it seems to me that authorities disagree widely. If one decides to require prolonged medical treatment in early cases before resorting to pneumothorax — if the early cases are to be refused — then it seems to me that the treatment will be restricted almost entirely to progressed bilateral cases. For I have yet to see my first case of extensive unilateral disease without demonstrable infection of the opposite side. I believe that in the selection of cases, their classification into early or moderate or advanced is not of so much importance as is *individualisation*. Some cases in each class are suitable for pneumothorax, and some in each class should be refused. To my mind, experience has already demonstrated this. On the other hand, if the theoretical explanation of the *modus curandi* of pneumothorax is correct (and I believe that it is correct), and if in this procedure we are following in Nature's own footsteps, securing physiologic rest in a disease in which the value of rest is amply demonstrated, and if we are squeezing infective material from the lung, encouraging fibrosis, discouraging hemorrhage, lessening toxemia and ridding the sputum of tubercle bacilli (all of which seems to be proved), then one queries why this treatment is not applicable to the early cases. The only reply is that a large proportion of early cases are curable by other means. But it seems to me that when we find ourselves face to face with a disease as serious as pulmonary tuberculosis, even though in an early stage, we should consider well before refusing pneumothorax, a treatment that has arisen from observation of Nature's cures, a treatment based on a rational theory, a treatment that offers a resultant lung pathology that proves its value, and a treatment that has yielded 22 per cent. clinical cures when limited to advanced cases.

After having come to this conclusion I was much interested to read what Murphy, the American discoverer of induced pneumothorax, wrote. He stated that it was especially applicable to "apical or monolobar tuberculosis in the early stage, as the pathologic conditions are such that the compression of the lung can be accomplished and adhesions are not likely to be found. I do not consider," he continues, "that it is indicated or practical in advanced or chronic tuberculosis, as the fibrous tissue deposited in the lung will not permit compression of the lung, nor will the pleuritic adhesions allow of gas introduction." In a more recent article Murphy has reiterated these early views.

As a matter of fact, practically only well-progressed cases have been treated by this method, although they offer the least promise. All my cases were advanced in disease. Before stating my results I will quote a few reports of other workers in this field:

Walker and Soltan reported 13 cases, in all of which there was improvement. Zubini reported favorable results in a series of 43 cases. Murphy reported 5 cases, all improved. Many of Lempke's patients were greatly improved and some cured. Robinson and Floyd reported 25 cases all improved. Lapham reported 31 cases, 68 per cent. arrested, 2 cured. Brauer reported 102 cases, 22 per cent. cured.

Murphy stated recently that from a study of 500 collected cases with 2,500 injections, he concludes that artificial pneumothorax should always be made in every case of pulmonary tuberculosis in which there is no absolute contra-indication. I have no hesitancy in concluding that when properly performed, with careful technic, by one who is experienced, the procedure is quite safe and practically painless. When not curative it is very often alleviative, affording an otherwise hopeless case a new chance for arresting the disease.

My experience is limited to forty-two cases, all but one bilateral and well advanced. All but one were ambulant, the patients coming to the office for treatments.

Of the forty-two cases, it is noteworthy that pleuritic adhesions prohibited pneumothorax in only five.

The total number of punctures done was over 614, and no gas embolism occurred; but pleuritic effusion supervened in six cases, one being purulent.

Twenty-two patients gained weight and eleven lost weight, this observation being unrecorded in four cases.

In the thirty-seven cases in which a pneumothorax, even though small, was possible, twenty-eight patients were improved in varying degrees, one was arrested (perhaps cured) and ten remain unimproved.

Oakland Bank of Savings Building.

Wages and Hygienic Living.—Regular employment at wages sufficient to meet the cost of hygienic living is the sine qua non of all the requirements. It does not take an expert in disease prevention to tell us that an underfed, poorly clothed, poorly housed group of people are going to prove easy prey to the germs of influenza, pneumonia, tuberculosis and similar diseases. Neither does it take a deep and prolonged study of wages, cost of living and housing conditions of the working people of the United States for us to know that a large percentage of them are living on a scale greatly below a hygienic minimum.—B. S. Warren in *Pub. Health Rep.*

THE GERMICIDAL ACTIVITY OF CALOMEL *

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AND

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PHILADELPHIA

While conducting investigations concerning the germicidal activity of chrysarobin and other substances used in the treatment of psoriasis, we were required to devise a technic suitable for testing substances which are insoluble in water. All of the methods generally employed in testing germicides require that the substance be soluble in water, weak alcohol, weak alkaline solutions, etc., which in themselves have little or no germicidal activity.

Since calomel is practically insoluble in water we have selected it as a control and have determined its germicidal activity on ordinary test micro-organisms.

After considerable experimentation, we have during the past year worked out a technic for determining the germicidal activity of insoluble substances which is very simple and yields surprisingly uniform results. It is not so perfect as the Rideal-Walker or Hygienic Laboratory methods for testing soluble substances, and it does not attempt to distinguish between antiseptic action and germicidal power; but for insoluble substances it has yielded us fairly good results.

Early in the work we were surprised to find that calomel had a germicidal activity equal to that of mercuric chlorid, and further studies have shown that several other insoluble salts of mercury have similar germicidal values.

In this note we wish to present the results of these studies with various mercurial salts, together with a brief description of the technic, a fuller account being given in another paper.

TECHNIC

A difficulty in working with substances insoluble in water is the preparation of a suspension such as will remain uniform for at least an hour or until all manipulations have been finished. We have found a sterilized 2 per cent. solution of acacia in water to answer this purpose most satisfactorily; the substance to be tested is accurately weighed and placed in a sterile flask containing a layer of small glass beads, the required amount of acacia solution being added and a suspension secured by agitating or shaking the flask for several minutes. All measurements of the suspension are made with sterile graduated 1-c.c. pipets. When working with calomel we have found that very little adheres to the sides of the pipet; but with chrysarobin and similar powders, it may be necessary to wash out the pipet once or twice with either sterile bouillon or normal saline solution.

During the time necessary for measuring varying quantities of the suspension, the flask should be occasionally shaken in order to keep the contents uniformly suspended.

We have used various test micro-organisms; since the primary object of our work was concerned with chrysarobin and its action on the skin, we have usually worked with cultures of staphylococci; however, a culture either of *Staphylococcus aureus* or *Bacillus*

* From the Pathological Laboratory of the Dermatological Research Department, Philadelphia Polyclinic and College for Graduates in Medicine.

typhosus may be used. The test micro-organism is cultivated in neutral bouillon for twenty-four hours at 37 C. (98.6 F.), filtered to remove clumps, and used in a constant dose of 0.1 c.c. as delivered by an accurately graduated 1 c.c. pipet.

Both plain neutral bouillon or plain neutral agar may be used for the seed medium. Best and most uniform results were secured with the former. Each tube contains exactly 10 c.c. of the medium.

The technic is very simple. In the *plate method*, increasing amounts of the suspension as, 0.05, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9 and 1 c.c. are pipetted into a series of twelve sterile Petri dishes; 0.1 c.c. of a twenty-four-hour bouillon culture of the test organism is added, followed by 10 c.c. of melted agar cooled to 40 c.c. The whole is thoroughly mixed. The twelfth plate receives culture and agar and serves as the culture control.

At the end of twenty-four hours the plates are inspected. The control usually shows so many colonies that it is impossible or inaccurate to count them. When germicidal activity is manifest there occurs a numerical decrease in colonies easily determined by counting.

By use of a 4-mm. loopful of bouillon culture in each plate the number of colonies is much reduced and accurate counting facilitated, especially in those plates which show germicidal activity of the substance being tested.

When working with large doses of a light powder it is impossible to determine by mere inspection of the plate whether or not germicidal action is manifest. In such instances, or when in doubt, we have cut out a block of agar with a stout platinum loop from the center of each dish and macerated this on a slant of neutral agar; the final result of the test is therefore delayed another twenty-four hours.

Better, sharper and more definite results are secured when the tests are conducted with a fluid medium. To a series of twelve tubes, each containing 10 c.c. of plain neutral bouillon, increasing amounts of the suspension of substance as given above are added; after each addition the pipet may be washed out once or twice by drawing up and expelling bouillon; to each tube there is added 0.1 c.c. of the test culture; the twelfth tube is the culture control and should never be omitted. The tubes are incubated for twenty-four hours, when the results are read. One is surprised with the regularity and sharpness of the results; even with slight differences in the dose of germicidal substances the tubes either do or do not show uniform clouding due to bacterial growth.

Of course in either method the culture controls must show good growths, as they usually do when working with *B. typhosus* or *Staphylococcus aureus*.

In this method the final dilutions vary when increasing doses of suspension are added to constant amounts of bouillon. We placed the desired amounts of suspension in a series of twelve dry sterilized tubes and pipetted in increasing amounts of sterile bouillon to make the total volume in each tube the same and equal to 10 c.c., but the results were practically the same when tried out parallel with the simpler procedure described above.

With the bouillon-tube method the results with the same substance from day to day are remarkably constant.

We have adopted calomel as a standard and have been able to express the relative values of other substances in comparison.

In the Hygienic Laboratory method of testing germicides the test organism is exposed to the action of the germicide for varying intervals of time as 2½, 5, 7½, 10, 12½ and 15 minutes, after which a loopful of micro-organisms and germicidal solution are removed and planted in bouillon. One loopful is, therefore, so highly diluted in the seed bouillon that any question of continued germicidal activity can practically be ruled out, unless the solution is highly concentrated. In our method it is not a simple matter to remove the germicidal substance and separate the test micro-organism. We have done so by different filters, but the technic is not uniform or practical. The micro-organism is continuously exposed to the germicide and in this manner we are unable to differentiate between antiseptic and germicidal action, for a substance may inhibit the growth of a micro-organism without necessarily killing it. As we have shown in our complete paper, this question of length of exposure is quite important. For example, 0.005 gm. of sodium arsenate inhibits the growth of staphylococci according to our method, whereas this salt shows no inhibiting or germicidal action by the Hygienic Laboratory method even in concentrated solution (1:5) after the maximum exposure of 15 minutes.

Throughout the remainder of this communication we speak of the "germicidal" activity of various substances; with calomel we have demonstrated that this terminology is correct; with many other substances, however, we have not so far attempted to differentiate between their antiseptic and germicidal power.

CALOMEL

We were surprised to find that calomel has a germicidal activity equal to that of mercuric chlorid. Naturally our first thought was that the preparation we were using (Merck's) might have contained traces of mercuric chlorid responsible for this result. But chemical tests for mercuric chlorid in heavy suspensions of calomel before and after filtration through Berkefeld filters did not show the presence of this substance. Likewise it was considered possible that hot agar or some chemical in the culture-medium might have rendered the calomel soluble or have changed it to a soluble salt; but careful and repeated experiments have shown that this does not occur. Furthermore, after a calomel suspension has been shaken mechanically for an hour at 42 C. (107.6 F.) and is filtered through a Berkefeld filter, the filtrate does not possess germicidal activity.

TABLE 1.—GERMICIDAL POWER OF CALOMEL

| Calomel Suspension c.c. | Equivalent in Weight gm | 24-Hour Bouillon Culture of Staph. Aur. c.c. | Sterile Bouillon c.c. | Results after 24 Hours at 37 C. |
|----------------------------|----------------------------|---|--------------------------|---------------------------------|
| 0.05 | 0.000005 | 0.1 | 10 | + |
| 0.1 | 0.00001 | 0.1 | 10 | + |
| 0.2 | 0.00002 | 0.1 | 10 | + |
| 0.3 | 0.00003 | 0.1 | 10 | + |
| 0.4 | 0.00004 | 0.1 | 10 | + |
| 0.5 | 0.00005 | 0.1 | 10 | — |
| 0.6 | 0.00006 | 0.1 | 10 | — |
| 0.7 | 0.00007 | 0.1 | 10 | — |
| 0.8 | 0.00008 | 0.1 | 10 | — |
| 0.9 | 0.00009 | 0.1 | 10 | — |
| 1.0 | 0.0001 | 0.1 | 10 | — |

Table 1, one of many similar experiments, shows the remarkable germicidal power of calomel on *Staphylococcus aureus*.

Ten mg. of calomel were suspended in 100 c.c. of acacia solution. Each cubic centimeter contains, therefore, 0.0001 gm., or 1/600 grain.

It will be observed that 0.05 mg. (0.00005 gm.) or 1/1200 of a grain of calomel is capable of sterilizing 0.1 c.c. of staphylococci in 10 c.c. of bouillon.

A similar effect was noted with cultures of *B. typhosus* and *B. coli*; 0.1 c.c. of anthrax culture required at least 0.004 grain of calomel to bring about their destruction.

We have no explanation to offer of the mechanism of so high a germicidal activity of a substance insoluble in water. On first thought it would be supposed that each particle of germicide must come in actual contact with each bacterium; but this explanation can hardly hold when 0.00005 gm. of calomel spread out in 10 c.c. of agar in a Petri dish or in bouillon completely inhibits or kills the cocci contained in 0.1 c.c. of a twenty-four-hour bouillon culture.

OTHER MERCURIAL SALTS

An application of the same method to a study of the germicidal activity of other salts of mercury such as ammoniated mercury, red and yellow oxids, red and yellow iodids, etc., has shown them to possess a germicidal activity equal to calomel and mercuric chlorid.

Table 2 is included to show the comparative values of these mercurials and other soluble and insoluble substances, as determined by us. The figures refer to the smallest amount of substance required to inhibit the growth of 0.1 c.c. *Staphylococcus aureus*.

TABLE 2.—GERMICIDAL DOSES OF VARIOUS SUBSTANCES*

| Substance | —Amount in Grams— | |
|------------------------------|-------------------|--------|
| | Bouillon | Agar |
| Yellow iodid Hg | .00004 | .00004 |
| Calomel | .00005 | .00005 |
| Red iodid Hg | .00005 | .00004 |
| Red oxid Hg | .00005 | .00004 |
| Mercuric chlorid | .00005 | .00004 |
| Yellow oxid Hg | .00006 | .00004 |
| Salicylate Hg | .0005 | .0005 |
| Ammoniated Hg | .00006 | .00004 |
| Liquor formaldehydi | .0005‡ | .0008‡ |
| Pyrogallol | .002 | .002 |
| Potassium arsenite | .002 | .002 |
| Sodium arsenate | .005 | .008 |
| Arsenic iodid | .01 | .01 |
| Phenol (carbolic acid) | .018 | .02 |
| Boric acid | .04 | .04 |
| Gray powder | .05 | .05 |
| Thymol iodid | .05 | .03 |
| Iodoform | 0† | 0 |
| Sulphur | 0 | 0 |
| Acetanilid | 0 | 0 |
| Zinc oxid | 0 | 0 |
| Chrysarobin | 0 | 0 |

* One-tenth c.c. of twenty-four-hour-bouillon culture of *Staphylococcus aureus*.
† Not germicidal in maximum dose of 0.12 gm.
‡ Cubic centimeters.

It will be noted that most of the mercurial salts have a constant germicidal activity which is practically equal to that of mercuric chlorid. Taking calomel as a standard, the efficiency of other insoluble substances is readily expressed as the "calomel coefficient."

From a number of fragmentary reports given us by various clinicians who have at our suggestion used calomel suspensions in the treatment of various suppurations, we would suggest the use of calomel suspended in sterile acacia solution in the treatment of cystitis and pyelitis, and in suppuration of joints and sinuses. We would tentatively suggest a dosage of calomel of from 1/10 to 1 grain to the ounce in 2 per cent. acacia solution.

The one main difficulty in the therapeutic use of calomel suspension in acacia-water is the fact that

sedimentation begins within from half an hour to an hour. If, however, the suspension is prepared in a bottle it may be readily shaken just before use and permits being injected into the bladder, accessory sinuses, etc.

CONCLUSIONS

1. The method herein proposed for testing the germicidal activity of substances insoluble in water is very simple and yields constant and reliable results; it offers a means of determining comparative values with calomel as a standard, the result being expressed as the "calomel coefficient."

2. Despite the insolubility and relative non-toxicity of calomel, its germicidal power, weight for weight, equals that of mercuric chlorid. Certain other mercurial salts are equally germicidal.

3. Suspensions of calomel offer considerable hope of various cavities.

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SPONTANEOUS RUPTURE OF THE HEALTHY ESOPHAGUS

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Because of the interest stimulated by the observation of a case and the apparent rarity of this condition, I have reviewed the literature on this subject.

Spontaneous rupture of the healthy esophagus should include those cases of rupture *per se*, and exclude those in which the rupture has been due to trauma either from within or without, and also cases of perforation, the result of chronic peptic ulcer diverticulum, tuberculosis, syphilis, cancer and aneurysm. In selecting cases one must also reject those in which there has possibly been post-mortem digestion of tissue and those cases of esophagomalacia. Failure to eliminate such may lead to erroneous conception of the disease. For this reason I have not included the cases reported by Colegrove,¹ Heyfelder,² Guersent,³ Lomax,⁴ Oppolzer,⁵ Howse,⁶ Boyd,⁷ West and Andrews,⁸ and Bailey.⁹

ETIOLOGY

The disease is most frequently seen in men who are addicted to alcohol. How much influence the latter has on the condition has never been determined. In practically every case rupture has followed vomiting or retching after an abnormally large meal. The point of rupture in every case has been just above the diaphragm. In this small section of about 5 inches there is a transition from the esophagus. Also, we learn from the experimental work of McKenzie¹⁰ that this is the weakest section of the esophagus and, furthermore, it is weaker than the normal stomach; but why the esophagus at this point should be weaker in a few persons than in others is not demonstrated. Some maintain that there is always disease in such cases.

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3. Guersent: Bull. Fac. de Méd. de Paris, 1812, i, 73.
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7. Boyd: Tr. Path. Soc., London, 1881-82, xxxiii, 125.
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9. Bailey: New York Med. Jour., May, 1873.
10. McKenzie: Diseases of the Nose and Throat, 1884, vol. xi.

RUPTURE OF ESOPHAGUS

| No. | Sex | Age* | Alcohol† | Previous History | Onset | Symptoms | Em-phys-ema | Duration of Life, Hours | Shape and Position | Results of Necropsy | Authority and Date |
|-----|-----|------|----------|--|---|---|-------------|-------------------------|---|---|--|
| 1 | ♂ | 50 | ? | Gouty; heavy eater, accus- tomed to emetics | Sudden, while vomiting | Felt something give way; in- tense pain; col- lapse; dyspnea | + | 13 | Complete trans- verse rent 3 fingers' breadth above diaph'gm | Collapse of the lung; air and gastric contents in both pleural cavities | Boerhaave ¹² 1724 |
| 2 | ♂ | ? | + | Debauch the pre- vious night | Sudden, after taking hot water to induce vomit- ing | Felt something give way; slightly he- matemesis, sev- ere pain, dysp- nea; collapse | + | 12 | Longitudinal slit just above dia- phragm admit- ting 2 fingers | Double pneumo- thorax; gastric contents in both pleural cavities | Dryden ¹³ 1787 |
| 3 | ♂ | 24 | + | Severe epigastric pain and vomit- ing for several months | Sudden, during vomiting after dinner | Slight vomiting; severe epigastric pain | + | 14 | Large rent just above diaph'gm | Food found in pleural cavity | King ¹⁴ 1843 |
| 4 | ♂ | 38 | + | Took lye when a child, since then difficulty in swallowing | Sudden, in at- tempting to swallow sausage which became impacted | Some hematemesis pain and dysp- nea after effort to vomit | + | 50 | Gaping rent 1¼ by ¾ in. about 3 inches above cardia | Gangrenous cavity in posterior me- diastinum; food in both pleural cavities | Meyer ¹⁵ 1858 |
| 5 | ♂ | 35 | + | Gastric distur- bance for 6 wks. before | Sudden, after a debauch | Vomited at first; pain, dyspnea; collapse | + | 11½ | Longitudinal tear 5 cm. long en- croaching on stomach | Double pneumo- thorax; gan- grenous cavity in posterior me- diastinum; fluid in pleural cavi- ties | Gramatzki ¹⁶ 1867 |
| 6 | ♂ | 49 | ± | Not given | Sudden, after ab- normally large meal | Felt something give way during vomiting; pain; dyspnea; thirst; collapse | + | 16 | Longitudinal slit 1 inch long just above the diaph. | Three quarts of fluid containing food in left pleural cavity; lung collapsed | Griffin ¹⁷ 1869 |
| 7 | ♂ | 35 | + | Drinking hard for several days be- fore onset | Sudden, after vomiting | Felt something give way; pain; dyspnea; thirst; collapse | ‡ | 7½ | Slit 1½ in. long in left side of low- er esophagus | Gangrenous cavity in posterior me- diastinum open- ing into left pleural cavity contained 1 qt. of fluid. | Charles ¹⁸ 1870 |
| 8 | ♂ | 31 | + | Repeated attacks of gastritis; hematemesis de- lirium tremens | Sudden, in trying to dislodge a piece of meat impacted in eso- phagus | Pain and dyspnea; fever | + | 180 | Rent 2 inches long | Infection of poste- rior mediasti- num | Fitz ¹¹ 1877 |
| 9 | ♂ | 17 | — | Attacks of blood- poisoning short time previously | Sudden, during vomiting | Hematemesis; in- tense feeling of suffocation; pain; collapse | ? | 4 | Rent 1½ cm. long 1 in. above car- dia | Opening into left pleural cavity which contained food particles | Taendler ¹⁹ 1878 |
| 10 | ♂ | 53 | — | Dyspepsia for yrs. with occasional vomiting | Sudden, after feel- ing unwell for 2 hours after a meal | Severe pain in left side and sudden collapse | ‡ | 7 | Rent in posterior wall 1½ inches above diaph'gm | ..... | Adams ²⁰ 1878 |
| 11 | ♂ | 48 | ? | Chronic gastric ulcer | Sudden | Vomiting followed by pain and col- lapse | — | 15 | Opening 2 inches long and 1 cm. wide about 2 cm. above car- dia | Double pneumo- thorax; food in posterior medi- astinum and both pleural cavities | Lindermann ²¹ 1887 |
| 12 | ♂ | 37 | + | Good eater; alco- hol moderate | Sudden nausea; felt something give way | Pain, collapse, cyanosis | + | Few | Clean tear 1 cm. long just above cardia | Left pleural cav- ity filled with food and gas | Wolff ²² 1894 |
| 13 | ♂ | 47 | — | Dyspeptic; vomit- ing | Sudden, while vomiting | Pain, collapse, dis- appearance of cardiac dullness | + | 13½ | Rent 1½ inches long just above cardia | Left pneumothor- ax; stomach contents in both pleural cavities | Harrison ²³ 1893 |
| 14 | ♂ | 55 | ‡ | Healthy individual | Sudden, after vomiting | Pain, dyspnea, cyanosis | — | 24 | Rent ¾ inch long behind and to left | Food in left pleu- ral cavity | West and An- drews ²⁴ 1897 |
| 15 | ♂ | 59 | + | Drinking hard for a week before | Sudden | Pain, dyspnea, ef- fusion into left | + | 37 | Opening 1½ ins. long 2 inches above cardia | Accumulation in posterior medi- astinum break- ing into left lung but not the pleural cavity | Lindsay & Smith ²⁵ 1899 |
| 16 | ♂ | 43 | ? | "Quiet" | Sudden vomiting after eating | Collapse | ? | 6 | Rent 2 cm. long 6 cm. above cardia | Food in left pleu- ral cavity | Heintze ²⁶ 1900 |
| 17 | ♀ | 62 | — | ? | Sudden, after in- duced vomiting | Internal epigastric pain; dyspnea; collapse | + | 22½ | Rent ⅝ inch long 1½ ins. above diaphragm | Collapse of lung; food in poste- rior mediasti- num and left pleural cavity | Bowlers & Turner ²⁷ 1900 |
| 18 | ♂ | 40 | + | Drunkard; much vomiting | Sudden, probably during vomiting | Pain, dyspnea, cyanosis, col- lapse | + | 10 | Rent 1½ ins. long just above dia- phragm extend- ing into stomach | Collapse of lung; food and gas in posterior medi- astinum and left pleural cavity | McWeeney ²⁸ 1900 |
| 19 | ♂ | 55 | + | Fell from horse, fracturing skull. Operation | Sudden, vomiting after coming out of anes- thetic | Not known | — | 10 | Rent 1½ inches long just above diaphragm | Food in left pleu- ral cavity | Whitman ²⁹ 1903 |
| 20 | ♀ | 10 | — | Always well | Sudden, during sleep | Nausea, cyanosis, shock | — | 18 | Rent 1 cm. long 5 cm. above dia- phragm | Food in left pleu- ral cavity | Miller ³⁰ 1911 |
| 21 | ♂ | 43 | ? | ? | Probably during anesthetic | Cyanosis, shock | — | 11 | Ragged rent 3 ins. above diaphr'gm | Right lung col- lapsed; stomach contents in pos- terior mediasti- num and right pleural cavity | Rov ³¹ 1911 |
| 22 | ♂ | 39 | — | Always well | Sudden, one hour after large meal | Shock, cyanosis | — | 176 | Rupture 2 inches long at lower end of esophagus | Fluid in left pleu- ral cavity | Walker 1914 |

* In this column ♂ denotes male, and ♀ female. † In this column + means yes, — no, and ± probably. ‡ Not stated.

From observation of the case reported and data from two others, I believe that it may be a developmental condition associated with ptosis of the viscera. An explanation of this theory, however, should be reserved until further study has been made from necropsies on subjects having visceral ptosis.

Granted that this section of the esophagus is weaker than any other and also weaker than the stomach, rupture has been explained to take place in one of the following ways: During the act of vomiting or retching there is spasm of the esophagus above the weak point. If the pressure from within is less than is needed to overcome the spasm and sufficient to cause rupture, the latter takes place. Secondly, if food becomes impacted in the esophagus above the weak section during the act of vomiting, and similar conditions of pressure are brought to bear on this area, rupture will occur.

PATHOLOGY

The rent in every case has been at the lower end of the esophagus and longitudinal in all except two cases. Usually there is a single opening on the posterior wall. This leads into the cavity of the posterior mediastinum, which may contain food particles. In the majority of cases this cavity communicates with one or both pleural cavities, which also contain liquid and solid food tinged with blood.

DIAGNOSIS AND PROGNOSIS

Difficulty in making an early diagnosis in this condition is due to the fact that the symptoms are referred to the upper abdomen and not to the esophagus. Most patients give a history of alcoholism with chronic gastric disturbance, of having vomited after a large meal, and during the effort experience the feeling of "giving way" in the upper abdomen. The patient is in a state of marked shock with subnormal temperature, high pulse, profuse sweating and some cyanosis. The respirations are usually slightly elevated. The face is drawn and anxious and the patient lies or sits with the knees drawn upward. Pain is referred to the epigastrium and lower chest, either on the right or left, but usually the latter. There is marked tenderness and board-like rigidity throughout the upper abdomen. Chest examination may show a few râles at the base and sometimes hyperresonance or flatness on percussion depending on whether there is much air or fluid in the pleural cavity. The picture up to this time is that of acute perforation of a gastric or a duodenal ulcer or acute pancreatitis. As time goes on, and especially if the patient has swallowed any liquid, the symptoms point more to some chest condition. The respirations become rapid and shallow, and the temperature elevated. The chest-signs spoken of above become more pronounced and the heart pushed to the right, the area of heart dulness practically obliterated. Aspiration of the chest will reveal fluid and gas. If the former is examined microscopically, food particles may be distinguished. In some cases there will be emphysema of the chest and neck. In the series of cases reviewed, mine was the only one diagnosed during life, and that wrongly at first.

The prognosis in this condition is grave. Not a single case of recovery has been reported. Most patients die within twenty hours. The one reported by Fitz¹¹ lived 180 hours.

TREATMENT

Very little except palliative measures can be found in the literature concerning treatment of this condition. From the observation of my case, it does seem possible that should the diagnosis be made early, there might be some chance of saving the patient by approaching the lesion through the posterior mediastinum, repairing the rent and draining the mediastinum and pleural cavity. Such an operation, however, would add much shock to a patient already in that condition so that recovery would be questionable. Even should the patient survive the operation a few days, one still has to combat sepsis in the posterior mediastinum, pleural cavity and lung-tissue. As yet, operative measures look none too bright. The case reported below occurred in my practice.

REPORT OF CASE

Patient.—A Swedish granite-cutter aged 39, was seen in consultation with Dr. Dion of Quincy at 1:30 a. m. March 16, 1914. Family history was negative. Patient had always been well. He had never used alcohol in any form.

Present Illness.—About seven hours before being seen patient had eaten an unusually large meal and taken two drinks of whisky. About one hour later he vomited. During this effort severe pain was felt in the epigastrium and left lower chest.

Examination.—Patient is well developed and nourished, somewhat cyanotic, and face has anxious expression. Pulse 120, temperature 97.6, respirations normal. Whole abdomen rigid but especially the upper half where there is marked tenderness and spasm. Liver dulness present.

Operation.—Incision 6 inches long at the outer border of the right rectus muscle over the gall-bladder region. Liver apparently enlarged, lower border of right lobe being on a level with the crest of the ileum, lower border of stomach about 1 inch below level of umbilicus. Appendix, stomach, duodenum, spleen and kidneys normal. Gall-bladder distended, ducts patent. Cholecystostomy performed; cigaret drain to head of pancreas which seemed swollen. Wound closed in layers.

Postoperative History.—During the next few hours the temperature and respirations became elevated. When patient was seen at 4 p. m. the pulse was 140, temperature 103, respirations 40. There was flatness in the left chest from the middle of the scapula downward and diminished and distant breathing in this region. Aspiration of the chest gave a straw-colored fluid. As it was thought that this was a beginning empyema, the pleural cavity was drained by resecting a piece of the eighth rib. The respirations at once were lowered. On the following morning, March 18, the nurse reported that all the nourishment taken was passing through the opening in the chest wall. March 19, a gastrostomy was done under novocain anesthesia and the patient afterward fed in this way. Temporary improvement followed feeding but the patient succumbed March 23, at 12:30 a. m., about 172 hours after the rupture of the esophagus.

Necropsy.—March 23, ten hours after death by Drs. Middleton and Ahlstrom. Well-nourished male, 6 feet tall, weight 165 pounds. Incision of operation 6 inches long slightly to right of median line starting 2 inches above umbilicus and extending upward from which hepatic fluid was escaping. There was a parallel incision 2 inches to the left of the median line 1 inch long. Incision in left back in midscapular line 1 inch below scapula and 2 inches in length. Liver enlarged, necrosis of lower border of right lobe. Gall-bladder macerated. Stomach incised and sutured to abdominal wall at site of smaller incision, evidently for feeding. Abdominal and pelvic viscera below liver apparently normal. Entire back and outer side of right lung adherent to chest wall. A few pleural adhesions at back of left lung. Left pleural cavity contained, throughout its extent, a thick, sticky, grayish-yellow fluid. There is a rupture of the

11. Fitz: Am. Jour. Med. Sc., 1887, lxxiii, 17.

extreme lower end of the esophagus, 2 inches in length, extending upward from the cardiac end of the stomach. Rupture on posterior wall of the esophagus. Edges of rent clean-cut, no evidence of ulcer, new growth or diverticulum.

A brief review of the unquestionable cases reported in the literature follows: Number of cases, twenty-two; males, twenty; females, two. Average age, 41.3 years. Of the males eleven were addicted to alcohol, four were abstainers, four were questionable and one not stated; neither of the females used alcohol. Emphysema was present twelve times, absent six times, questionable in two, not stated in two. No patient recovered, the average duration of life being 30.4 hours.

CONCLUSIONS

1. Spontaneous rupture of the apparently healthy esophagus is a rare condition.
2. The exact cause is not known.
3. Accurate diagnosis is difficult to make.
4. The mortality will always be high.

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NOTE.—In addition to the references in the text, the following will be found of interest:

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FOUR YEARS' EXPERIENCE WITH SALVARSAN AND NEOSALVARSAN IN THE TREATMENT OF NERVOUS DISEASE DUE TO SYPHILIS *

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Soon after the release to the profession of Ehrlich's first synthetic arsenic product, the ultra-enthusiastic gave forth the cry to the carrier of the *Spirochaeta pallida* that the *salvator hominum* had been found. The extremely conservative held the more tenaciously to mercury, the approved therapy of centuries, and pessimistically pictured the dangers of salvarsan. While as yet our conclusions may not be beyond the pale of dispute, it may prove valuable to make a

reckoning of the experience of four years in the continuous use of the powerful drug. That a new era in the treatment of syphilis has been entered there can be no doubt. The discovery by the lamented Schaudinn, the dark-field microscope and the ingenious adaptation by Wassermann of the Bordet-Gengou biochemical reaction have set our feet on firm rock in our determination of skin and visceral syphilis. Colles' law has been given the lie; Profeta's dogma has been discarded. By the achievement of Noguchi and Moore the parasymphilitic wraith has vanished forever "into thin air," revealing the reality, the syphilogenous nature of general paresis and tabes, and making certain that the findings in the spinal fluid represent to a degree, in these cases, the ravages of the pale spirochete on the investments and substance of the central nervous system. It is from the treatment of three hundred cases of syphilitic affections of the nervous system that our conclusions shall be drawn.

The nervous system in most persons is particularly tolerant to the toxins of syphilis, or better said, the nervous system performs its functions patiently and faithfully without display of symptoms for from ten to thirty years while its very vitals are being destroyed by a chronic intoxication, before it finally manifests that all is not well. From this fact grew our misconception called latent syphilis. With our present laboratory aids we know now that evidence of invasion of the central nervous system may occur within a few weeks of the time of the initial lesion. Indeed, occasionally we meet a case in which even before the so-called cutaneous secondary rash has appeared, or while it is still present, the central nervous system has been overwhelmed and the fluid which bathes it shows a marked cellular exudate. This knowledge of the early invasion of the central nervous system forewarns us emphatically that the most auspicious moment for the treatment of syphilitic nervous affections is in that all-important time which may be termed the tolerant period.¹ This period having passed by and the toxin having been at work subtly for years in a subterranean manner, the defenses yield at last, and grievous evidence that the enemy is within the walls appears. It is at this point that the neurologist is usually summoned to combat the inroads of the invader. We can now, in a comparatively short period, proceed to check the invasion in a manner almost as cunning as the enemy's own methods and can preserve the integrity of that portion of the system which has not been actually destroyed. Having rid ourselves of the blighting delusion of the specificity of potassium iodid and of the futility of mercury by mouth, and even intramuscularly or by inunctions when given in the indifferent manner which has too long prevailed, we take hold eagerly of the new remedy which is more rapid, more certain and more complete in its action.

Salvarsan is not a panacea. Nothing could militate more against the correct evaluation of the efficiency of this remedy than its promiscuous use and the impression that a few doses of salvarsan will restore health in all cases of syphilitic nervous disease regardless of their duration and severity. We do not wish to give the impression that we would deny to any definitely syphilitic person the advantage of salvarsan treatment, but we do believe that it is unjust to both patient and

* From the Neurological Institute, New York.

1. Graves: Med. Rec., New York, Aug. 24, 1912.

remedy to promise or expect the regeneration of destroyed nervous tissue with restoration of function. For instance, to predict great improvement to a tabetic patient whose ataxia has existed for ten or fifteen years with pronounced hypotonus, vesical incontinence and negative serum and spinal fluid, is not only unfair, but is detrimental to the establishment of the true value of salvarsan. On the other hand, in the acute cases with symptoms more or less recent, with an active reactionary and inflammatory process in the tissues as revealed by the blood and spinal fluid, the therapeutic capability of salvarsan is often but little short of miraculous. When one encounters one day a man stricken down at his work, irrational and aphasic, and forty-eight hours later beholds him speaking and in his right mind, one cannot but believe that a potent agent has been applied. One is driven to a similar conclusion when one sees men come into the hospital on crutches and go out a few weeks later walking alone or aided slightly by a single cane, which is later discarded.

It is in the recent and acute cases that the use of salvarsan cannot be too strongly urged.

METHOD OF ADMINISTRATION

The use of salvarsan at the Neurological Institute was begun in June, 1910. Since that time upward of 1,500 administrations of salvarsan and neosalvarsan have been made on the First Division Service. The routine method of preparation and administration has been but slightly altered during these four years. The quantity of freshly distilled sterilized water has been reduced, 25 c.c. being used for each 0.1 gm. of salvarsan, and 10 c.c. for each 0.1 gm. of neosalvarsan. We are not convinced of any increased therapeutic value of concentrated dosage, such as giving a full dose in 10 or 20 c.c. of water; but such decrease in the quantity of fluid as we have made we believe can be done with safety and a considerable saving of time. Intravenous administration is the method of choice, the intramuscular method being usually painful, less prompt in its effects and often complicated by subsequent undesirable features, such as permanent induration or abscess. Cutting down on a vein is barbarous and unnecessary except in extremely corpulent persons with obscured veins, as with a little care a needle can be introduced into a vein in the cubital space without difficulty. In treating very young children the intramuscular method is sometimes necessary. In introducing salvarsan into the vein the gravity method has proved simplest and most practicable.

EFFECTS OF SALVARSAN

During the past twelve months we have had a growing conviction that the potency of neosalvarsan is not so great as that of salvarsan, so that we have returned to the use of the original preparation. The immediate after-effects of the newer compound are usually milder, but its curative value is also less. Others working with cases not neurologic have arrived at the same conclusion.² The immediate after-effects, when unpleasant at all, are limited to nausea or vomiting or the recurrence of tabetic pains, all of which with the aseptic precautions now used are comparatively rare.

The latter symptom is probably due to the increased tension in the roots or root ganglia resulting from the influx of scavenging leukocytes which come in to carry away the recently killed spirochetes. Within twenty-four or forty-eight hours the patient usually experiences a feeling of well-being such as he has not had for some time, and if he has been having pains they have disappeared. In fact, after the first dose of salvarsan, tabetic pains which may have tortured the patient for a decade or more may disappear never to return. If we were called on to select the single greatest benefit which follows the use of salvarsan, it would be the relief obtained by the disappearance of the hideous pains of tabes. Man can endure almost any disability if he is free from pain. Fortunately, that is not the sole benefit, but that is usually the first lasting improvement. Subsequent improvements and final results following the administration of salvarsan in nervous diseases of syphilitic origin depend entirely on the character and duration of the disease.

TROPHIC DISEASE

Forms of disease styled trophic, such as Charcot joint, have given very little encouragement that a remedy has been found in salvarsan. The insufficiency of the therapy becomes apparent when one sees the disintegrating process in the joint go steadily on even though the serologic vestiges of syphilis have been rendered negative.

CEREBRAL ENDARTERITIS

Another variety of case resulting from syphilis, which is treated with meager success, is cerebral endarteritis which has gone on to thrombosis or rupture. The hemiplegic patient is usually seen in a neurologic clinic some weeks or months after the "stroke," after the edema around the lesion has largely subsided. If syphilitic, he will show a positive Wassermann in serum or spinal fluid or both, but a cellular exudate in the spinal fluid is almost always wanting. True, an endarteritis may occur in a tabetic or a cerebrospinal luetic patient, in which case the spinal fluid will show an increase in cells. The cells may be caused to disappear and the Wassermann to become negative, but salvarsan has not been observed to affect to any considerable extent the symptoms resulting from the arteritis, allowing for the slight improvement which usually occurs spontaneously. Endarteritis, occurring early in the disease and giving rise to focal symptoms, usually yields quite readily to salvarsan therapy, if an area of softening has not already occurred.

SENSORY-TRACT DISEASE

In a discussion of the results obtained in the treatment of tabes with salvarsan, the cases fall readily into two classes. First, those of long standing in which, besides the ataxia, marked hypotonus has developed, and an examination of the serum shows that the active inflammatory resistance on the part of the body has subsided either because the syphilitic process has been overcome, which is more probable, or because the tissues have become so used to the chronic intoxication that they no longer resist—in short, those cases in which the Wassermann reaction in serum or spinal fluid, or in both, is negative, and the cellular elements in the spinal fluid are absent or few, or only slightly above normal. The citation of a few such cases will serve best to make this clear:

2. Nelson, Kent, and Haines, Edgar F.: Observations of the Results of Nine Months' Experience with Neosalvarsan at the United States Military Prison Hospital, Fort Leavenworth, Kan., *THE JOURNAL A. M. A.*, March 28, 1914, p. 989.

CASE 1.—W. H., man, aged 44, married. Complaint: Unable to walk or stand alone. Urinary incontinence. Pain in the legs and arms, shooting in character. Numbness and tingling in the hands and feet. Belt-like sensation around the lower ribs, at other times around the abdomen.

Duration two and one-half years. Progressively worse. Chancre twenty-five years before.

Examination.—Marked ataxia and hypotonus; unable to stand alone. Absent tendon-jerks. Postural sensation in the lower extremities wanting. Argyll Robertson pupils and maciation. Wassermann serum positive; Wassermann fluid negative; Globulin positive; Cells 56 per cubic millimeter.³

Treatment.—Salvarsan, 0.6 gm., three doses, and tonic measures.

Six months later the patient's condition was quite the same without any interval of appreciable improvement. Wassermann serum negative.

CASE 2.—L. M., man, aged 36, married. Complaint: Girding pains in the right groin and shooting down the legs. Drawing and gripping in the back and arms, unsteadiness in walking. Polyuria and dysuria. Loss in weight and strength. Duration eight years. Chancre eighteen years before.

Examination.—Ataxic gait. Rombergism. Considerable hypotonus and impaired postural sense. Absent tendon reflexes and Argyll Robertson pupils. Wassermann serum positive; fluid negative; globulin negative; cells 3 per cubic millimeter.

Treatment.—Salvarsan, 0.6 gm., three doses; neosalvarsan, 0.9 gm., one dose.

Three years after the first dose the patient was still having attacks of the same pains, was markedly ataxic and showed the same physical signs. Wassermann serum negative; fluid negative; globulin negative; no cells.

CASE 3.—E. R., man, aged 53, widower. Complaint: Attacks of gastric pain. Pain of jerking character in the legs. Dysuria. Numbness in the soles. Duration seventeen years. Progressively worse. Chancre twenty years before.

Examination.—Argyll Robertson pupils, slight Rombergism. Absent knee and ankle reflexes. Ataxia not marked. Wassermann serum negative, fluid negative; globulin negative; mononuclear cells 53.

Treatment.—Neosalvarsan, 0.9 gm., three doses; 0.45 gm., one dose, within three weeks.

Observation seven months later shows no alteration in the patient's condition. He still complains of the pains in his legs and numbness. The dysuria is possibly improved. Wassermann serum negative; fluid negative; globulin negative; no cells.

In the second class of tabetics the condition is of more recent development and usually the infection is more recent. To the majority of patients of this class a very good prognosis can be laid down, based, of course, on the serologic findings. Considerable difficulty often arises here in making a correct estimate of the case inasmuch as these are the patients who, during the past decade, have been the rounds of mercury pills and potassium iodid drops. The inefficiency of the treatment "stands condemned by its eloquent results," Fordyce⁴ has so aptly put it. The difficulty lies in the fact that the iodid treatment may have affected the condition of the serum in its relation to the Wassermann reaction, which is our compass in directing antisyphilitic therapy, without having done any real damage to the spirochete. Fortunately for this particular feature, the patience of the average patient soon wearies of an oft-repeated remedy which produces no marked visible results, and so the reaction of the serum remains more or less unmodified by the

"drops and pills" and is a true guide. In those cases favorable for treatment, hypotonus of the hip-joints has not developed, although vesical incontinence may be present as well as ataxia and impairment of the postural sense. These symptoms may disappear in whole or in part, but in many cases even after vigorous treatment, vestiges of the symptoms remain. In such cases the Wassermann reaction is usually plus in the serum, and plus or minus in the spinal fluid; the globulin excess is plus; mononuclear cells range from twenty to several hundred per cubic millimeter, and Fehling reduction is plus. The treatment in such a case does not consist in two or three injections of salvarsan, but aims to render negative the Wassermann reactions and to reduce the number of cells to zero. The most vigorous treatment may be necessary to accomplish this result. It may take five injections at frequent intervals, or it may take twenty more. One method which we employed was to give a series of four full doses of neosalvarsan with a forty-eight hour interval between doses, and then after two weeks to repeat this if necessary. This method we have given up and are now employing salvarsan in full doses every five or seven days for a greater or less period, being guided chiefly by the state of the spinal fluid, especially with regard to the cell-content. The following cases will illustrate this group:

CASE 4.—F. B., man, aged 47, married. Complaint: Pain in the back and legs, occasional vesical and rectal incontinence; depressed, speech halting at times, hands tremulous, morphin habit. Duration six years, progressive. Chancre seventeen years ago.

Examination.—Slight Rombergism, no ataxia, knee and ankle reflexes absent. Pupils unequal but respond to light. Wassermann serum negative; cerebrospinal fluid positive; globulin positive; mononuclear cells 90.

Treatment.—Neosalvarsan, 0.9 gm., four doses within one month. Observation three months later: Pains have disappeared. Has stopped morphin. General condition improved. No incontinence. Physical signs remain the same. Pupils sluggish. Now able to earn his living. Wassermann serum negative; cerebrospinal fluid negative; globulin negative; cells 17.

CASE 5.—J. M., woman, aged 35, married. Complaint: Shakiness and weakness in both legs; pains in knees and legs; jerking in arms and legs at night. Drops articles from her hands. Drooping of left lid; dimness of vision. Duration five years. Stationary, lues denied.

Examination.—Slightly ataxic gait; Rombergism; Argyll Robertson pupils; left facial weakness. Hemorrhage into vitreous of right eye. Incoordination of arms. Knee and ankle reflexes absent. Wassermann serum positive; cerebrospinal fluid positive; globulin positive; mononuclear cells 42.

Treatment.—Neosalvarsan, 0.9 gm., three doses within three weeks. Observation nine months later: The ataxic gait has disappeared. Facial weakness gone. No Rombergism. Reflexes and pupils same; vitreous clear. Feels quite well. Wassermann serum negative; cerebrospinal fluid negative; globulin negative; mononuclear cells 4.

CASE 6.—A. D., man, aged 45. Complaint: Weakness in right leg. Heaviness of right thigh and abdomen. Walking difficult.

Examination.—Ataxia, Rombergism; Argyll Robertson pupils, absent ankle and knee reflexes. Hypotonus of lower extremities. Hyperesthesia at sacral crests. Duration two months; progressive; lues denied. Wassermann serum negative; cerebrospinal fluid negative; globulin positive; mononuclear cells 81.

Treatment.—Salvarsan, 0.6 gm., two doses at interval of seven days. Observation one month later; walking easier and better, ataxia less. Slight heavy feeling still present, heavy in right thigh. Reflexes and pupils the same. Continues to

3. In all the cases reported in this paper Fehling's solution was used by the spinal fluid.

4. Fordyce, John A.: The Administration of Salvarsan in Syphilis, THE JOURNAL A. M. A., Oct. 5, 1912, p. 1231.

work as salesman. Wassermann serum negative; cerebrospinal fluid negative; globulin negative; mononuclear cells 8.

CASE 7.—L. L., man, aged 36, married. Complaint: Loss of strength, pain and cold sensation in both legs. Vesical incontinence, tightness about the chest. Duration four years; progressive. Chancre fourteen years ago.

Examination.—Romberg; ataxia; walks with cane. Uncertain in sitting posture; moderate hypotonus in hips. Incoordination in arms and legs. Reflexes absent in biceps and triceps, knees and ankles. Argyll Robertson pupils; tactile anesthesia over lower extremities.

Wassermann serum positive; cerebrospinal fluid negative; globulin weakly positive; mononuclear cells 142.

Treatment.—Neosalvarsan, 0.9 gm., six doses within six weeks. Observation one year later: Feels well; much less dependent on cane in walking. Paresthesia and pain gone. No vesical incontinence. Can attend to business.

Examination.—Romberg and ataxia less marked; other findings the same. Wassermann serum positive; cerebrospinal fluid negative; globulin negative; mononuclear cells 48.

CASE 8.—M. V., man, aged 44, married. Complaint: Pain down the back of the legs and inability to walk without crutches. Duration 9 months; progressive. Lues denied.

Examination.—Walks uncertainly with crutches. Rombergism. Absent knee and ankle reflexes. Pupils irregular, unequal, very sluggish to light. Wassermann serum positive; cerebrospinal fluid negative; globulin negative; mononuclear cells 33.

Treatment.—Neosalvarsan, 0.9 gm., three doses. Observation one month later, improvement remarkable. Walks alone without crutch or cane. Ataxia scarcely noticeable. Reflexes and pupils remain unchanged. Lumbar puncture refused. Wassermann serum positive.

CASE 9.—F. D., man, aged 47, married. Complaint: Paresthesia of left hand. Loss of power and control of legs; wasting of left leg. Pains in legs and in the bones. Urinary incontinence, walks with crutches. Duration eight years; progressive. Chancre twenty-six years ago.

Examination.—Ataxic gait, Rombergism. Partial paralysis left thigh and leg. Tremor of hands; incoordination of arms and legs. Knee and ankle reflexes absent. Pupils unequal, sluggish to light. Hypesthesia of legs. Wassermann serum negative; cerebrospinal fluid positive; globulin positive; mononuclear cells 135.

Treatment.—Salvarsan, 0.6 gm., five doses in four weeks. Observation three months later: Ataxia much diminished. Gait improved. No pain, paresthesia still present. Pupils sluggish to light. Knee- and ankle-jerks absent. Wassermann serum negative; cerebrospinal fluid negative; globulin negative; mononuclears 32.

CASE 10.—M. B., woman, aged 36, married. Complaint: Legs feel weak and tremble; pain down outer side of both calves, feet cold and numb; drops articles occasionally from left hand; difficulty in walking. Duration five years, getting worse recently. No knowledge of infection.

Examination.—Slight Rombergism, unsteady gait, slight hypotonus of hips and knees, incoordination and postural disturbance of lower extremities. Absent knee- and ankle-jerks, also gone in the arms. Argyll Robertson pupils. Wassermann serum negative; cerebrospinal fluid negative; globulin negative; mononuclear cells 107.

Treatment.—Salvarsan, 0.6 gm., four doses in a month. Three months later felt much stronger, no pain; normal feeling in extremities, but had a girdle sensation; gait much improved but still some unsteadiness. Wassermann serum positive; cerebrospinal fluid negative; globulin negative; cells 13.

Treatment.—Salvarsan, 0.6 gm., one dose, and thirty inunctions of mercury. Five months later only one remaining symptom is slight unsteadiness in walking; pupils and reflexes unchanged. Romberg less. Wassermann serum negative; cerebrospinal fluid negative; globulin negative; cells 5.

CASE 11.—C. J., man, aged 50, married. Complaint: Pain in the middorsal region which starts in the back and runs around the trunk to the epigastrium. Jumping pains and soreness in the thighs. Tense, tight feeling about the abdomen; morphin regularly for pain. Duration seven years, progressive. Chancre twenty-seven years before.

Examination.—Rombergism, very slight ataxia, tremor in the hands, no hypotonus, left knee-jerk absent, right diminished, ankle-jerks gone. Argyll Robertson pupils. Wassermann serum positive; cerebrospinal fluid negative; globulin positive; mononuclear cells 42.

Treatment.—Salvarsan, 0.6 gm., three doses in three weeks, cauterization of the back. One month later patient was entirely free from pain and tight sensation; has taken no morphin and has no desire for it. Wassermann serum negative; cerebrospinal fluid negative; globulin negative; cells 0.

CASE 12.—F. G., man, aged 55, married. Complaint: Shooting pains in the legs, difficulty in walking; frequent desire to urinate, diplopia, band sensation about the waist, weakness of the back. Duration eighteen years; progressive; worse. Chancre twenty-six years ago.

Examination.—Very ataxic gait, marked Rombergism, incoordination of legs, absent knee and ankle reflexes. Argyll Robertson pupils. Wassermann serum positive; cerebrospinal fluid positive; globulin positive; mononuclear cells 42.

Treatment.—Salvarsan, 0.6 gm., three doses in ten days. One month later shows less ataxia in walking, is free from pain and girdle tightness and general feeling of more strength and vigor. Wassermann serum negative; cerebrospinal fluid negative; globulin negative; cells 36.

CASE 13.—E. L., woman, aged 50, married. Complaint: Sharp shooting pains through both lower extremities to the feet, also through the arms to the hands. Aching pains through the head recently, creeping feeling all over the body; numbness in the buttocks; tightness around the abdomen, loss of appetite, gastric pain and obstinate constipation; dysuria. Knees give way under her. Duration seven years, getting rapidly worse. Rash and sore throat eleven years before.

Examination.—Rombergism, slight ataxia, no hypotonus, absent knee and ankle reflexes, pupils equal, very sluggish to light. Wassermann serum positive; cerebrospinal fluid positive; globulin positive; mononuclear cells 137.

Treatment.—Salvarsan, 0.3 gm., two doses; 0.6 gm., two doses in six weeks. Six months later she was enjoying exceptionally good health, free from pain. Is hyperesthetic around the left side of chest. Constipation severe. Dysuria gone. Paresthesia greatly diminished. No difficulty in walking. Wassermann serum negative; cerebrospinal fluid negative; globulin negative; no cells.

While the object of antisyphilitic treatment is sterilization of the spinal fluid and blood, it will be noted that this was not attained in several of the foregoing cases. This was due chiefly to imperfect cooperation on the part of the patients in returning for treatment. But even when the cooperation is complete and the treatment most vigorous, there is a small percentage of cases in which the Wassermann in the serum is so persistent as to justify the term "Wassermann-fast," as recently applied by Dr. David M. Kaplan,⁵ director of the laboratory of the Neurological Institute. The report of one such case will suffice:

CASE 14.—The patient is a professional man aged 47, unmarried, who came complaining of incomplete control of his legs, weakness and awkwardness in walking associated with numbness in the peroneal region and a cushion sensation under the ball of the foot, with an occasional pain in the legs. This condition had been remarked during the past four months. He recollected having had an indefinite sore on the penis, to which he paid no attention, which healed spontaneously.

5. Kaplan, D. M.: The "Wassermann-Fast Tabes," THE JOURNAL A. M. A., Dec. 20, 1913, p. 2214.

Examination showed a moderate Romberg, unsteadiness of gait, fine tremor of the hands and lips on effort, absent knee and ankle reflexes and very small equal pupils wanting in reaction to light. Tabes being evident, he was given the treatment recorded in Table 1.

Besides the arsenical treatment he has come faithfully every week and received 1 grain of mercury in the form of salicylate intramuscularly for the past forty weeks. He has never missed a day at work during this period except when he was laid up twenty-four hours for lumbar puncture. To-day he is hale and strong, feels exceptionally well and is engaged in a busy professional career. His mind is unclouded, his tremor has disappeared, his walking is above suspicion and his Rombergism is gone. His reflexes at the knee and ankle are still absent and his pupils are smaller than the head of a pin and are immovable to light.

TABLE 1.—EFFECT OF TREATMENT IN CASE 14, CHRONOLOGICALLY CONSIDERED

| Date | Serum Wassermann | Cerebrospinal Fluid | | | | Salvarsan, gm. | Neosalvarsan, gm. |
|---------|------------------|---------------------|----------|-------|------------------------------|----------------|-------------------|
| | | Wassermann | Globulin | Cells | Fehling's Solution Reduction | | |
| 1/29/10 | + | + | — | 94 | + | .. | ... |
| 2/ 3/10 | + | + | — | .. | + | 0.6 | ... |
| 2/20/10 | + | + | — | 68 | + | .. | ... |
| 2/ 8/11 | + | + | — | .. | + | 0.6 | ... |
| 4/18/12 | + | + | — | 79 | + | .. | ... |
| 4/19/12 | + | + | — | .. | + | 0.6 | ... |
| 4/25/12 | + | + | — | .. | + | 0.3 | ... |
| 5/ 2/12 | + | + | — | .. | + | 0.3 | ... |
| 5/ 9/12 | + | + | — | .. | + | 0.3 | ... |
| 5/10/12 | + | + | — | 36 | + | 0.3 | ... |
| 5/16/12 | + | + | — | 12 | + | .. | ... |
| 6/11/12 | + | + | — | .. | + | 0.9 | ... |
| 6/ 8/12 | + | + | — | .. | + | 0.9 | ... |
| 6/15/12 | + | + | — | .. | + | 0.9 | ... |
| 6/21/12 | + | + | — | .. | + | 0.9 | ... |
| 6/24/12 | + | + | — | .. | + | 0.9 | ... |
| 7/ 8/12 | + | + | — | .. | + | 0.9 | ... |
| 7/21/12 | + | + | — | .. | + | 0.9 | ... |
| 7/ 6/12 | + | + | — | .. | + | 0.9 | ... |
| 7/19/12 | + | + | — | .. | + | 0.9 | ... |
| 1/10/13 | + | + | — | 8 | + | 0.45 | ... |
| 1/23/13 | + | + | — | .. | + | 0.9 | ... |
| 3/ 7/13 | + | + | — | .. | + | 0.9 | ... |
| 3/20/13 | + | + | — | .. | + | 0.9 | ... |
| 5/27/13 | + | + | — | 5 | + | 0.9 | ... |
| 7/18/13 | + | + | — | .. | + | .. | ... |
| 9/ 4/13 | + | + | — | 35 | + | 0.45 | ... |
| 9/11/13 | + | + | — | .. | + | 0.45 | ... |
| 9/18/13 | + | + | — | .. | + | 0.45 | ... |
| 9/25/13 | + | + | — | .. | + | 0.45 | ... |
| 1/ 1/13 | + | + | — | 12 | + | 0.45 | ... |
| 1/ 8/13 | + | + | — | .. | + | 0.45 | ... |
| 1/23/14 | + | + | — | 28 | + | 0.3 | ... |
| 1/29/14 | + | + | — | .. | + | 0.5 | ... |
| 1/11/14 | + | + | — | .. | + | 0.4 | ... |
| 1/18/14 | + | + | — | .. | + | 0.5 | ... |
| 1/25/14 | + | + | — | 13 | + | 0.5 | ... |

OPTIC-NERVE ATROPHY

Early adverse criticism of results following salvarsan administration made capital of the fact that optic-nerve atrophy was sometimes observed. Faulty technic may have been the cause of such a sequela, but from our observations we are inclined to believe that the optic atrophy was already in process, although perhaps not demonstrable, at the time that the drug was given. For we have seen an incipient optic atrophy the result of syphilitic virus go steadily forward to complete atrophy while under vigorous salvarsan therapy.

CASE 15.—O. L. R., man, aged 41, married. Complaint: Pains through the trunk, in the elbows and knees, girdle pains, vesical incontinence, obstinate constipation. Poor control of legs, inability to walk in the dark. Hypotonus. Irritation one year; progressive; chancre ten years before.

Examination.—Romberg. Argyll Robertson pupils; diplopia. External strabismus left eye. Slight diffuse pallor each optic

disk, visual fields slightly reduced. Knee and ankle reflexes absent, also gone in biceps and triceps. Wassermann serum positive; cerebrospinal fluid positive; globulin weakly positive; mononuclear cells 110.

Treatment.—Neosalvarsan, 0.9 gm., five doses in three months; salvarsan, 0.3 gm., four doses during succeeding nine months. Observation one year later: no pain, no incontinence, but still ataxic. Pallor of optic disks very pronounced, visual fields much reduced, sight almost gone in the left eye. Strabismus still present. Wassermann serum positive; cerebrospinal fluid positive; globulin positive; mononuclear cells 33.

On the other hand, we have observed a progressing optic-nerve atrophy held in check by the use of salvarsan; in fact, vision improved after therapy.

CASE 16.—J. D., man, aged 37, married. Complaint: Failing vision for two and a half years, cannot now see to read. Hearing also failing. Sharp, stabbing pains in the legs, at other times cold sensation in the legs; indescribable disagreeable sensation in the abdomen. Chancre 15 years ago. Treated for eight months with mercury and potassium iodid by mouth.

Examination.—Nutrition good, no Romberg, no ataxia, no hypotonus, very little postural disturbance. Knee reflexes diminished, ankle-jerks present. The pupils are equal but irregular and moderately dilated. Reaction to light is almost imperceptible, but good in accommodation. Visual fields reduced. Counts fingers at 4 feet. Fundi show marked optic atrophy. Wassermann serum positive; cerebrospinal fluid positive; globulin positive; mononuclear cells 10.

He developed an acute mania and spent eight weeks in a state hospital. Three months after examination he received three doses of neosalvarsan within ten days. Four months later the physical signs were unchanged. The optic disks still showed an unaltered marked atrophy. He could now count fingers across a room, recognize persons and go about unaided without difficulty. Ten months after treatment, however, vision was definitely failing.

When laying stress on the beneficial results following the use of salvarsan it is well for us to bear in mind the remarkable curative power which Nature alone possesses. A case which emphasizes this point is as follows:

CASE 17.—J. Q., man, aged 35, single. Complaint: Lightning pains in the legs, great difficulty in walking, unable to stand alone, difficulty in starting the stream of urine, occasional rectal incontinence, severe abdominal cramps at times and double vision. This condition had developed during the past three years and was now practically stationary. He had had a chancre twenty years before, which was untreated.

Treatment.—This consisted of four months of weekly intramuscular injections of mercury and two injections of salvarsan, six months ago, from which he experienced little relief. One month ago he came down with typhoid fever from which he has just recovered. On examination he is badly emaciated, unable to stand alone, profoundly ataxic, the tendon reflexes are gone and the pupils rigid to light. Wassermann serum negative; cerebrospinal fluid negative; globulin weakly positive; mononuclear cells 28 per cubic millimeter.

Neither the patient's condition nor the reaction of the serum warranted active syphilitic treatment; so he was placed on tonic measures, as massage baths, electricity and such exercise as he was able for. After two months he had gained 30 pounds in weight and was correspondingly stronger. He could stand and walk alone, with moderate ataxia. His pains had ceased, his diplopia, dysuria and rectal incontinence had disappeared. Wassermann serum negative; cerebrospinal fluid negative; globulin negative; cells 3.

Here was a man who had sufficient treatment six months before to render negative his Wassermann reactions without improvement in symptoms, succumbing to an acute infectious disease, during the convalescence.

escence from which his cerebrospinal fluid passed from the pathologic to the normal state and his symptoms were vastly ameliorated without antisyphilitic remedy. Considerable theorizing might be done, but the indisputable fact is the remarkable recuperative and reparative power of the body tissues on which we can depend in combating the toxins of syphilis.

Table 2 shows what a striking effect salvarsan and neosalvarsan have on the Wassermann reaction, globulin content and cell-count in the cerebrospinal fluid in tabes dorsalis.

MOTOR-TRACT DISEASE

Turning now from diseases in which the virus of syphilis has wrought greatest havoc on the sensory tracts, let us consider the possibilities in dealing with those whose symptoms are chiefly dependent on disturbance of the motor paths. While the disabling of motor paths, for example, ptosis or diplopia, is in the

means of prognosticating the result either from the clinical picture or from the Wassermann reaction, especially when the myelitis produces a spastic paraplegia or an Erb paralysis. Paralyzes resulting from involvement of the third, fourth or sixth cranial nerve yield more readily to salvarsan, especially if of recent origin. Although the results of many of the spastic paraplegias due to syphilis are not all that we could wish, there is a sufficient number of recoveries which approximate the normal to justify pushing this form of therapy in all such cases at least to the point of rendering the reaction negative. As examples of this class, the reports of two similar cases follow. One patient recovered, the other did not.

CASE 18.—E. F., woman, aged 36, married. Complaint: Unable to walk or stand; absolutely no control of bowels or bladder, diplopia on looking downward, cord-like tightness around the abdomen. Duration eleven weeks. No knowledge

TABLE 2.—EFFECT OF SALVARSAN AND NEOSALVARSAN IN TABES DORSALIS

| No. of Example | Serum, Wassermann | Cerebro-spinal Fluid Wassermann | Cerebro-spinal Fluid Globulin Excess | Cerebro-spinal Fluid No. Cells | Reduction of Fehling's Solution | Salvarsan, Gm. | Number of Doses | Neosalvarsan | Number of Doses | Serum Wassermann | Cerebro-spinal Wassermann Fluid | Cerebro-spinal Fluid Globulin Excess | Cerebro-spinal Fluid No. Cells | Reduction of Fehling's Solution |
|----------------|-------------------|---------------------------------|--------------------------------------|--------------------------------|---------------------------------|----------------|-----------------|--------------|-----------------|------------------|---------------------------------|--------------------------------------|--------------------------------|---------------------------------|
| 1 | — | — | — | 107 | + | 0.6 | 3 | 0.9 | 2 | — | — | — | 5 | + |
| 2 | + | + | — | 70 | + | 0.6 | 2 | 0.9 | 4 | + | — | — | 15 | + |
| 3 | + | + | + | 90 | + | ... | .. | 0.9 | 4 | — | — | — | 17 | + |
| 4 | + | — | + | 142 | + | 0.6 | 1 | 0.9 | 5 | — | — | — | 2 | + |
| 5 | — | — | — | 22 | + | ... | .. | 0.9 | 2 | — | — | — | 0 | + |
| 6 | — | + | + | 96 | + | ... | .. | 0.45 | 1 | — | + | — | 21 | + |
| 7 | — | + | + | 81 | + | 0.6 | 2 | 0.9 | 4 | — | — | — | 8 | + |
| 8 | + | + | + | 33 | + | 0.6 | 1 | 0.9 | .. | — | — | — | 32 | + |
| 9 | + | + | + | 42 | + | 0.6 | 2 | ... | .. | — | — | — | 3 | + |
| 10 | — | + | + | 55 | + | 0.3 | 1 | ... | .. | — | + | — | 33 | + |
| 11 | + | + | + | 135 | + | ... | .. | 0.9 | 2 | — | — | — | 32 | + |
| 12 | + | + | + | 192 | + | 0.6 | 2 | 0.9 | .. | — | — | — | 16 | + |
| 13 | + | — | + | 42 | + | 0.3 | 3 | ... | .. | — | — | — | 0 | + |
| 14 | + | + | + | 42 | + | 0.6 | 3 | ... | .. | — | — | — | 36 | + |
| 15 | + | — | — | 53 | + | 0.6 | 3 | ... | .. | + | — | — | 5 | + |
| 16 | + | — | — | 3 | + | 0.3 | 1 | ... | .. | — | — | — | 0 | + |
| 17 | + | — | + | 273 | + | 0.6 | 3 | 0.9 | 1 | — | — | — | 11 | + |
| 18 | — | — | — | 61 | + | 0.6 | 2 | ... | .. | + | — | — | 13 | + |
| 19 | — | — | — | 53 | + | 0.6 | 4 | ... | .. | — | — | — | 0 | + |
| 20 | + | + | — | 6 | + | 0.6 | 4 | ... | .. | — | — | — | 0 | + |
| 21 | + | + | + | 96 | + | 0.3 | 4 | ... | .. | — | + | — | 15 | + |
| 22 | + | + | + | 137 | + | 0.3 | 3 | ... | .. | — | — | — | 0 | + |
| 23 | — | — | — | 142 | + | 0.6 | 3 | ... | .. | — | — | — | 36 | + |
| 24 | + | + | + | 59 | + | 0.6 | 5 | ... | .. | — | — | — | 21 | + |
| 25 | + | + | + | 94 | + | 0.6 | 2 | ... | .. | + | — | — | 36 | + |

EFFECT IN TABES SOMETIMES OCCURRING AFTER ONE INJECTION OF SALVARSAN

| | | | | | | | | | | | | | | |
|---------|---|---|---|-----|---|-----|---|-----|----|---|---|---|----|---|
| 1 | + | + | + | 135 | + | 0.6 | 1 | ... | .. | — | — | — | 26 | + |
| 2 | — | — | — | 33 | + | 0.6 | 1 | ... | .. | — | — | — | 9 | + |
| 3 | + | — | — | 253 | + | 0.6 | 1 | ... | .. | + | — | + | 59 | + |
| 4 | + | + | + | 128 | + | 0.6 | 1 | ... | .. | — | — | — | 60 | + |

majority of instances the first symptom that strikingly calls the patient's attention to the late effects of syphilis, there can be little doubt that the earliest inroads are made on the sensory tracts. It is usually possible to elicit from an intelligent patient the appearance of subjective sensory disturbances previous to the occurrence of motor symptoms. This opinion, which is now held by most neurologists, has recently been reaffirmed by Holmes⁶ in an article on tabes.

In those cases, fortunately relatively fewer, in which the motor system bears the brunt of the attack of the virus of syphilis, the results of antisyphilitic therapy are usually less fortunate than those obtained in disease of the sensory system. There is apparently no

of infection. Two children died in first year of life, three living.

Examination.—Cannot stand, cannot move her lower extremities at all as she lies in bed; entirely incontinent, moderate incoordination of both upper extremities. Knee and ankle reflexes plus, double Babinski, double ankle clonus, abdominal and epigastric reflexes absent, normal in the arms; left palpebral aperture narrowed, eye turns slightly outward in looking down. Right pupil rigid to light, left small but responds. Fundi normal. Belt of hypesthesia from sixth to twelfth dorsal segment distribution. Wassermann serum negative; cerebrospinal fluid negative; globulin positive; mononuclear cells 80.

Treatment.—Neosalvarsan, 0.9 gm., every second day for four doses, and massage. Four weeks later neosalvarsan, 0.9 gm., two doses within a week. Fifteen months later patient had gained 40 pounds in weight, going about doing the housework; walks without support with slight wavering.

6. Holmes, Gordon: The Diagnosis of Tabes Dorsalis, Brit. Med. Jour., March 14, 1914, p. 573.

but securely; has no incontinence, no diplopia, no pain, no paresthesia.

Examination.—This reveals the tendon reflexes still plus, double Babinski, left exhaustible ankle clonus. Pupils unchanged. Wassermann serum negative; cerebrospinal fluid negative; globulin negative; no cells.

CASE 19.—W. S., man, aged 41, married. Complaint: Legs are weak and shaky; legs jerk up in bed; pain about the waist; impotent; not incontinent. Duration six months, much worse recently. Chancre fourteen years ago, also secondary rash. Treatment for three years with mercury and iodid.

Examination.—Sways in Romberg position; walks stiffly, scraping toes; knee reflexes plus; double ankle and patellar clonus; double Babinski; epigastric reflexes absent; abdominals and cremasterics sluggish; pupils unequal but respond to light and accommodation. No demonstrable sensory disturbance. Mental examination negative. Wassermann serum negative; cerebrospinal fluid negative; globulin negative; mononuclear cells 103.

Treatment.—Neosalvarsan, 0.9 gm., four doses a week apart. Three months later neosalvarsan, 0.9 gm., three doses in three weeks. Seventeen months later patient is still markedly spastic in his gait and the physical signs if changed are more pronounced. Wassermann serum negative; cerebrospinal fluid negative; globulin negative; no cells.

These two cases exhibit the capriciousness of results in treating syphilitic diseases of the motor tracts. If inclined to offer a favorable prognosis, one would probably have selected the case with the active exudative reaction in the central nervous system.

This type of case, which is almost an entity in itself, usually offers the most stubborn resistance to treatment, and in that respect differs radically from the usual forms of cerebrospinal syphilis.

CEREBROSPINAL SYPHILIS

The rapidity with which the ordinary types of cerebrospinal syphilis, including meningo-encephalitis and meningomyelitis, respond to salvarsan is very gratifying. Headaches, somatic pains, mild palsies, paresthesias, sluggish motor responses and similar manifestations, as a usual thing, yield in a comparatively short time to treatment with salvarsan. A few examples are more eloquent than much comment. Suffice it to say that similar results could not be accomplished without months of treatment, if at all, under mercurial therapy.

CASE 20.—P. H., man, aged 35, widower. Complaint: Inability to work because of stiffness in the left knee, which appears to a degree after working it back and forth; lack of prompt response in movements of the left foot; catching of the heel on the ground; difficulty in going up and down stairs; "creeping feeling" in the left hand and elbow. Duration two years, getting worse. Chancre two and one-half years previous.

Examination.—Station normal, no noticeable defect in gait, no tremor of the hands. Knee and ankle reflexes exaggerated, left more than the right. Babinski on the left, at ankle and patellar clonus, left epigastric and abdominal reflexes diminished right plus, pupils equal and respond promptly to light. Wassermann serum positive; fluid negative; globulin positive; mononuclear cells 26.

Treatment.—Salvarsan, 0.6 gm., three doses about a month apart. Two months after the last treatment patient was working steadily as an inspector of plumbing and had no difficulty or complaint of any description, except a slight stiffness of the left knee on arising. Wassermann serum negative; cerebrospinal fluid negative; globulin negative; no cells.

CASE 21.—N. V., man, aged 30, single. Complaint: Dizziness, intermittent headache, vomiting in the morning, nausea during the day, feeling of uncertainty when on his feet, occasional blurring of vision, pain in the stomach. Duration four months, steadily worse. Chancre six years before.

Examination.—Station and gait normal, occasional general tremor, slight occasional choreiform movement of shoulders and arms, reflexes sluggish; on reinforcement the right knee-reflex is greater than the left; right ankle-jerk present, left absent; right pupil reacts to light; old scar on left cornea due to trauma; vision of right eye normal. Wassermann serum positive; cerebrospinal fluid positive; globulin positive; mononuclear cells 915.

Treatment.—Salvarsan, 0.6 gm., three doses a week apart. One month after last injection his symptoms had entirely disappeared. Wassermann serum positive; globulin negative; cells 30.

He then received weekly injections of 10 minims of salicylate of mercury intramuscularly and after two months was still quite well. Wassermann serum negative; cerebrospinal fluid negative; globulin negative; cells 13. The tremor and the jerky movements have disappeared. Reflexes remain the same.

CASE 22.—W. K., man, aged 26, single. Complaint: Headache; insomnia; twitching of the left side of the mouth, left shoulder and left side of the body; occasional vomiting; completely unable to speak four days ago. Duration three months; progressive. Chancre four months ago.

Examination.—Very slight paresis of right facial nerve, reflexes all present and equal, pupils equal, not quite round, respond promptly to light and in accommodation; station, gait and remainder of physical examination normal.

Mental examination showed marked defects in orientation, memory and attention. Speech somewhat indistinct. Wassermann serum positive; cerebrospinal fluid positive; globulin positive; mononuclear cells 533, polynuclear cells 13.

Treatment.—Neosalvarsan, 0.9 gm., five doses within three weeks. Two months later neosalvarsan, 0.9 gm., two doses three days apart. At the end of that time, ten weeks after the initial examination, no physical abnormality and his mentality has cleared entirely. No speech disorder. Wassermann serum negative; cerebrospinal fluid negative; globulin positive; mononuclear cells 16.

SYPHILITIC MASS FORMATION

Gummata of the brain, cord or meninges are much less common than was formerly supposed. Modern laboratory and therapeutic methods have disclosed the fact that conditions which would formerly, doubtless, have been diagnosed as gumma, must come under the head of cerebrospinal syphilis with a pronounced cellular exudate. This may take the form of a meningo-encephalitis or meningomyelitis giving rise to localized symptoms. The rarity of cases in which a diagnosis of gumma in the central nervous system is beyond the pale of dispute makes our experience with salvarsan in their treatment too inconsiderable to be of value in drawing conclusions.

NEURASTHENIC TYPE

There is still another class of syphilitic cases in which the patients show no gross lesion of the nervous system or other viscera, but complain of vague inconstant neurasthenic symptoms which are often called functional.

Many such, beyond doubt, have been treated as functional or neurasthenic even by the ablest hands. In such cases, when there is no knowledge of infection, one is justified in making a therapeutic test on the evidence furnished by a Wassermann reaction repeatedly positive. These cases are rather more frequent than one would suspect, and after observing the relief

which comes to the patients after their blood has been sterilized by salvarsan, one regrets that not all neurasthenics can be so definitely and promptly cured.

INHERITED SYPHILITIC NERVOUS DISEASE

We have yet to appreciate fully the ultimate effects of syphilis on the offspring. Doubtless a considerable percentage of the hosts of mentally backward children have had their central nervous systems impaired *in utero* by the vicious toxins of the *Spirochaeta pallida*. We have under treatment a number of such children exhibiting positive Wassermann reactions, but the time is not yet ripe for an expression of opinion as to the value of therapy.

Another dreadful manifestation of syphilis in the parent is epilepsy in the child. By this is not meant the jacksonian movements which may characterize cerebrospinal syphilis in the exudative stage, but generalized convulsions in a child whose cerebrospinal fluid is normal, but whose blood and that of the mother returns a positive Wassermann. Such cases are comparatively rare, and it is very difficult to make the Wassermann reaction negative. Under salvarsan treatment the number of attacks becomes greatly diminished and in some instances ceases altogether.

GENERAL PARESIS

The tendency of the *Spirochaeta pallida* to lodge in hordes in the non-vascular regions of the cerebral cortex does not augur particularly well for the treat-

space around the cord will not arrive at the cerebral cortex except by way of the central canal of the cord and the ventricle, or after being taken up by the general vascular system. The outlook is therefore not encouraging. The report of a case in which the deteriorating process was arrested may prove interesting:

CASE 23.—W. M., man, aged 31, single. Complaint (by his mother): Memory failing; low-spirited, irritable; unable to remain at one task; shaking of the hands; speaks so indistinctly that he can with difficulty be understood. Patient states that he talks as well as he ever did and “feels fine.” Duration six weeks; progressive. Chancre seven years before with rash and sore throat.

Examination.—Station secure, gait hesitating; marked tremor of the lips, tongue and hands; no hypotonus, slight incoordination; absent knee- and ankle-jerks; plantar flexion, plus abdominal, epigastric and cremasteric reflexes; unequal pupils, rigid to light; tremulous, hesitating speech; sits alone in a depressed attitude; when he is addressed smiles blandly and says he “feels fine.” When aroused ascends into a euphoric state; insight fair, memory, orientation and attention good. The treatment and its effect on the Wassermann reaction are given in Table 3.

To-day he is a pleasant, agreeable, rather jovial person, with good sense of humor and of normal conduct. He is a constant reader and relates the details of a story which he has read. His memory and insight are excellent. His attention is good but in the midst of a complexity of duties he becomes easily excited. Gaged by the Binet-Simon tests his mental age is 12 years. His tremors have disappeared and his speech, though slightly hesitating, is clear and distinct. Pupils and reflexes remain unchanged. Although he has not attempted to resume his work as a stenographer, he is industrious about the care of his house and grounds.

From Table 4 is evident the high resistance of the Wassermann reaction both in the serum and in the cerebrospinal fluid in the majority of cases of general paresis.

THE PROVOCATIVE DCSE

Certain persons seem to arrive at such a state of tolerance for the syphilitic parasite that the tissues no longer give chemical evidence of active resistance to the invader. Salvarsan is often of value in arousing the latent capabilities of the body-cells and may be employed to advantage in the doubtful cases as a diagnostic measure. Untreated cases with suspicious symptoms, which are luetic, presenting a negative Wassermann reaction, may have this changed to a positive reaction by a single small injection of salvarsan. The blood should be drawn from one to three days after the injection.

PLAN OF THERAPY

While salvarsan has proved our most rapid and most efficient agent in treating syphilitic nervous disease, the use of mercury, preferably intramuscularly, in the interval between doses of salvarsan, has proved highly desirable. The salicylate in a purified petroleum oil suspension has been chiefly employed by us.

It is probable that the intermittent treatment will prove advantageous. By this is meant a succession of periods of treatment and periods of rest, each covering a number of weeks. The spirochete is thus not rendered immune or less sensitive to the specific therapy as may occur when treatment is continuous. The great drawback to this plan is losing sight of the patient, whose interest may wane.

In our enthusiasm in attempting to render the Wassermann reaction negative, we must not forget that

TABLE 3.—EFFECT OF TREATMENT IN CASE 23 CHRONOLOGICALLY CONSIDERED

| Date | Serum Wassermann | Fluid Wassermann | Globulin Excess | Mono-nuclear Cells | Salvarsan, Gm. |
|------------|------------------|------------------|-----------------|--------------------|----------------|
| 4/19/12... | + | + | + | 27 | 0.3 |
| 5/ 9/12 | .. | .. | .. | .. | 0.3 |
| 5/11/12 | .. | .. | .. | .. | 0.3 |
| 5/14/12 | .. | .. | .. | .. | 0.3 |
| 5/31/12 | + | + | + | 19 | 0.6 |
| 6/ 5/12 | .. | .. | .. | .. | 0.3 |
| 6/11/12 | .. | .. | .. | .. | 0.6 |
| 7/12/12 | — | + | + | 3 | 0.6 |
| 7/18/12 | .. | .. | .. | .. | 0.6 |
| 7/25/12 | .. | .. | .. | .. | 0.6 |
| 7/27/12 | + | + | + | 10 | ... |
| 12/27/12 | + | + | — | 13 | ... |
| 1/ 7/13 | — | — | — | 5 | ... |
| 2/28/13 | + | + | + | 8 | ... |
| 6/10/13 | — | + | — | 13 | 0.6 |
| 12/11/13 | + | + | + | 5 | 0.6 |
| 12/19/13 | .. | .. | .. | .. | 0.6 |
| 1/ 9/14 | + | — | — | 6 | 0.6 |
| 1/14/14 | + | .. | .. | .. | ... |

ment of general paresis. It is not surprising, then, that the percentage of cures and even cases of arrested progress is very small. Not infrequently a case of paresis will show improvement under salvarsan treatment for a greater or less period, but eventually exhibit progressive deterioration. In this condition the Wassermann reaction in the serum and spinal fluid is extremely resistant and in only a comparatively few cases have we been able to influence it permanently. We can but devoutly hope that the method of subdural salvarsan therapy employed by Swift and Ellis⁷ may be a boon to the general paretic. But inasmuch as it has been demonstrated by Kramer⁸ that the subdural space around the cerebral cortex is not continuous with that below the tentorium cerebelli and around the spinal cord, any fluid introduced into the subdural

7. Swift and Ellis: New York Med. Jour., 1912, xcvi, 53.
8. Kramer: New York Med. Jour., March 16, 1912.

we are treating the patient, not the condition of his serum. Besides the directly antisyphilitic remedies, all adjuvant measures possible must be employed, including systematic exercise in the open air, Fränkel exercises when necessary, tonic baths, various forms of electricity, massage, the cautery when indicated and a simple nutritive diet. But in observing the progress of therapy and the decadence of the syphilitic process, the Wassermann reaction and the cell count are our most enlightening guides, and without them we are in the dark. Improvement in symptoms nearly always follows *pari passu* with improvement in this.

From a continuous study and review of the work of the past four years we submit the following conclusions, which differ in no essential from those expressed in a report by this service on the same subject two years ago.⁹

CONCLUSIONS

1. The treatment of syphilitic nervous diseases without the Wassermann reaction and spinal fluid analysis is guess-work.

2. The nervous system may be the site of attack within a few weeks after the initial lesion appears.

TABLE 4.—HIGH RESISTANCE OF WASSERMANN REACTION IN GENERAL PARESIS

| GENERAL PARESIS | | | | | | | | | | | | | | | |
|------------------------|-------------------|---------------------------------|-------------------------------|--------------------------------|--------------------|----------------|-----------|-------------------|-----------|-------------------|---------------------------------|-------------------------------|--------------------------------|--------------------|--|
| No. of Example | Serum, Wassermann | Cerebro-spinal Fluid Wassermann | Cerebro-spinal Fluid Globulin | Cerebro-spinal Fluid No. Cells | Fehl'g's Reduction | Salvarsan, Gm. | No. Doses | Neosalvarsan, Gm. | No. Doses | Serum, Wassermann | Cerebro-spinal Fluid Wassermann | Cerebro-spinal Fluid Globulin | Cerebro-spinal Fluid No. Cells | Fehl'g's Reduction | |
| 1 | — | + | + | 130 | + | 0.6 | 8 | .... | .. | — | + | + | 3 | + | |
| 2 | + | + | + | 15 | + | 0.6 | 4 | 0.9 | 4 | — | + | + | 16 | + | |
| 3 | + | + | + | 109 | + | 0.6 | 1 | 0.45 | 1 | + | + | + | 24 | + | |
| 4 | | | | | | 0.3 | 1 | | | | | | | | |
| 5 | + | + | + | 192 | + | 0.6 | 2 | 0.45 | 5 | — | + | + | 8 | + | |
| 6 | + | + | + | 116 | + | 0.6 | 4 | .... | .. | + | + | + | 120 | + | |
| 7 | + | + | — | 0 | + | ... | .. | 0.9 | 3 | + | + | — | 0 | + | |
| 8 | + | + | + | 27 | + | ... | .. | 0.9 | 3 | + | + | — | 20 | + | |
| 9 | + | + | + | 35 | + | ... | .. | 0.9 | 5 | — | + | — | 0 | + | |
| 10 | + | + | + | 107 | + | ... | .. | 0.9 | 6 | + | + | — | 48 | + | |
| 11 | + | + | + | 151 | + | 0.6 | 2 | 0.9 | 2 | + | + | + | 32 | + | |
| 12 | + | + | — | 270 | + | 0.6 | 4 | .... | .. | + | + | + | 146 | + | |
| 13 | + | — | + | 121 | + | 0.6 | 4 | .... | .. | + | — | + | 65 | + | |
| CEREBROSPINAL SYPHILIS | | | | | | | | | | | | | | | |
| 1 | + | — | + | 26 | + | 0.6 | 3 | .... | .. | — | — | — | 0 | + | |
| 2 | + | + | + | 915 | + | 0.6 | 5 | .... | .. | + | + | + | 15 | + | |
| 3 | + | + | + | 91 | + | 0.6 | 1 | 0.45 | 6 | — | + | — | 14 | + | |
| 4 | | | | | | 0.3 | 2 | | | | | | | | |
| 5 | + | + | + | 548 | + | 0.6 | 1 | 0.9 | 7 | — | — | — | 12 | + | |
| 6 | + | + | + | 930 | + | 0.6 | 8 | .... | .. | — | — | — | 26 | + | |

3. The earlier antisyphilitic treatment is instituted in syphilitic nervous diseases, the greater the probability of complete recovery.

4. Salvarsan is the most potent remedy in our armamentarium in the treatment of syphilis of the nervous system.

5. Salvarsan is not all-sufficient.

6. One or two doses are not usually sufficient to effect a cure, but may check the disease for a time.

7. Syphilitic nervous diseases improve most when salvarsan therapy is combined with mercurial treatment and general tonic measures.

8. Therapy should be continued until the serology is negative if possible.

9. The serology should be examined periodically after a negative status has been achieved.

49 East Sixty-Seventh Street.

9. Collins, Joseph, and Armour, Robert G.: The Treatment of Syphilitic Diseases of the Nervous System by Salvarsan, THE JOURNAL OF M. A., June 22, 1912, p. 1918.

CASE OF POISONING BY SCOPOLAMIN (HYOSCIN) HYPOBROMATE

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May 28, 1913, in the forenoon, W. R. P., man, aged 21, consulted an oculist, who discovered that he had no homatropin to use in the examination. Calling by telephone a local drug-store, he ordered some powders, each to contain ½ grain of homatropin. The messenger appeared shortly with an envelope containing the supposed powders of homatropin. The oculist immediately made a solution by dissolving one of the powders in thirty drops of distilled water (a method used by him for obtaining approximately 1 c.c.), omitting to read the label, which was small and inconspicuous. The label read "hyoscin hypobromate, grs. ½." The patient then lay on a couch and 3 drops of the solution were dropped in each eye, so that about ¼ grain of scopolamin (hyoscin) hypobromate was administered in this way. In a few minutes he complained of dizziness. While he managed to stagger to a chair, he immediately threw himself back on the couch on account of his sensation of dizziness and faintness. His pulse at this time was beating at the rate of 150 a minute, and at times it was too indistinct

to be counted. He was actively delirious, having delusions of playing baseball—from his conversation apparently with much interest. He was closely watched and received ¼ grain of strychnin hypodermically. No other medication was employed. His condition gradually improved, so that by 4:30 o'clock his pulse was reduced to 110 and was stronger. He was then removed to the hospital. He was still delirious and seemed to realize that he was talking irrationally, but said that he was unable to control it. By 7 o'clock his pulse was 86, his respiration 18, his temperature 99.4, and he was practically rational. On the following day, at which time I first saw him, his pulse varied from 60 to 86 and his temperature reached 99.2. No trace of his mental confusion remained. He left the hospital on the third day. While he has worried somewhat about himself since the occurrence, there is no evidence that any permanent injury has resulted from his large dose of scopolamin hypobromate.

Early Specialization.—The Egyptians were right in neglecting the general calling of a physician and of dividing the profession.—Montaigne.

REPORT OF A CASE OF PELLAGRA WITH
LATE SKIN LESIONS

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It has been frequently observed that the skin-lesions of pellagra, although having given the disease its name, are by no means necessarily, or even commonly, the first symptoms to appear. It is perhaps less generally known that symptoms referable to other organs may persist for such a long period without the development of the dermatitis that one may be entirely put off the scent if one depends on this symptom alone. I cannot better lay stress on this feature of pellagra than by briefly reporting a case recently seen by me in which the late appearance of the skin-symptoms was no less than tragic.

Mrs. X., a woman of 30, living in a neighboring mountain town, married and the mother of five children, had always been well until shortly after the birth of the last one, a seven-months' child, born July 1, 1913, and living only a few days. The puerperium presented no unusual features and the patient remained well until about a month after delivery. About this time she noted that her strength was not quite up to par, and the appetite, hitherto good, became capricious and soon vanished almost completely. Associated symptoms were an intense nausea, with vomiting, repeated several times daily, and persisting for three or four months. Pain and burning in the stomach were early and distressing symptoms. Following in the wake of these "dyspeptic" symptoms, there appeared a diarrhea, at first mild, but soon attaining considerable proportions. The diarrhea, with movements varying from ten to twenty daily, persisted until March, 1914. The patient, as a result of this drain, became weaker and weaker, yet still attempted to keep about and to attend to her household duties. During this period she was seen by several physicians and was treated by them for "stomach-trouble," "intestinal catarrh" and "consumption of the bowels," with but little improvement. About the middle of March, 1914, the patient became more acutely ill, suffering with extreme nervousness, a recurrence of the vomiting, severe burning in the stomach, and a sore mouth and tongue, accompanied with profuse salivation. She was so sick that she was compelled to take to her bed. At the same time there appeared on the backs of the hands and forearms a symmetrical erythema resembling sunburn, which blistered and later scaled. The patient has been in bed continuously since the acute attack.

I saw her for the first time, May 15, 1914. In the course of the two months which she has spent in bed the diarrhea has improved so that she has only two movements daily, the nausea and vomiting have disappeared and the appetite has partly returned. The chief complaints are the burning pain in the feet and the cramps in the calves of the legs, both so severe that she is unable to get much sleep, the loss of which adds greatly to her already exhausted condition. While the sore mouth has improved, the salivation is profuse and the patient is almost continuously wiping the saliva from the lips and chin, which have become excoriated as a result of the constant discharge. On the backs of the hands and forearms is a symmetrical, rather sharply defined dermatitis, with scaling still going on. Both elbows are ichthyotic in their roughness. Emaciation is extreme; the eyeballs are sunken in their sockets; the face is drawn, the expression set and anxious, while speech is slow and attended with much difficulty on account of both the salivation and the mental and physical exhaustion. Sleeplessness, made worse by pains in the legs and feet, has intensified the prostration to such a degree that the patient is unable to sit up in bed without fainting. Mental symptoms, such as loss of memory and "flightiness," are present, but the patient makes the attempt to appear cheerful in spite of the feeling of apprehension which she is unable to throw off.

The main features of the case, then, are as follows: Here is a woman evidently suffering with pellagra, confined to bed for over two months, and requiring the constant attendance of a nurse, so extreme is the prostration. And yet for over seven months prior to the advent of the dermatitis and other

frankly pellagrous symptoms, there was nothing in her history which even remotely suggested pellagra to the physicians in charge of the case, so that the patient was allowed to be about and had greatly exhausted her strength before pellagra showed itself in its true colors. The lesson to be learned from this case is that the physician must not wait for the dermatitis before suspecting, at least, the existence of pellagra; and an evident corollary is that in pellagrous areas a long-continued attack of "stomach and bowel trouble" must be regarded as cause for alarm. It is hoped that this brief case-report will bring out the point which I wish to emphasize, namely, that pellagra may exist for a long period—months and possibly years—before the characteristic dermatitis makes its appearance. In this instance it was probably the pregnant state which awoke a latent pellagra, and the premature birth was in all probability the result of pellagrous infection.

Therapeutics

TETANUS

Statistics are constantly impressing us with the facts: (1) that tetanus is preventable; (2) that frequently it can be stopped after it has developed; (3) that it may be cured after it has become well established. Consequently, it should never be considered absolutely incurable.

PREVENTIVE TREATMENT

The most successful preventive treatment and practically the only successful one after the disease has developed is by tetanus antitoxin. As a preventive, this antitoxin ranks even ahead of diphtheria antitoxin; therapeutically, it is far inferior, because part of the toxin produced by the tetanus bacilli forms a combination with the nerve-cells of the spinal cord. The greater portion of the toxin seems to circulate in the blood, but a small part is absorbed by way of the lymph-vessels and passes to the spinal cord by means of the nerve trunks.

One of the greatest dangers from this terrible infection is that the local lesion may not show signs of disturbance when the central nervous system suddenly gives indications of poisoning. The kinds of wounds likely to contain the tetanus bacillus, however, are positively known. These are: all wounds that may contain dirt contaminated by manure, such as that from streets, stables or barns and even fields; wounds by firecrackers; by gunshots, especially with blank cartridges; by crushing, in machinery or otherwise. The feet and hands are especially prone to be infected with tetanus germs. Street injuries that are not deep or perforating, but grinding and lacerating, are very likely to cause tetanus infection. Also, it has been stated that tetanus bacilli may be harbored in an old injury, yet cause no symptoms until some other injury or general disturbance of the body has caused the normal protection against infection to be broken down; then toxins from the bacilli may be absorbed and tetanic symptoms develop. This would account for some otherwise apparently unaccountable developments of tetanus.

DRESSING THE WOUND

The corollary to the preceding statement is that in every case of injury, whenever the wound may have been contaminated by street dirt or by objects that have been exposed to street or barn dust, first, at

Foreign matter should be removed from the wound, even if to do so it becomes necessary to cut down on a penetrating wound under anesthesia; secondly, not the open wound alone, but the surrounding tissues as well should be painted with tincture of iodine, then the wound should be dressed with some antiseptic dressing, of which a strong alcohol wet dressing is, perhaps, as good as any; thirdly, the patient should be given immediately an injection of 1,500 units of tetanus antitoxin.

Various antiseptic soaps, washes and solutions have been and may be used in cleansing the wound and dressing the injured part. It should be remembered that, if the tincture of iodine is used, its germicidal action is greater the drier the parts are and the less they have been bathed with solutions.

It should be emphasized that statistics, from both Europe and the United States, compiled from repeated observations by careful surgeons and clinicians, indicate that it is almost inexcusable not to give a patient, who has suffered one of the above-mentioned injuries, or who has been known to have had an injured part contaminated with a possibly infected dirt, the preventive dose of tetanus antitoxin.

Antitetanic powders have been prepared with antiseptics, and although, experimentally, their use has been successful in preventing the development or absorption of tetanus toxins, still it has not been shown that the results were not accidentally successful because of the strong antiseptic that was combined with the antitoxin powder. It might, however, be well to apply antitetanic serum to the open wound at the same time that the preventive subcutaneous injection is given.

According to investigations, the immunity caused by the antitetanic injection does not seem to last more than from two to three weeks, but this is generally long enough to prevent the development of the infection from any particular injury.

ANAPHYLACTIC SYMPTOMS

The usual reaction which takes place from the injection of any horse-serum may occur, that is, anaphylactic symptoms, but these are rarely severe, and are shown mostly by slightly increased temperature, and slight urticarial eruptions with some itching. When a number of injections must be made in the treatment of tetanus, there is, of course, sooner or later, greater probability of serum reaction. In some instances it has been found that hypodermatic injections of atropine sulphate have prevented some of the symptoms.¹ As atropine alone may cause, through irritation of the skin, scarlatiniform eruption, it seems rather surprising to find atropine successful in preventing symptoms of anaphylaxis. It should be remembered that, in hay-fever or asthmatic patients, as serious poisoning may occur with this horse-serum as in the use of diphtheria antitoxin. Therefore, before using antitetanic serum as a preventive of the disease, it should be carefully ascertained whether or not the patient is susceptible to horse emanations.

If the first symptoms of tetanus are in evidence, that is, if the disease is about to develop, or has developed, it may be aborted by the immediate injection of from 1,000 to 10,000 units of antitetanic serum, best admin-

istered intravenously. It may also be well, within a few hours, to give in addition 5,000 units subcutaneously. If the symptoms are well developed, or the patient shows severe poisoning, from 10,000 to 20,000 units should be immediately given intravenously, and in ten or twelve hours 3,000 to 5,000 units subcutaneously, provided the symptoms have not markedly ameliorated. In twenty-four hours the same subcutaneous dose may be repeated. A more effective treatment, however, is gently to inject 5,000 units into the spinal canal, if the intravenous injection has not ameliorated the symptoms in a few hours. This seems to be the most effective means of combating the action of the toxins on the spinal nerve-cells. In fact, it has been proved that the toxin in these nerve-cells cannot well be combated by antitoxin in the blood-stream, but that it can be when the antitoxin is injected into the spinal canal.²

Even if the symptoms have markedly ameliorated, if any signs such as muscle stiffening, show that the disease is continuing, a smaller injection may be given subcutaneously once or twice in twenty-four hours for several days.

DOSAGE OF ANTITOXIN

The amount of the antitoxin that may be used without causing harmful symptoms seems to be without any narrow limit; several thousand units may be administered every few hours, if it seems advisable, and 20,000 to 30,000 units intravenously. Many thousand units may be given during the course of the disease with only good results.

Finally, each physician and surgeon should seriously consider the advisability either of using a prophylactic dose of tetanus antitoxin serum in every injury of the character described; or, if his patient, or the patient's family refuses to allow such an injection to be given, of securing a signed release from responsibility or blame should tetanus later develop.

2. See The Serum Treatment of Tetanus, editorial, THE JOURNAL A. M. A., April 11, 1914, p. 1174.

Cariou Teeth.—Statistics of the London County Council show percentages of carious teeth among schoolchildren are as follows: Entrants (that is, very young children), boys 10.3, girls 10.1; children between 8 and 9, boys 17, girls 16.5; between 11 and 12, boys 12.9, girls 11.8. The increase during what may be described middle school age is ascribed to the fact that the milk-teeth are then being changed for the permanent. An attempt is made to classify the percentages of bad teeth according to social condition. About 39 per cent. of the children from well-to-do homes have defective teeth, as against 27 per cent. from very poor homes. This is accounted for by the fact that the coarser food eaten by the poorer children gives their teeth more work, and hence keeps them clean and strong. It is also suggested that the poor are able to give their children fewer sweets, and only those of the cheap or boiled-sugar variety. These sweets break up clean in the mouth, whereas the caramels and chocolates eaten by better-off boys and girls tend to cling round the teeth and form a nidus of fermentation. Writing on this subject, Dr. Sims Wallace, late dental surgeon to the London Hospital, states that there are in this country about 21,000,000 teeth in a state of ruin through eating sweets, and urges the adoption of a diet containing farinaceous food in a form which will stimulate mastication, as brown bread, and also the eating of fresh fruit at the conclusion of a meal. By means of the fruit the teeth are cleansed. The best fruit for this purpose is probably the apple, which, if eaten at the end of a meal, leaves the mouth fresh and physiologically clean.

1. Berghausen, Oscar, and Howard, Charles E.: The Treatment of Tetanus with Reference to Tetanus Prophylaxis, THE JOURNAL A. M. A., April 13, 1912, p. 104.

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THE TRANSMISSION OF TYPHUS FEVER

In September, 1909, Nicolle, Comte and Conseil¹ reported the successful transmission of typhus fever from one monkey to two others by means of the bite of the body-louse (*Pediculus vestimentis*). In their report they showed that body-lice that had fed on an infected monkey were able to convey typhus fever some time between the first and the seventh day thereafter.

Independently of Nicolle and his co-workers, Anderson and Goldberger,² in their studies on typhus fever in Mexico in November, 1909, reported two attempts to transmit Mexican typhus from man to the monkey by means of the bite of the body-louse. In one of their experiments the monkey showed a slight elevation of temperature eight days after the last exposure to the bites of the infected lice, but they stated that circumstances made it impossible to test the immunity of this animal. In view of later studies by them and by others, they concluded that it was very probable that the elevation of temperature was due to infection with typhus.

Ricketts and Wilder,³ also working on the Mexican typhus, reported in 1910 that they were able to transmit the virus of typhus fever by means of the bite of the body-louse from man to monkey and from monkey to monkey. They also reported the successful transmission of the typhus virus to the monkey by introducing into scarifications of the skin the abdominal contents of infected lice. They stated that, as a rule, in their louse experiments, the monkeys had no very significant temperature reaction and that proof of infection was dependent on immunity tests with virulent blood.

In 1911, Nicolle and Conseil,⁴ continuing their work of two years previously, reported further successful

experiments on the transmission of typhus to the monkey by means of the bite of infected body-lice.

Subsequently, in 1912, Anderson and Goldberger,⁵ continuing their work on typhus in both the United States and Mexico, reported the successful transmission of both the Mexican and New York typhus by means of infected lice. They also reported the first evidence incriminating the head-louse (*Pediculus capitis*) as a possible agent in the transmission of typhus.

All the work above referred to on the transmission of typhus fever by means of the louse has been on the transmission of the disease to the monkey by means of body-lice that had fed either on infected monkeys or on human beings, and until recently no exact experiments had been reported on the transmission of the disease from man to man by means of the bite of infected lice. There are a number of instances in the literature which strongly suggest this possibility, but the evidence has not been conclusive. Sergent, Foley and Vialatte,⁶ however, have recently reported the successful transmission of typhus to man and to the monkey by means of the body-louse and possibly also by means of the eggs from infected lice.

In one of their experiments about two hundred infected body-lice were allowed to feed daily on the authors and individuals who volunteered for this service. On the fourteenth day after the beginning of the feeding one of the subjects developed typhus fever. Lice taken from the individual, after being made into an emulsion, were used to inoculate a monkey which, after four days' incubation, developed typhus. Blood was drawn from this animal and used for the inoculation of a second monkey which, after an incubation period of seven days, developed typhus fever.

Sergent and his co-workers conclude that the mere bite of infected adult lice is sufficient to transmit typhus fever to man and that lice taken from a person so infected are infective for the monkey, by either subcutaneous or intraperitoneal inoculation of an emulsion of the ground-up lice. They maintain also that the inoculation of the eggs from infected lice will produce typhus fever when inoculated into man by slight scarification of the skin.

These experiments of Sergent seem conclusively to settle, by means of experiments on man, the rôle of the body-louse in the transmission of typhus fever. It is a matter of sincere congratulation that much of the recent advance in our knowledge of this once dreaded disease have been due to the work of American investigators, although the toll through the loss of life of two of the investigators — Ricketts and Goldberger — has been severe.

1. Nicolle, Charles; Comte, C., and Conseil, E.: Transmission expérimentale du typhus exanthématique par le pou du corps, *Compt. rend. Acad. d. sc.*, Sept. 6, 1909, p. 486.

2. Anderson, John F., and Goldberger, Joseph: On the Infectivity of Tabardillo or Mexican Typhus for Monkeys and Studies on Its Mode of Transmission, *Pub. Health Rep.*, Feb. 18, 1910, p. 177.

3. Ricketts, Howard T., and Wilder, Russell M.: The Transmission of the Typhus Fever of Mexico (Tabardillo) by Means of the Louse (*Pediculus vestimentis*), *THE JOURNAL A. M. A.*, April 16, 1910, p. 1304.

4. Nicolle, Charles, and Conseil, E.: Etiologie du typhus exanthématique, *Ann. de l'Inst. Pasteur*, xxv, p. 68.

5. Goldberger, Joseph, and Anderson, John F.: The Transmission of Typhus Fever, with Especial Reference to Transmission by the Head-Louse (*Pediculus Capitis*), *Pub. Health Rep.*, March 1, 1912.

6. Sergent, E.; Foley, H., and Vialatte, C.: Transmission à l'homme et au singe du typhus exanthématique par les poux d'un malade atteint de fièvre récurrente et par des lentes et poux issus des précédents, *Compt. rend. Acad. d. sc.*, March 30, 1914, p. 964.

COLLEGIATE ATHLETIC SPORTS

One of the numerous criticisms aimed at college athletics, as practiced among most student bodies at present, relates to their failure to take into account the subsequent needs of the persons involved. To an unbiased observer it cannot fail to appear incongruous that a student should devote months or years to a peculiar sort of physical training, avowedly intended to improve his body and promote his physical well-being, only to find himself, on leaving the university, without any form of exercise or healthful recreation that can be followed during after-college life. Certainly the football hero or the member of the winning crew who has developed himself by special efforts into a muscular giant will find little chance to continue his training after graduation. The reaction from the physical stress of severe competitive intercollegiate athletics to the physical passivity of a sedentary occupation in the counting-house or the law chambers is one of the real hardships to which young men are nearly being inevitably consigned by the inconsistent and improper application in American colleges of a pernicious system of athletic rivalry that ought to be confined to professional athletes.

Wherein competitive sports, in their present abuse, fail to play the wholesome rôle that systematic bodily exercise and legitimate athletic performance should make in the life of young people has been discussed in *THE JOURNAL*.¹ In several respects our contentions are in accord with the findings and suggestions of a committee appointed by the National Collegiate Athletic Association to report on the encouragement of intracollegiate and recreative sports. As an outgrowth of the feeling that the present methods do not reach the mass of our students, and do not provide them with practical means for exercise and recreation in after-life, Drs. H. Shindle Wingert of the Ohio State University, Raymond G. Clapp of the University of Nebraska, and Charles E. Hammett of Northwestern University have made an investigation of the practices prevailing in one hundred and fifty collegiate institutions representative of all sizes, locations and degrees of athletic prominence. The undue prominence of the intercollegiate, that is, strenuously competitive, type of games is plainly emphasized. Among the 111,000 students of the institutions under consideration, 18,000 are associated with varsity teams as members or substitutes. From the vagueness of some reports, a definite statement cannot be made as to the number who take part in intramural games, but it appears to be about three times as many as in intercollegiate games. The money expended on intercollegiate sports in 150 colleges is reported as \$1,090,000. In some cases, the amount reported is said to include expendi-

tures also for intramural sports, the proportion not being given. This fact reduces somewhat the expenditure above indicated for intercollegiate sports, and makes it impossible to give the exact amount spent for intracollegiate activities. A reasonable inference, however, from the facts submitted would be that not one-tenth as much is spent for intramural as for intercollegiate games.

Despite the fact that the actual numbers participating in intracollegiate sports is about three times greater than those of the more conspicuous group of selected athletes, it is very clear to one who studies the returns from the colleges that only a small fraction of the money spent on intercollegiate games is used to promote general student athletic activities. Surely if the money of the athletic treasury is to be expended for the physical welfare of the general student body rather than for the staging of a few exciting contests which arouse partisan enthusiasm instead of promoting the physique of the great majority of those concerned, the contribution to the athletic "show" seems unduly prominent. It appears that on intercollegiate sports the large institutions spend the most money per athlete (about \$60), but the least per student (about \$8), the figures for the medium-sized institutions and the small institutions being respectively \$50 and \$40 per athlete, and \$12 and \$13 per student.

After making due allowance for the necessarily approximate character of the reports, the committee is convinced that not more than 50 per cent. of the students in college engage in any form of systematic or organized exercise. It feels, moreover, though it has no way of determining to what extent, that 50 per cent. is decidedly too high a proportion. The committee calls attention to the necessarily unsystematic and sporadic character of the exercises as participated in by the non-university students. Exercise in any form can be of little value unless taken systematically and regularly. Out of 143 colleges, 53, or 37 per cent., are doing nothing to foster and encourage the types of physical exercise and healthful recreation that the student is likely to use in after-college life; 53 per cent. try to create a love of sport by using different games, such as baseball, handball, volley ball, tennis and golf; 21 per cent. give corrective exercises; 14 per cent. give hygienic lectures; 5 per cent. require swimming; 5 per cent. have "hikes," and two colleges teach dancing.

The experts of the National Collegiate Athletic Association believe that intracollegiate sport and recreation should be planned with the constant purpose in view of usefulness in after-life. They are inclined to believe that the conditions revealed by their investigations are due primarily to the lack of appreciation by college authorities and faculties of the vital need of systematic organized instruction in intracollegiate and recreational sports and hygiene. We are impelled, however, to believe that it is not so much the indiffer-

1. See editorials, *THE JOURNAL A. M. A.*, Athletic Sports in Relation to Health, March 21, 1913, p. 936; Athletic Sports versus Competitive Athletics, April 4, 1914, p. 1094; The Hygiene of Athletic Sports—Wingert, April 11, 1913, p. 1172.

ence of collegiate authorities as the dominance of competitive intercollegiate athletics which is responsible for the relative indifference to physical exercise in the very communities in which its value is being taught by lectures and text-books. The glorification of an overtrained few means their sacrifice in many instances and the diversion of interest from more wholesome but less spectacular sports. As the committee referred to has concluded, the student should be furnished with such ideas of rational exercise and hygiene as will enable him to adapt his habits of exercise and modes of living to changing conditions in after-life; that is, he should be trained to think and act of his own initiative in these matters. Some games and exercises can be participated in as intracollegiate sports and can be continued in after-life. Tennis appeals to great numbers in everyday life, but only 65 per cent. of the colleges afford the comparatively inexpensive equipment of courts. Baseball requires little equipment; every fairly well-equipped gymnasium can have a swimming pool and each student should be taught to swim. Social dancing and bowling are especially fitted to the opportunities of after-life. Fencing, wrestling, boxing, Indian club exercises and calisthenics, if made interesting and rightly taught, are of substantial value after college; walking and "hiking" can always be indulged in. A period of reconstruction in the whole domain of collegiate athletics is approaching.

THE HEMOLYMPH-GLANDS

For many years various glandular structures have been classed together as lymphatic tissues, in the belief that they are essentially and fundamentally related to each other. The spleen, for example, in many respects resembles a lymphatic gland. Just as in the latter the cellular elements of the tissues are bathed by the lymph which flows through the gland, so in the spleen the blood is poured out into the interstices of the tissue. Thus the malpighian bodies of the spleen are believed to correspond to the follicles of lymph-glands; and it is frequently stated that after splenectomy a compensatory hyperplasia of the other lymph-glands usually occurs. Spleen and lymph-glands alike are assumed to be concerned in the resistance to infection, in the processes of hemolysis and phagocytosis, and in the pathologic hyperplasias and metaplasias.

The name "hemolymph-glands" has been given to another group of related structures about which there has been much difference of opinion. Found in the thoracic and abdominal aggregations of glandular lymphatic structures, they are commonly believed to be specialized to deal with red cells as well as lymphocytes originating in the more typical lymph-glands. In the hemolymph-nodes as ordinarily described, there are found, besides the ordinary lymph follicles, lymph

sinuses and blood-vessels, a varying number of sinuses filled with red corpuscles, and Cabot, for example, has stated that in these glands the destruction of red corpuscles, especially in pathologic conditions such as infection and toxemia, is considerable. Whether or not they also take part under pathologic conditions in red cell formation has been disputed.

The general pathology of the hemolymph-nodes has hitherto been regarded as essentially the same as that of the lymphatic glands. Inflammation, syphilis, tuberculosis, the various retrograde changes, and secondary neoplasms are all said to be found in the nodes containing blood-sinuses. Little has been ascertained concerning their special pathology, presumably because of the assumption that no hard and fast line can be drawn between spleen, hemolymph-glands and ordinary lymph-glands. Almost a continuous series of transitional structures has been described, and among them the so-called "accessory spleens" have been depicted as a splenic reticulum so widened as to approximate the blood-sinus of a hemolymph-gland and with the malpighian bodies so diffuse as to resemble the lymphoid portion of the blood-lymph-glands. The apparent impossibility of distinguishing in every case between these supposedly interrelated structures has been confirmed through the assertion that hemolymph-nodes can be produced experimentally through the stage of lymph-glands and even back again. The procedures undertaken to secure these changes or the formation of presumably compensatory accessory glands of the hemal type have included the removal of the spleen and injections of toxic substances.

Directly opposed to the foregoing points of view is the contention of a smaller number of investigators that the true hemolymph-nodes have no connection whatever with the lymphatic system.¹ The solution of the problem is not easy, inasmuch as the lymphatic glands in general—even the peripheral accumulations—are subject to pronounced changes in color and consistency under relatively slight provocation. The histologic examinations to determine assumed changes must be painstaking and the preliminary conditions in some way controlled. In view of the conflicting testimony, Dr. Arthur W. Meyer² of the division of anatomy of the Department of Medicine at Leland Stanford, Jr., University has resumed the investigation of the hemal nodes, splenectomy being performed in most cases to provoke the presumed changes. It happens at times that color changes occur in the true lymph-nodes when they become hemorrhagic; but in no instance were hemolymph-nodes formed. As Meyer remarks, changes in lymph-nodes following various influences, of course, have long been recorded.

1. Weidenreich, F.: Ueber Blutlymphdrüsen, *Anat. Anz.*, 1901, 2.

2. Meyer, A. W.: The Supposed Experimental Production of Hemolymph-Nodes and Accessory Spleens, V. Studies on Hemal Nodes, *Jour. Exper. Zoology*, 1914, xvi, 241.

nized; but the nodes remain lymph-nodes and are not converted into hemal nodes having no connection with the lymphatic system.

If we accept Meyer's conclusions on this subject it is impossible at present to say to what extent the pathologic changes hitherto ascribed to the hemolymph-nodes in disease apply to the glands of the true hemal type rather than to altered lymph-nodes. One can find descriptions of morphologic deviations of the glands of the prevertebral region in cases of pernicious anemia, posthemorrhagic anemia, Banti's disease, leukemia, pseudomelanosis, and in all infections characterized by a general intoxication. But if the hemal nodes are really something actually distinct from the supposedly related lymph-glands, the exact nature of their function and pathology must be ascertained anew.

ACTIVE PRINCIPLES OF ERGOT

Ergot is a parasitic fungus (*Claviceps purpurea*) which grows on rye (*Secale cornutum* or *cereale*) and occasionally on other kinds of grains, more rarely on other plants. Its occurrence on one of the bread-cereal grains explains why it has so frequently given rise to wide-spread epidemics of poisoning and thus acquired a considerable prominence in toxicology. Ergotism due to eating foods prepared from affected rye was very common in the earlier days. It is quite possible for 6 per cent. or more of the fungus to find its way into bread; and less than 1 per cent. is said to be sufficient to produce intoxication. Despite the fact that ergot can readily be recognized, wholesale poisoning from it has been reported even in comparatively recent years. Conspicuous are the epidemics in Nanterre, France, in 1894, in Hungary in 1908, and a long series of calamities in Russia. It may be added that in these cases two different types of symptoms appear with varying frequency, namely, the gangrenous and the convulsive forms, suggesting unlike causative agents.

Aside from these toxicologic features, ergot has long been prominent in therapeutics; and the use of pharmaceutical preparations of it, in particular the fluidextract of ergot, is familiar everywhere. In view of these twofold sources of interest it is not surprising that the composition of ergot should have attracted consideration in the early days of modern chemistry. Though ergot was studied by a number of chemists in the eighteenth century and the earlier part of the nineteenth, the first careful investigation was made by Wiggers in 1831, at a time when the long controversy as to the therapeutic utility of the drug was drawing to a close.¹ Since then there has been a more or less continuous attempt on the part of numerous chemical

investigators to unravel the intricacies of a crude product which includes a mixture of stable and unstable compounds of widely unlike character. The number of "active principles" which have been reputed to be present in and isolated from ergot is almost legion. Resins, alkaloids, organic acids and glucosids have been reported. How bewildering the pharmacology of ergot had become a few years ago is indicated by the names of some of the supposed active agents which are still found in all but the most up-to-date literature: ecbolin, ergotin, picrosclerotin, sclerocrystallin, spacelinic acid, cornutin, crysotoxin, secalin-toxin, sphacelotoxin, hydro-ergotin, clavin, ergotin and ergotoxin.

It is not surprising that in view of this confusion in the domain of chemical analysis on the one hand, and of pharmacologic symptoms and activity on the other, it has been very difficult to decide on a suitable method of assay for pharmaceutical preparations. Nor have matters been helped by the statements that ergot more than a year old is unfit for therapeutic use. Despite the extreme perplexities of the situation, investigations carried out during the past few years have actually resulted in the isolation from ergot of several active principles of undisputed identity and chemical purity, the presence of which adequately accounts for those actions of the drug that have been regarded as especially related to its therapeutic effects, each type of action having been advocated by one observer or another as a basis for its physiologic standardization.

First of these principles is the alkaloid ergotoxin, $C_{35}H_{41}O_6N_5$. Of the physiologic effects described as characteristic of ergot, the ergotoxin carefully investigated by Barger and Dale produces, pharmacologically, in very small dosage, ataxia, dyspnea, salivation, gastro-intestinal irritation, gangrene and the stimulant effect on plain muscular organs—in particular the arteries and the uterus—as well as the subsequent selective sympathetic motor paralysis caused by many ergot preparations. It is apparent from the studies of these investigators at the Wellcome Physiological Research Laboratories in London that many of the earlier "active principles" enumerated above are cruder mixtures of this ergotoxin with inactive substances from the ergot or impurities with a small admixture of the alkaloid.

Barger and Dale pointed out several years ago that the action of pharmacopeial extracts appears too great to be accounted for by the small amount of ergotoxin which they contain, and it seems likely that some other active principle is present in them. It is not difficult to find inactive constituents, such as amino-acids, which are doubtless derived from the metabolism of the fungus. From these, in turn, can be produced products of the activity of micro-organisms among which the amines are a characteristic type. Thus Barger and Dale have discovered hydroxyphenylethylamin, derived

1. A summary of this earlier history will be found in the paper by Barger, G., and Dale, H. H.: Ergotoxine and Some Other Constituents of Ergot, *Biochem. Jour.*, 1907, ii, 240.

from tyrosin, and beta-iminazolyethylamin, derived from histidin by decarboxylation. The former exhibits an energetic vasoconstrictor effect and the latter, even when exhibited in minute doses, calls forth vigorous contractions of the uterus. These are, of course, phenomena characteristic of ergot itself.

In addition to those of apparent therapeutic importance, certain other effects have been appreciated. Conspicuous among these is an inhibitor effect on the heart, suggesting an intense, though curiously evanescent muscarin-like action. Finding that the prominence of this effect in the action of different specimens of ergot ran closely parallel with their stimulant action on intestinal muscle, and that both were abolished by atropin, Dr. Dale was led to suspect the presence in ergot of a principle producing both of these responses. This has just been discovered by Ewins² to be acetylcholin, a derivative of cholin, which Hunt and de Taveau long ago described as one of the most active bases. There is now no question but that it occurs in the original ergot grains and is not derived from changes incident to the preparation of extracts. Another active principle of ergot, recognizable by its inhibitor action on the heart and its stimulant action on intestinal muscle, has thus been identified. Only the trained organic chemist can adequately appreciate the difficulties and laborious undertakings which have been crowned with this splendid success of the isolation of acetylcholin from a natural product.

THE ETHICS OF EXPERT TESTIMONY

We observe with some concern the tendency on the part of certain men of excellent scientific training and good professional position to forget their responsibility to the public. Utter confusion and misapprehension of scientific aims are likely to be the result in many minds if more discretion is not displayed by some experts in their choice of occasion on which to utilize their technical knowledge in a court of law. There is first of all the effect which the willingness to appear frequently in court is likely to have on the professional reputation of the witness himself. The expert who allows himself to form the habit of accepting any and all offers to "testify" will surely awake some day to find himself involved in a maze of contradictions which will hardly be helpful in maintaining his scientific standing.

An instance of incautious conduct in this respect was afforded in a recent case in Washington, D. C., where the question of milk standards and the interpretation of analyses came to the front. One witness, who holds a high position in a leading Eastern technical school, testified that he "could not say that milk was dirty" unless he "could see actual dirt in the milk."

The same witness in a case at Providence, R. I., a few months before (July, 1913), had passed summary judgment on a score of analyses read to him from the records of the United States Department of Agriculture, and had not hesitated to condemn roundly samples of milk on the basis of reported analyses alone. Judgments to the effect that "that is a filthy milk and also a dangerous one," "that contains a large amount of cow manure and intestinal types of bacteria that go along with it," "there is a milk which is undoubtedly from a cow suffering from an udder infection," were pronounced by this witness in Providence when the records of milk analyses, without any other data, were laid before him. In Washington this witness testified that he could not say that milk containing 48,000,000 bacteria per cubic centimeter was either decomposed or filthy. In Providence he declared of a milk containing 20,000,000 bacteria per cubic centimeter that "the chief thing that can be said against the milk is that it is dirty and old; that is probably enough to say against it." In Providence, in July, the presence of the *Bacillus coli* type in milk indicated to this witness the presence of cow manure; in Washington in the following March he answered in the negative the question whether or not "the presence of *B. coli* in milk necessarily indicates that it was contaminated with fecal matter." At Providence, streptococci in milk were considered an indication of "danger," of inflammation of the udder, etc.; at Washington, streptococci, in the opinion of the same witness, were of no significance, but were simply part of the flora of normal milk.

There is no need to continue the discouraging recital. Apart from the wreck of individual reputation which is sure to follow such rash tergiversation as here illustrated, there is another side to this question which, as a matter of general scientific policy, seems to us more important.

This is the responsibility that men of science should feel both to the community and to the professional body of which they form a part. This sense of responsibility should be rooted in a steadfastness of conviction which not only should make it impossible for these men to run with the hare and hunt with the hounds, but also should make them scrutinize the essential character of the cases and causes for which they are willing to appear in public. No one knows better than the skilled investigator how much uncertainty there still is concerning many matters on which definiteness would be of great practical importance. All the more reason why he should not utilize his expert knowledge of the factors of uncertainty to confuse public-health issues and throw dust in the eyes of the uninformed. To defend dishonest or careless milkmen by invoking the well-known technical difficulties in the way of interpreting bacterial analyses seems a questionable proceeding. There may be a difference

2. Ewins, A. J.: Acetylcholine, A New Active Principle of Ergot, *Biochem. Jour.*, 1914, viii, 44.

of opinion as to the significance of a particular number or kind of bacteria in milk; there may be none as to the conviction of a particular milkman of carelessness or lack of cleanliness. On the occasion of a conspicuous ocean disaster a few years ago, it was said of a prominent steamship director that the situation in which he found himself demanded of him "a certain particularity of behavior." The situation of the modern man of science requires likewise a certain particularity of behavior. He owes his standing in the community in large part to the reputation for probity, candor and clear-headedness of the professional body to which he belongs. Every act of his tends to raise or lower in the public estimation the prestige and influence of the body of scholars with whom he is associated. He has obligations to his profession. Again, the non-technical public deserves from him an unwillingness to ally himself with doubtful causes, a clearness and steadiness of conviction and especially a disinclination to envelop scientific fact and interpretation in a cuttlefish murkiness of doubt and ambiguity.

We are aware that with regard to some questions public-health practice has outrun scientific judgment and needs to be set right. We know that the manifestation of personal pique and aggressiveness sometimes makes it necessary for scientific men to interpose in the interests of common fairness. Honest differences of opinion will sometimes cause men to align themselves on different sides of a *cause célèbre*. But it is clear also that there is far too much of the expert testimony which faces both ways, which befogs rather than illuminates, and which is partisan rather than candid. We appeal for a higher standard in this important field in which science has an opportunity to interpret itself to the community by making evident its disinterestedness and its desire most effectively to serve its time.

Current Comment

THE PROPHYLAXIS OF TETANUS

Statistics indicate¹ that probably there will be fewer deaths and injuries as a result of this year's celebration of the Fourth than of any previous year's. Notwithstanding, physicians cannot afford to overlook the possibility that they may have cases of tetanus to treat—and to prevent. In another column² we publish an article on the prophylaxis and therapy of tetanus. For convenience we here summarize the most important points in the prophylaxis:

1. Carefully and thoroughly remove every particle of foreign matter from the wound, laying it open, if necessary, under anesthesia.
2. Dry the wound thoroughly, and paint it and the surrounding parts as carefully as possible with iodine, or else

cauterize it thoroughly with a 25 per cent. solution of phenol (carbolic acid) in glycerin or alcohol.

3. Apply a loose wet pack, using a solution of some such antiseptic substance as boric acid or alcohol.

4. As soon as possible inject intravenously or subcutaneously 1,500 units of antitetanic serum and continue the injections if indications of possible tetanus arise.

5. In no case close the wound. Allow it to heal by granulation. Remove the dressings and packing each day and apply fresh ones.

The loss of life from tetanus, it should be emphasized once more, is almost entirely preventable. Injection of antitoxin immediately after the injury is received, together with relentless surgical cleansing of the wound under anesthesia, constitutes insurance against tetanus in virtually every case. The few recorded cases in which antitoxin has failed to prevent tetanus have been attributable usually to a local infection which kept the tetanus bacillus alive until the antitoxin was eliminated or destroyed. Hence thorough cleansing of the injured part should not be neglected; and if the wound should suppurate, prophylactic injections of antitoxin should be repeated at intervals of eight or twelve days. If the patient is not seen until the wound is several days old, antitoxin should be given in large doses intravenously or, if symptoms indicate impending tetanus, intraspinally. The reasons for this course are given in a recent editorial.³ In any case, promptness and thoroughness are the watchwords.

A CONTROVERTED THEORY OF NEPHRITIS

The theory of nephritis proposed by M. H. Fischer¹ has aroused considerable discussion and much criticism. One of the claims made by the Cincinnati physiologist in formulating his views on the subject is that any cell must, under conditions similar to those existing in the cells of the kidney when it is nephritic, be capable of serving as a source of albumin to a surrounding liquid medium, and so be capable of being responsible for a state which in the kidney goes by the name of albuminuria. According to this view, albuminuria represents merely that simple solution of the albumin of the kidney substance itself in the urine; that is, the protein does not come from the blood itself, except in that indirect way in which the proteins of any cell come originally from the blood. We have no desire to enter into a review of the controversy here further than to refer to the generally accepted belief that the urinary protein found in nephritis represents serum protein rather than tissue protein. Evidence in favor of this and contrary to Fischer's hypothesis has lately been offered by Dr. Salus² of the Hygienic Institute in the German University at Prague, Bohemia. Like previous investigators he has been able to develop a precipitin for human serum proteins by using albuminous urines as antigens. On the other hand, so-called organ plasma, a solution of tissue proteins prepared

3. The Serum Treatment of Tetanus, editorial, THE JOURNAL A. M. A., April 11, 1914, p. 1174.

1. Fischer, M. H.: Nephritis, New York, 1912, John Wiley & Sons; The Treatment of Nephritis and Allied Conditions, THE JOURNAL A. M. A., May 31, 1913, p. 1683.

2. Salus, G.: Biologische Versuche mit Organplasma, Biochem. Ztschr., 1914, ix, 1.

1. The Spread of the "Sane Fourth" Movement, THE JOURNAL A. M. A., June 13, 1914, p. 1898.

2. Tetanus, Therapeutics Department, this issue, p. 1964

after completely removing the blood from various organs by Pohl's method, gave no reaction with the antiserum produced by injection of the protein excreted in nephritis. As, for the present, these biologic reactions offer the greatest promise of success in determining the identity of individual proteins, they place the burden of proof on those who maintain that the urinary protein of nephritis is merely the dissolved contribution of kidney cells subjected to an abnormal environment, rather than escaped blood components.

SPECIAL TRAINING FOR THE SPECIALIST

Notice is given elsewhere¹ of a two-year graduate course offered by the University of Minnesota to physicians desiring to specialize in diseases of the eye, ear, nose and throat. Satisfactory completion of this course will secure a suitable degree. This is a parallel to the graduate courses in public health given by five of our leading universities² preparatory to a special degree in public health. Such courses as these provided by high-grade universities will place the term "specialist" on a reliable basis. If such special courses are worth while for the development of public-health experts and for specialists in diseases of the eye, ear, nose and throat, why should not similar and equally thorough courses be established to furnish acceptable training in the other specialties of medicine? This idea may also hold a solution for the problems relating to special fields of practice now being exploited by various medical sects. Surely, before any one proposes to specialize in any particular field in the practice of medicine he should have secured, in addition to the usual medical course, further training in the diagnosis and treatment of the particular diseases included in that specialty. The establishment of the special graduate courses in public health by leading university medical schools and this special course for ophthalmologists at the University of Minnesota points to a new field in which there are great possibilities for the development of medical education.

BRITISH VIEWS OF AMERICAN MEDICAL ETHICS

Following the publication of the "Family Medical Encyclopedia" in England, as has been previously mentioned,³ a storm of protest arose in the British Medical Association, at the publication of a list of contributors in such a book intended for the public. This type of medical advertising was severely condemned and likened to "the fever of self-advertisement which characterizes the American profession from tip to toe." In response to demands on the part of numerous members the Council of the British Medical Association has promulgated certain rules concerning the publication of medical books intended for the laity. These regulations are embodied in a letter from the London correspondent of THE JOUR-

NAL, which appears on another page.⁴ Without attempting, however, to discuss further the history of this monumental blunder — which may, perhaps, have been not entirely a blunder — on the part of so many well-known English medical men, let us revert to the point made in the previous editorial. It will be noted that our correspondent says: "It must be borne in mind that the professional rule against advertising is much more stringent in this country than in America." He voices, no doubt, the general impression of the foreign physician concerning American medical practitioners. When are these insults to cease? Can our foreign contemporaries point to a single incident in which medical men of America of equal rank with the English physicians concerned have loaned their names to such an outrageous enterprise? Can they point to a single American, connected with a reputable clinic, who would authorize and countenance the publication of such an obvious and misleading puff as was sanctioned by Drs. Krönig and Gauss in a recent issue of *McClure's*? Certainly, so far as we can determine, they will be unable to find one. The wise sanitarian will disinfect his own premises before naming as unclean the domicile of his neighbors.

THE DISTRIBUTION AND ELIMINATION OF ARSENIC IN THE BODY

Although arsenic can no longer claim the popularity that it once enjoyed as a "family poison," it is used often enough to make accurate information regarding its distribution in the organism desirable. Furthermore, the increasing use in practical medicine of the organic compounds of arsenic, notably salvarsan and its derivatives, emphasizes from the point of view of pharmacotherapy as well as that of the toxicologist and medicolegal expert, the need of knowledge respecting the fate of the drug in the body. We believe that we do not err in admitting that various investigators who have studied the retention of arsenic in the body have obtained results which decidedly disagree. A recent experiment in the department of physiology at the University of Missouri¹ has furnished data regarding the distribution of arsenic, in one case twenty-four hours after feeding 35 mg. to a fasting animal and before any elimination took place; in another, twenty days after administration of the same dose. The muscles retained the largest absolute amount of arsenic. In each case the metal was found to preponderate in the muscle, liver and intestine, respectively. In the animal killed early, the blood assumed fourth and the skin fifth place in the retention of the poison; but after twenty-one days these tissues had had time to lose all detectable arsenic. Their tendency is to eliminate it as rapidly as possible. It is interesting that the heart, although one of the smaller organs, is high in the order of retention, while the spleen, spinal cord, lung and kidney were lowest. No arsenic was excreted at any time with the feces. The results

1. This issue, page 1983.

2. Universities of Pennsylvania, Michigan, Wisconsin and New York, and Harvard.

3. THE JOURNAL, May 2, 1914, pp. 1407, 1414.

4. See London Letter, this issue, p. 1977.

1. Dutcher, R. A., and Steel, M.: The Estimation and Retention of Arsenic as Determined by the Köch-Norton Method, Jour. Am. Chem. Soc., 1914, xxxvi, 770

indicate, under the conditions presented in this research, that a single dose of arsenic, not large enough to disturb metabolism noticeably, is eliminated in about fifteen days.

STATISTICS OF FOURTH OF JULY INJURIES

The old life-destroying methods of celebrating Independence Day are tolerated less and less with each succeeding year. Public opinion has been aroused, the primary stimulus having been supplied by the annual statistics which we have collected and published for eleven years. Much of the credit for this work is due to the physicians who have kindly cooperated with us by sending in reports of cases. May we hope that this year also every physician who has a Fourth of July injury to attend will send us a report? What is desired is a brief mention of the actual injury, the immediate cause (the kind of cartridge or fireworks used) and the result. It is important that effort be not relaxed until the "safe and sane Fourth" has become permanently established everywhere.

Medical News

DISTRICT OF COLUMBIA

Hospital for Women.—The sundry civil bill report to the House of Representatives contained an item of \$200,000 for the completion of a hospital for women.

Eradication of Tuberculosis.—The report of the District Health Department contains an elaborate account of its activities in limiting and ultimately suppressing tuberculosis. It is recommended that a campaign should be organized against this disease as a public health measure; that facilities for the treatment of incipient tuberculosis should be made available at hours adapted to the ordinary workingman; that the existing hospital facilities should be made available to the person in moderate circumstances; that some method should be provided whereby persons in moderate circumstances desiring to take treatment in their own homes could be assisted. The case-rate of tuberculosis in the district during the last fiscal year was 223 white persons and 643 colored persons per 100,000; and the death-rate from all forms of tuberculosis was 133 white and 504 colored; and that the rate for pulmonary tuberculosis alone per 100,000 was 120 white and 426 colored persons.

ILLINOIS

New Officers.—Galesburg Medical Society, June 2: president, Dr. Ralph C. Matheny; secretary-treasurer, Dr. Clarence B. Ripley.

Personal.—George Peter Dreyer, A.B., Ph.B., has been appointed dean of the junior faculty, professor of physiology and physiologic chemistry, and head of the department in the College of Physicians and Surgeons.—Dr. Charles F. V. Eberlein, chief of staff of the Oak Forest Infirmary, has resigned.

Sanatorium Notes.—The Kane County Anti-Tuberculosis League has planned a temporary tent colony, pending favorable action on the county tuberculosis sanatorium proposition. A site has been selected near Gilbert, and a donation of \$2,000 has already been promised.—Plans for a new sanatorium building to be erected at Collinsville by the Harrison Tuberculosis Association have been completed, and ground is to be broken within the week. The building will be T-shaped, 176 feet deep, with a frontage of 35 feet and will accommodate thirty patients.

Chicago

Chicago Medical Society Elects.—At the annual election, June 16, the following officers were elected: Dr. Charles J. Whalen, president; Dr. Charles E. Humiston, secretary.

Sanatorium Work Well Done.—Dr. Theodore B. Sachs, president of the board of trustees of the Municipal Tubercu-

culosis Sanatorium, reports that the work on the sanatorium is being done according to contract, and that the institution will be ready for occupancy in November.

Meet after Fifty Years.—At the graduation exercises of the Northwestern University Medical School in Chicago, two graduates of the class of 1864 met for the first time since their graduation. They were Drs. Albert L. Converse of Springfield and P. J. Kelsey of New York City. A luncheon was given for the two alumni by President Harris of the University, at his home in Evanston.

Rush Alumni Elect.—At the annual meeting of the Alumni Association of Rush Medical College in Chicago, June 10, the following officers were elected: president, Dr. Arthur M. Corwin, Chicago; vice-presidents, Drs. Daniel H. Bowen, Waukon, Iowa; Charles J. Lewis, Chicago, and John R. McDill, Milwaukee; secretary, Dr. Charles A. Parker, Chicago; treasurer, Dr. Elmer E. Kenyon, Chicago, and necrologist, Dr. John J. Stoll, Chicago.

Internship Required.—The faculty of the Northwestern University Medical College, at a recent meeting, voted that hereafter every student who matriculates will be required to spend at least one year as an intern, and in an acceptable hospital, before a degree will be given. This school is the fourth medical school to make hospital internship a condition for a degree, the other schools being University of Minnesota Medical Department, Rush Medical College and the Medical Department of Leland Stanford University.

Bust of Dr. Steele Presented.—On June 10 a bust of Dr. D. A. K. Steele was presented to the College of Physicians and Surgeons of the University of Illinois by the faculty and alumni of the college. The presentation was made by Dr. Adolph Gehrmann and the bust was accepted by President James of the university. It was largely through Dr. Steele's efforts that the organization of the College of Physicians and Surgeons was united with the University of Illinois, and for more than thirty years Dr. Steele has devoted his efforts to the supporting and upbuilding of the school.

Alumni Meeting.—At the alumni meeting of the Association of the College of Physicians and Surgeons of the University of Illinois, held in Chicago, June 10, addresses were made by President Edmund James of the university, who announced a plan of asking \$1,000,000 from the legislature for the construction and endowment of a teaching hospital as a part of the university; by W. S. Abbott, president of the board of trustees, and Dr. Albert L. Brittin, Leslie, Ill., president of the Illinois State Medical Society. The following officers were elected: president, Dr. J. M. Berger; vice-presidents, Drs. Charles H. Phifer and George J. Lorch; secretary, Dr. Frank Chauvet; treasurer, Dr. Robert N. Morris, all of Chicago.

INDIANA

Hospital Units Ready.—The State Board of Health expects to occupy two units of the State Hospital next week, and has asked the city comptroller to recommend a temporary loan to the city council of \$65,000 for the use of the board.

A Clinic for Babies.—A clinic for examining babies and to give advice to mothers concerning the child's health and diet is being maintained by the Children's Association of Indianapolis. The stations are in charge of Drs. J. Don Miller, Walter D. Hoskins, Leslie H. Maxwell and Lehman M. Dunning.

Disease Prevention Day.—The governor has consented to issue a proclamation calling the people of the state to observe a day in October, to be designated as Disease Prevention Day. Sixty antituberculosis societies will lead in observing the day, and will have the cooperation of the State Board of Health, the State Anti-Tuberculosis Society and municipal officers of many cities.

Personal.—Dr. T. Victor Keene has been elected president and Dr. Thomas B. Eastman vice-president of the Board of Health of Indianapolis.—Dr. J. Willard Parrish, Shelbyville, has been appointed physician of the Shelby County Orphans' Home.—Dr. Gustavus B. Jackson has been appointed a member of the Indianapolis Board of Health, vice Dr. Mavity J. Spencer, term expired.—Dr. Henry O. Wells, Fort Wayne, has been elected president of the Blue Cass Springs Sanatorium, Woodburn.

Long Hospital Dedicated.—Dedicatory exercises of the Robert W. Long Hospital were held in the chambers of the House of Representatives, June 15. Governor Ralston presided and an address was delivered by Dr. Henry I. Pritchett, president of the Carnegie Institute for Medical

Teaching, on "Medical Schools and the State." The guests were taken to the Robert W. Long hospital where the dedicatory exercises proper were held, in the East room. Dr. and Mrs. Robert W. Long formally presented the hospital to the state and Governor Ralston accepted the gift in behalf of the state. In the evening a banquet was given at the Claypool Hotel, where Dr. Pritchett, President Bryan of the Indiana University, Governor Ralston, Mayor Bell of Indianapolis and others delivered addresses.

Verdict in Favor of Physicians.—The suit brought by Mrs. Anna Harrell of Shelby County against Drs. Orange G. Pfaff of Indianapolis and Moris Drake of Shelbyville for alleged malpractice resulted in a verdict in favor of the physicians in the Shelby County court, June 9. The plaintiff asked \$20,000 damages on account of the failure of the surgeons to remove a piece of gauze from plaintiff's abdomen following an operation for ruptured ectopic pregnancy, as alleged, the gauze coming away later, after having caused the patient great suffering. The surgeons showed that the gauze had been placed in the culdesac of Douglass for drainage purposes, and in a careful professional manner.

IOWA

Iowa Medical Journal Suspends Publication.—The *Iowa Medical Journal* has discontinued publication and has been succeeded by *The Journal of the Iowa State Medical Society*.

Personal.—Dr. Amos W. Carlile has been appointed local surgeon of the Chicago and Northwestern System at Manning, vice Dr. Robert R. Williams, resigned.—Dr. Curtis E. Bower, Arlington, has given up his practice on account of ill health, and will make his home in Colorado.—Dr. Charles H. Bower has been appointed health physician of Council Bluffs.—Dr. Mary Lawson Neff has returned to her home in Des Moines after six weeks spent in the state reformatory, doing special psychologic work.—Dr. W. Eugene Walcott, Merrill, and Dr. and Mrs. Donald Macrea, Jr., Council Bluffs, have sailed for Europe.—Drs. Fred J. McAllister and Albert J. Meyer have purchased a house in Hawarden which they will remodel and convert into a hospital.—Dr. Arthur H. McCreight and family, Fort Dodge, have returned from Europe.

MARYLAND

Alumni Reunion.—The alumni of the College of Physicians and Surgeons, Baltimore, will make their headquarters at the Alamac Hotel, Atlantic City, during the meeting of the American Medical Association.

Personal.—Dr. William D. Cawley, Elkton, has been appointed physician at the Cecil County Insane Asylum, vice Dr. Philip B. Housekeeper, North East, deceased.—Dr. Philip Briscoe, Mutual, Calvert County, has been elected president of the State Board of Aid and Charity.

Graduate Nurses for the Insane.—Six women and two men received certificates of graduation from the Nurses' Training School of Springfield State Hospital for the Insane on June 9, the first class of this kind to be formed in a Maryland institution for mental cases. Dr. Adolf Meyer, director of the Henry Phipps Psychiatric Clinic of Johns Hopkins Hospital, made the address to the graduates and the certificates were conferred by Dr. Arthur P. Herring, secretary of the State Lunacy Commission.

Important Post for Professor Whipple.—Dr. George Hoyt Whipple, associate professor of Johns Hopkins University, has been chosen director of the Hooper Foundation for Medical Research by the board of regents of the University of California. Dr. Whipple is widely known in his profession. He is a graduate of Yale University and the Johns Hopkins Medical School. He served for several years in the Ancon Hospital in the Panama Canal Zone and is a member of many medical and research societies.

Medico-Psychological Meeting.—The seventieth annual meeting of the American Medico-Psychological Association, held in Baltimore from May 26 to 29, proved most successful. Addresses of welcome were delivered by Gov. Phillips Lee Goldsborough, Mayor James H. Preston, Dr. Hugh H. Young and Dr. Randolph Winslow. The response was made by Dr. Carlos F. MacDonald, New York City, president of the association. The officers elected are: Dr. Samuel E. Smith, Richmond, Ind., president; Dr. Edward N. Brush, Towson, Md., vice-president; Dr. Charles D. Wagner, Binghamton, N. Y., secretary. The place chosen for the next session was Old Point Comfort, Va.

MISSOURI

Physician's Portrait Presented.—A life-size oil portrait of Dr. Joseph M. Wood, a pioneer practitioner of Kansas City, was presented by his daughter to the Board of Education of Kansas City, May 21. Historical reminiscences of Dr. Wood were given by Drs. Edward W. Schauffler and David R. Porter.

Personal.—Dr. Rush E. Castelow has resigned as head of the Kansas City Hospital.—Dr. George R. Thompson, St. Joseph, was elected superintendent of State Hospital No. 2 on June 4, vice Dr. Abra C. Pettijohn. The officers and employees of the institution presented Dr. Pettijohn with a diamond stick-pin.—Dr. Frank W. Flower, Carthage, announces that after forty years of active practice he will retire from the practice of medicine.—Dr. William T. Elam, St. Joseph, charged with killing W. K. Cramer, Chicago, was acquitted by the jury, May 29.—Dr. Oliver W. H. Mitchell, Columbia, has assumed his duties as city bacteriologist of Syracuse, N. Y.—Drs. Louis J. Danadurant, Floyd H. Spencer, Joseph J. Bansbach and Clarence A. Good, St. Joseph, returned from Europe, May 26.—Dr. John C. Kessenger, Milan, was operated on in Rochester, Minn., May 13, and is reported to be doing well.

St. Louis

Dispensary Moves.—The evening dispensary for women, which has been located at 1607 Washington Street for twenty-one years, has moved and its quarters are now at 510 North Fifteenth Street. Clinics are held on Monday, Thursday and Friday from 7 to 9 p. m.

Personal.—Dr. Carl Orth has returned from Europe.—Dr. Charles H. Eyermann has succeeded Dr. Theodore P. Brookes as assistant physician of the city dispensary. Dr. Brookes has started for Europe.—Dr. and Mrs. Lucius A. Walton celebrated their fiftieth wedding anniversary, May 26.

NEW YORK

Long Island Doctors Meet.—The fortieth annual meeting of the Associated Physicians of Long Island was held at Avery's Five Mile Look on June 6. Dr. Walter A. Sherwood presided. Among those who made addresses were Drs. James V. May, Port Gibson, Miss., and A. J. Rosenoff. The scientific session was followed by a shore dinner.

Buffalo Alumni Elect.—At the fortieth annual meeting of the University of Buffalo Alumni Association, June 3: president, Dr. George F. Cott, Buffalo; vice-presidents, Drs. Robert T. French, Rochester, N. Y.; William B. Hare, Portland, Ore.; Abram T. Kerr, Ithaca; Burt C. Johnson, Buffalo, and Mary B. Moody, Los Angeles; secretary, Dr. Julius Richter, Buffalo; treasurer, Dr. William F. Jacobs, Buffalo.

May Stop Hospital Inquiry.—It is intimated that the state authorities have not been pleased at the manner in which the State Hospital has been conducting its investigation, especially with regard to the quality of the food supplies. It is held that the hospital commission is itself under fire and that it has shown a tendency to exonerate the attaches of the various hospitals and has gone out of its way to discredit the testimony of the federal inspectors.

New York City

Gift to New York Academy of Medicine.—Dr. Rowland G. Freeman has presented the library of the New York Academy of Medicine a fine copy of Bidloo (Godefridus) *Anatomia humani corporis*, 105 plates, folio. Amstelodami, vid. J. a Someren, 1685.

Hospital Needs Money.—A campaign has been started to raise \$150,000 for St. John's Hospital, Long Island City. The money is needed to enlarge the hospital as it is the most important institution of its kind in Queens and is overcrowded most of the time.

Removal of Brooklyn Clinic.—The Brooklyn Antirabic Clinic, until recently conducted at the Brooklyn Borough Office, will be removed to 29 Third Avenue. It will be open on week days from 10 a. m. to 1 p. m., and on Sundays and holidays, for all cases from the boroughs.

Typhus Fever Patient Comes to Port.—The *President Grant* arrived at Quarantine recently with a case of typhus fever in a child 9 years of age, on board. The 226 steerage passengers who occupied the same section were transferred to Swinburne Island to undergo two weeks' observation.

Doctors' and Nurses' Home.—The Architectural Bureau of the Department of Health has filed plans for the construction of a seven-story building with basement for the doctors and nurses of the Willard Parker Hospital. The building will be fire-proof, reinforced concrete construction, with a frontage of 100 feet, and a depth of 82½ feet, and will cost \$250,000.

Milk Depots Open.—Ten additional milk stations were opened on June 2 by Mr. Nathan Straus. This makes eighteen which he supports during the summer and eight during the entire year. At all of these stations milk suitably modified and pasteurized for infant feeding is furnished at less than the cost price. Mr. Straus has carried on this charity since 1892.

Milk-Supply.—The report of the Department of Health on the city milk-supply shows that at the present time about 99 per cent. of the total supply is being satisfactorily pasteurized, and that the pasteurizing plants are subject to close supervision by the department. Large numbers of samples of milk are examined bacteriologically to check up efficiency of operation.

To Investigate Coroner's Office.—The City Club has asked Mayor Mitchell to make an investigation of the coroner's office and the mayor has directed the commissioner of accounts to begin the investigation at once. Aside from dereliction of duty it is believed that the charter organization of the office does not make for efficient administration and it is hoped that this investigation will be of constructive value.

Medical Schools Graduate.—The annual commencement exercises of the College of Physicians and Surgeons of Columbia University and of the New York University and Bellevue Hospital Medical College were held on June 10. The graduating class numbered seventy-one men. The Hippocratic oath was administered by the dean of the college, Dr. Samuel W. Lambert. All the graduates of the University and Bellevue Hospital Medical School received hospital appointments. On this occasion the honorary degree of doctor of science was conferred on Dr. Aristides Agramonte of Havana.

Bichlorid Poisoning.—The ordinance restricting the retail sale of bichlorid of mercury tablets in Greater New York went into effect on March 1. The records which have been collected from the coroner's office show that there were ten deaths from bichlorid poisoning during the period from March 1 to June 1; six of these were suicides and four were accidental. This is a considerable decrease in the number of deaths from poisoning by this drug and it is believed the decrease will be much more marked hereafter as supplies which were kept in homes will become exhausted and cannot be replaced.

Personal.—Dr. Lester D. Volk and Dr. Gerard Kasper have resigned their positions as coroner's physicians in Brooklyn.—Dr. Arthur H. Elliott of Brooklyn and Dr. and Mrs. William S. Dennett of Manhattan have sailed for Europe.—Dr. and Mrs. J. Leeming Walker of London, Eng., arrived in this country on Tuesday; they will occupy the cottage of Dr. H. Holbrook Curtis for the season.—Dr. Anna Hubert of Seattle, Wash., has been appointed resident physician at the workhouse on Blackwell's Island. This appointment provides for the examination of female prisoners by a woman.—Drs. Annie S. Daniels and W. I. Hull have sailed for Europe.

NORTH CAROLINA

Fresh-Air Camp for Babies.—The establishment of a fresh-air camp and sanitarium for babies at Saluda was enthusiastically endorsed at a meeting held in Spartanburg, S. C., May 29, and a committee was appointed to promote the plan.

Do Not Wish Appropriation Reduced.—Five hundred representative citizens of Wilmington at a mass-meeting, June 2, adopted resolutions demanding that the city council reconsider its action of reducing the annual appropriation for the city health department below the amount agreed on by the municipal health officers and the county commissioner.

Personal.—Dr. Richard H. Lewis, Raleigh, who has served for more than thirty years as trustee of the university, and for the major portion of that time as secretary of the board, has resigned on account of ill health.—Dr. Walter Ashworth, Greensboro, president and director of the Glenwood Park, Telfair, Sanitarium, has gone to Europe.

Dr. Howard S. Kinne, Loganton, Pa., will have charge of the sanitarium in Dr. Ashworth's absence.

OHIO

Personal.—Dr. A. W. Davis, city health officer of Canal Dover, has resigned.—Dr. Valloyd Adair, as the result of competitive examinations, has been appointed health officer of Lorain.—Dr. Morris C. Tuholske has been reappointed medical examiner of the public schools of Akron.—Dr. Rockwell B. Hubbard, Sandusky, was seriously injured, recently, as a result of a head-on collision between his automobile and an electric train.

Hospital Notes.—At a meeting of the citizens of Barberton, June 2, it was decided immediately to incorporate a stock company for the purpose of erecting a hospital, to cost from \$50,000 to \$60,000, and to be known as the City Hospital Company of Barberton. Dr. William A. Mansfield was elected temporary president, and Dr. Herbert A. Rodenbaugh, temporary secretary of the organization.—The cornerstone of St. Elizabeth's Hospital, Youngstown, was laid by Bishop Farrelly, May 30. The building is expected to be ready for occupancy early in January of next year.—A new hospital is to be built in Fremont, to cost \$150,000. Of this sum, \$100,000 was bequeathed to the city on the condition that an additional sum of \$50,000 be raised by the citizens.

Trachoma in Ohio.—Dr. F. G. Baudreau of the State Board of Health, found 23 of the 80 inmates of the Athens County Children's Home suffering from trachoma. Since the report by Dr. Joseph W. Schereschewsky, Washington, of the Public Health Service concerning trachoma in the employees of the Youngstown Sheet and Tube Works at East Youngstown, and on the generally bad sanitary conditions of the town, overcrowding of lodging and boarding houses, etc., action has been taken to remedy conditions by the town council. The medical department of the Sheet and Tube Works has also instituted many reforms, have bettered sanitary conditions, and are cooperating with the city authorities. The trachoma hospital established by the company will soon be supplied with tub and shower baths for the benefit of the citizens generally and the employees of the company, for the use of which a very small fee will be charged. The council was recently addressed by Dr. Sidney M. McCurdy, chief surgeon, and J. M. Wolz, head of the safety department of the Sheet and Tube Works, on the necessity for better housing and better municipal sanitation.

Cincinnati

Honor to Kramer.—Dr. Simon P. Kramer was given a banquet by physicians of Cincinnati, May 20, at which Dr. Charles L. Bonifield was toastmaster.

Contagious Disease Hospital.—Plans have been completed for the contagious portion of the General Hospital, which is to be constructed west of the tuberculosis group at Lick Run. The building will be two stories and basement in height, 140 feet in depth and will cost \$35,000.

Academy Clinics.—A series of interesting clinics were held under the auspices of the Cincinnati Academy of Medicine at the City Hospital, by Drs. William D. Haggard, Nashville, Tenn.; Dr. Wendell C. Phillips, New York City, and Richard C. Cabot, Boston, on the mornings of June 10, 11 and 12.

Summer Lectures.—On June 9, the Health Department inaugurated a series of lectures for district physicians, school nurses, supervisors of nurses and visiting nurses. One June 9, Dr. Frank H. Lamb spoke on "Physiology in Metabolism"; on June 10, Dr. Alfred Friedlander spoke on "The Treatment of Gastro-Enteritis and Other Diseases Peculiar to Children," and on June 11, Dr. Benjamin K. Rachford spoke on "Infant-Feeding."

PENNSYLVANIA

Philadelphia

American Orthopedic Association.—Clinical Day of the twenty-ninth annual meeting of the American Orthopedic Association was held at the University Hospital on Wednesday, June 17.

Rapid Transit Safety Contest.—The Safety Bureau of the Rapid Transit Company has awarded prizes for essay, verse or drawing expressing a practical means of prevention of street accidents. The contest was opened to children in the city schools.

To Stimulate War on Flies.—Director Harte of the Department of Public Health and Charities has started a fly-catching

contest, opened to every boy scout. Prizes have been offered to those who catch the largest number. The contest will be conducted by the various troops, and the troop-master will be judge of the boys within his troop.

Small Appropriation for Mosquito Extermination.—Councils have appropriated only \$1,400 to fight mosquitoes in this city. A meager fund with which to break up the breeding-places in the marshes and pools around Philadelphia, which is always open to breeding-places for mosquitoes, as 8,500 acres of the city's area is below the level of high water of Delaware and Schuylkill Rivers.

Women to Enter Medical Department of the University of Pennsylvania.—It has been announced that the Medical Department of the University of Pennsylvania has decided to open the doors of its medical department to women. It has been stated that this announcement will be made officially at the annual commencement. It is also predicted that the dental department will be opened later to women.

Personal.—Dr. James Tyson was a guest of Chief Surgeon George W. Reese of the Shamokin Hospital on May 27, and guest of honor of the Shamokin Medical Society at a banquet at the Windsor Hotel the same evening. Dr. A. MacKensie Forbes of Montreal, Canada, will give a demonstration of his method of applying a plaster cast in treatment or correction of scoliosis, at the Methodist Hospital, on Monday June 22, at 10:30 o'clock.

Campaign for West Philadelphia Hospital.—The campaign to raise \$150,000 for the new building for the West Philadelphia General Homeopathic Hospital opened with a dinner to the captains at the campaign headquarters, in Horticultural Hall, June 9. A large clock has been built at Fifty-Second and Chestnut Streets to indicate the returns, and forty-five smaller clocks have been placed in prominent places in West Philadelphia. At the end of the third day a total of \$23,917 had been subscribed.

Hospital News.—The Municipal Summer Hospitals for the care of sick children and infants were opened at the Race Street and Chestnut Street piers, June 15. Councils placed \$6,500 at the disposal of the director of health to increase the accommodations of both these hospitals. Dr. S. W. Newmayer, assistant medical inspector, has charge of the Chestnut Street pier, which is equipped with twenty beds and a corps of three nurses.—The new Jewish Maternity Hospital at Sixth and Spruce Streets was dedicated June 9.—The contract for two additions to the St. Mary's Hospital has just been awarded. The new structure, of brick with stone and terra-cotta trimmings, will consist of a five-story and basement wing to be built on Palmer Street, a distance of about 170 feet, with another wing along Sepviva Street, a distance of 68 feet. The greater portion of this wing will be five stories high and will contain a convent for sisters and a power-house with a laundry. There will be a roof garden with facilities for the treatment of sunstroke and heat cases. The main entrance will be on Palmer Street.

TENNESSEE

Colleges Merged.—It is reported that the Lincoln Memorial University Medical Department of Knoxville has merged with the University of Tennessee College of Medicine, located at Memphis. Under the terms of the merger, the three remaining classes will be taught at the University of Tennessee, but the degrees will be granted by the Lincoln Memorial University. The last class will be graduated, therefore, in 1917.

TEXAS

Sanatorium Burns.—The tuberculosis sanatorium at 219 Dullnig Street, San Antonio, was destroyed by fire, May 29, with a loss of about \$3,000.

New Officers.—North East Texas Medical Association at Texarkana, June 2: president, Dr. Robert H. T. Mann; secretary, Dr. Edwin L. Beck, both of Texarkana.

Alumni Elect.—At the annual meeting of the alumni of the State Medical College, Galveston, May 30, the following officers were elected: president, Dr. Holman Taylor, Ft. Worth; vice-president, Dr. W. Wallace Ralston, Houston; secretary, Dr. Harry O. Sappington, Galveston.

Personal.—Dr. Joseph E. Dildy, Lampasas, narrowly escaped drowning while attempting to ford a swollen creek near Lampasas, June 4.—Dr. James E. Lay, Jr., Sweet Home, health officer of Lavaca County, has resigned.—Dr. E. M. Wood, Georgetown, has been appointed a member of the State Board of Medical Examiners, vice Dr. J. H. Evans, deceased.

Compulsory Vaccination.—The attorney-general has rendered an opinion, on the presentation of the question by the county attorney of Jackson County, to the effect that a local health officer has no authority to require vaccination of schoolchildren as a condition precedent to attendance at school, nor can he close the schools on failure to observe such requirement. It is held that authority to close the schools can only be exercised by the trustees when there are actual cases of disease in a school.

VIRGINIA

Trachoma in the Virginias.—Surgeon Taliaferro Clark of the United States Public Health Service, in *Public Health Reports*, June 5, reports on the survey of trachoma conducted in Virginia and West Virginia during 1913 and 1914. Inspections were made in twenty-three counties of the state, in which 20,848 persons were examined, among whom 340 cases of trachoma were found, 1.63 per cent. The survey of the mountainous sections of Virginia was completed April 29, 1914, during which ten counties in Kentucky and West Virginia were also visited, and 7,801 persons were examined. Of these, 108 had the disease, 1.38 per cent. Examinations were confined almost exclusively to the schoolchildren, as this was found to afford a very good index of the prevalence of trachoma and saved time over a house-to-house examination. An examination of state institutions shows trachoma also prevalent in counties not visited. The counties of the eastern edge appear to be free from it, a fact which is probably due to infrequent contact with infected territory. No systematic effort is being made to control the spread of trachoma over the infected territory. The necessity of action for suppression of the disease is shown by the 5.29 per cent. of marked visual damage in the total trachoma cases found during the survey of West Virginia. Recent foreign immigration was not an element in the introduction of trachoma. The negro race in the two states is practically free from the disease. Among the recommendations made by Clark are that systematic examinations should be made of all schoolchildren of the states, and the children suffering from active trachoma should be excluded from the schools and placed under medical supervision. A school nurse should be employed wherever practicable, to visit the homes of the children debarred from schools, and put into practice under the physician's directions principles of control. A campaign of education should be instituted in the infected territory through talks and distribution of printed information. Free hospitals of inexpensive construction are recommended at points convenient to groups of the most heavily infected counties. Cooperation of the mining companies should be secured so that systematic examination of miners might be made for trachoma. Improvement should be made in the sanitary condition of the rural schools.

WEST VIRGINIA

Antituberculosis Work.—Dr. Harriet B. Jones, Wheeling, director of the tuberculosis exhibit of the Anti-Tuberculosis League of West Virginia, reports that during the year she has visited 130 towns and 35 counties, has given 365 talks in schools to 37,592 pupils, has lectured 93 times at night to 17,877 adults. The tuberculosis exhibit car, in charge of Dr. Thurman Gillespy, Wheeling, has visited 133 towns and has been seen by at least 100,000. Literature was distributed from the car, in schools, at lectures, in trains and at railroad stations. The car was donated by the Baltimore and Ohio Railroad, and free transportation was given over all roads during the six months of the work. Twenty counties yet remain to be visited, and the work will begin again in the fall.

WISCONSIN

Sanatorium to Be Enlarged.—On May 22, Dr. John R. Currens, trustee of the Maple Crest Sanatorium, Two Rivers, appeared before the board, pleading the overcrowded condition of the sanatorium and the necessity of having separate wards for men and women. An appropriation of \$3,500 was made.

Leper in Soldiers' Home.—It has been discovered by the medical staff of the Soldiers' Home, West Allis, that one of the inmates, who came to the home from Hot Springs, Ark., about two weeks ago, is suffering from leprosy, believed to have been contracted while serving in the Philippine Islands.

Personal.—Dr. and Mrs. Victor F. Marshall and son and Dr. Albert E. Rector, Appleton, sailed for Europe, June 27.—Dr. John M. Beffel, Milwaukee, has recovered from his

recent illness.—Health Commissioner George C. Ruhland, Milwaukee, has appointed Drs. Leopold Schiller and Emil T. Lobedan as medical aids. Dr. Schiller has been placed in charge of the contagious diseases and Dr. Lobedan in charge of the child welfare. Dr. George R. Ernst, Wauwatosa, remains in charge of the tuberculosis division.

GENERAL

Fight Bubonic Rats.—The House of Representatives, on June 11, sanctioned an appropriation of \$200,000 to kill rats and squirrels in California.

Medical Examiners Meet.—The fourteenth annual meeting of the Association of Medical Examiners will be held June 22 at Hotel Denis, Atlantic City, under the presidency of Dr. Henry Wireman Cook, Minneapolis.

American Association of Immunologists.—The first annual meeting of the American Association of Immunologists will be held in Atlantic City, at the Hotel Chelsea, Monday, June 22. A program of interest and importance has been arranged.

Bequests and Donations.—The following bequests and donations have recently been announced:

Presbyterian Hospital, Philadelphia, \$1,000, by the will of Anna Claghorn.

University of North Carolina, for the construction of an athletic stadium, a donation of \$25,000, by Mr. I. E. Emmerson, Baltimore.

St. Justin Hospital, Montreal, a donation of \$5,000.

Public Health Day at Biennial.—June 15 was celebrated as Public Health Day at the Chicago meeting of the Federation of Women's Clubs. The program of the conference included the topics of public health, visiting nurses, the rights of childhood, work of women in tuberculosis, value of marriage certificates and the teaching of social purity. The day was under the auspices of the Chicago Medical Women's Club.

Students of Epilepsy Hold Meeting.—At the annual meeting of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics, held in Baltimore, May 25, under the presidency of Mr. William C. Graves, Chicago, about 200 physicians and laymen were present. The next annual meeting will be held in Skillman, N. J., at the New Jersey Home for Epileptics, as guests of the president of the board of managers and Dr. David F. Weeks, the superintendent. The following officers were elected: president, Dr. Albert S. Priddy, Lynchburg, Va.; vice-presidents, Drs. David F. Weeks, Skillman, N. J.; J. M. Murdoch, Polk, Pa., and Walter C. Van Nuys, Newcastle, Ind.; chairman of the executive committee, Dr. James F. Munson, Sonyea, N. Y.; and secretary-treasurer, Dr. Arthur L. Shaw, Sonyea, N. Y.

The Russell Sage Institute of Pathology.—At a meeting of the board of directors of the Russell Sage Institute of Pathology, held in New York, June 5, the following officers were elected: president, Dr. D. Bryson Delavan; vice-president, Dr. Simon Flexner; secretary, Dr. Theodore C. Janeway; treasurer, Dr. Graham Lusk. Appointments to the scientific staff were as follows: scientific director, Dr. Graham Lusk; medical director, Dr. Eugene F. Du Bois; chemist, F. C. Gephart, Ph.B.; assistant, Dr. A. L. Meyer. Dr. Lusk reported for Dr. Du Bois that 142 observations had been made on patients and on some normal controls during the past year and a half, using the respiration calorimeter established in the second medical division of the Bellevue Hospital. In certain individuals an exact agreement between the actual heat production and the heat calculated from the gaseous exchange during hourly periods was obtained for the first time in man. In the total of all experiments involving the measurement of 23,000 calories, these two methods of direct and indirect calorimetry agree both in health and disease within 1¼ per cent. The investigated cases included nine cases of typhoid during both fever and convalescence, one cretin, seven cases of exophthalmic goiter, one of splenic anemia, another with pernicious anemia, one man with acromegaly, one with hypopituitarism, one with malaria, and one with auricular fibrillation, mitral stenosis and greatly enlarged heart.

CANADA

Hospital News.—The Kingston General Hospital had 2,108 patients during the year 1913: 88 deaths and 76 births. At the Hotel Dieu Hospital the patients numbered 1,823: 62 deaths and 76 births.—The Connaught Home for Nurses has been opened at the Weston Sanatorium near Toronto.—A special building for eye, ear, nose and throat work has been opened at the London Victoria Hospital; also a ward with a roof garden for tuberculosis cases.—Vernon, B. C., has voted \$5,000 to its general hospital.

Personal.—Dr. George R. McDonagh, Toronto, has returned from four months in South America.—Dr. William P. Caven, Toronto, will sail for Europe shortly.—Dr. Douglass W. Montgomery, San Francisco, while in Toronto recently, was entertained at dinner by Dr. William H. B. Aikins at the York Club.—Dr. Helen MacMurchy, Toronto, has sailed for England, where she will represent the Ontario government at the Health Conference of the Victoria League.—Dr. Robert J. Blanchard, Winnipeg, for many years chief surgeon of the Manitoba division of the Canadian Pacific Railway, has resigned and Dr. A. W. Moody appointed to the position.—Dr. Robinson of the anatomic department of the University of Toronto, acceptably filled in the lectures of Dr. Andrew W. H. Lindsay, Dalhousie University, Halifax, during the latter's illness. Dr. Lindsay was subsequently drowned in the *Empress of Ireland* disaster.

University News.—April 30 fourteen candidates, thirteen men and one woman, received the degree of M.D., C.M., from Dalhousie University, Halifax. The pathologic department is now housed in a new building erected close to the Victoria General Hospital. The faculty of medicine will occupy the old arts and science rooms when the latter enters into its new quarters.—The Dr. Copwell medical library, which was left to the Nova Scotia Medical Society and the Halifax Medical College conjointly some years ago, is now, owing to the incorporation of the medical college with Dalhousie University, the subject of litigation. The Medical Society of Nova Scotia reminded the university that they had an interest in the library, and it could not be taken over by the university without the society's consent. Hence the university has subjected the matters to the courts for a decision as to legal ownership.—The Ontario government has made a grant of \$10,000 to the medical faculty of Queen's University, Kingston. Owing to the recent adoption of the five-year course, there will be required for next session a professor of biochemistry, an assistant professor of physiology and an assistant professor of bacteriology and hygiene. The grant will go toward the increased expenditure in connection with these appointments.—The corporation of McGill University, Montreal, has adopted a regulation requiring all students to produce a certificate of vaccination before entering the university.—The medical department of the Western University, London, Ont., has been granted \$10,000 by the Ontario government. Twenty-three were graduated from the department at the close of the present session, Dr. C. C. Cornish, Ingersoll, Ont., being the gold medalist. A professor of physics and a professor of physiology is to be appointed, which will give six full-time professors.—Twenty-five students have been in attendance the past session in the premedical course at the University of Alberta. Next year a two-year course will be given.

LONDON LETTER

LONDON, May 29, 1914.

Adami on Medical Education in Canada

John George Adami, who is now in London, has been publicly awarded the Fothergillian Medal by the Medical Society of London for his distinguished services to pathology. In a press interview he has given his views on medical education in Canada. He regards the outlook as unquestionably hopeful as is evidenced, for instance, in the recent opening of the magnificent hospital at Toronto. This, with its splendid attached laboratories for pathology and pathologic chemistry, is now, he considers, the most up-to-date hospital in the world. It has been possible, by the cooperation of the state, the city and the university, to secure adequate funds, and in Toronto, as in other cities in Canada and the United States, the fact that it has been practicable to start from rock bottom has been a great advantage. The great weakness in Canada, he thinks, is its terrible system of preliminary education, which is due partly to the country having adopted "the unfortunate American ideal of the class system." The democratization of education results in the bright boys of a class idling eight months of the year, and in consequence the ordinary American or Canadian boy is two or three years behind when he comes up to the university. His English is defective, his general knowledge is miserable, and he cannot express himself. Again we have the appalling predominance of women teachers. Owing to the opportunities in the country only the poorer type of man is attracted into teaching and the bulk of preuniversity work is done by women who for the most part are farmers' daughters. So much is this the case that the technical school journals use the word "she" instead of "he" in referring to teachers. A vicious circle

has been started, for the people, finding that their children benefit little either in learning or in general character from the schools, refuse to spend the money necessary to attract good men into the service. The evils of the school training are, however, partly corrected by the individualism of the students when they come to the universities. When one compares Canadian medical education with that of the United States we have one great advantage, says Adami. We have retained the English traditions of allowing the students to walk the hospitals—Sir William Osler succeeded in introducing it into America in the Johns Hopkins Hospital—and as a result of the Canadian method we find Canadian doctors holding a large number of very important positions in the United States. Another difference between ourselves and the States is that they are inclined to think that a student should take a degree in arts before starting medicine. This tends to make a man terribly academic by the consequent length of the curriculum, and thus to unfit him for work as a general practitioner. In Canada we aim rather at giving our men all that is necessary in the preliminary sciences by using medical examples. For example, we rather teach the physics of lenses by means of the ophthalmoscope, and some of the elements of sound by the stethoscope, and we look to the schools to get men familiar with the bare elements of the preliminary sciences.

The British Medical Association and the Issue to the Public of Books on Medical Subjects

The scandal created by the publication of "The Family Encyclopaedia of Medicine" has been described in a previous letter to THE JOURNAL. It must be borne in mind that the professional rule against advertising is much more stringent in this country than in America. A physician is forbidden to bring himself before the public in any way calculated to attract patients. The council of the British Medical Association has issued the following rules: 1. The publication of a book to the public on a subject of general interest—such, for instance, as dietetics—by a medical man is not a transgression of any definite rules of medical ethics if the object of the publication is to inform the public and not to advertise the medical man. 2. Such book may be advertised in the lay press, but the propriety of this would depend on the nature of the advertisement, which should conform to certain recognized principles. 3. There can be no objection to signing the preface to a book if the object of the publication is to inform the public and not to advertise the medical man, but it is desirable that his address should not be added. 4. The publication of a book to the public on medical subjects which contains a large number of prescriptions in common language is highly dangerous to the public and should not be countenanced.

Scientist's Novel Claim

Sir Ronald Ross, K.C.B., F.R.S., the well-known discoverer of the fact that malaria is conveyed by mosquitoes has forwarded to the Chancellor of the Exchequer for submission by him to Parliament a petition setting forth his claims for a grant or pension. He says that he has adopted the precedent of Jenner in order to bring to a head the whole question of the treatment of scientific men in this country. Edward Jenner was a practicing physician and when he discovered vaccination against small-pox he lost most of his practice in consequence of the time spent in the investigation. He accordingly petitioned Parliament which gave him for compensation \$50,000 in 1802 and \$100,000 in 1807. At present the only grants made by Parliament in consequence of scientific or literary eminence are small pensions varying from \$100 to \$1,000 a year. These partake somewhat of the nature of charity, as they are granted to persons who have benefited humanity by their work and are in needy circumstances. They are also granted to their widows or children in similar circumstances. Sir Ronald Ross says that the principle here is wrong, not to say ignoble. It is not a question of public charity but public indebtedness. It is not fair that persons should suffer pecuniarily for the advantages which they confer on the world or on their nation. Only in certain branches of science do discoveries result in pecuniary gain, as in the smaller clinical observations which increase the practice of physicians. The greatest discoveries, which determine the germs which cause disease or the methods by which they are carried from man to man, lead to no pecuniary reward, whatever, yet they are just the ones that are most important to the public. Sir Ronald's action is being widely discussed in scientific and parliamentary circles as the principle on

which he bases his claim is capable of wide application to all forms of scientific, literary and artistic inventiveness. He suggests that a standing fund and a standing committee should be appointed to investigate claims, the settlement of which he does not think would require more than \$100,000 per annum.

PARIS LETTER

PARIS, May 29, 1914.

Adrenal Virilism

At the session of the Académie de médecine, May 26, Dr. Tuffier, *agrégé* and surgeon of the hospitals of Paris, made an interesting communication on the subject of suprarenal virilism: that is to say, organic disturbances of development, characterized either by precocious virility in the infant, or by the masculine aspect which a woman may acquire, even after the menopause, under the influence of a tumor of the suprarenal gland. Tuffier had the privilege of observing an example of the last variety in a woman 62 years of age, who had come under his supervision through copious metrorrhagias. The examination showed a voluminous fibroma; but since the urine contained 70 gm. of sugar to the liter, the wisdom of an operation was doubtful. At the first examination, Tuffier was struck only by the extraordinary general development of the hair of the various parts of the body. A month later, after an antglycosuric treatment, the patient returned to his care, having only 6 gm. of sugar, and being in a favorable condition for an operation. Less scrupulously shaved than at the former visit, she had a heavy black beard and mustache. Her face was red and swollen; there was a slight exophthalmos and the frontoparietal baldness which is almost exclusively masculine; the limbs were very muscular, and the proportions were altogether masculine. The examination of the external genital organs showed a hypertrophy of the clitoris, which measured about 4 cm., and covered a decidedly developed prepuce. In questioning the patient, it was discovered that these phenomena had developed only since the menopause. The habits of the subject had undergone a like change; she cared for nothing but heavy manual labor—plowing, digging—which did not tire her in the least.

The operation showed, perhaps, the reason for this morphologic curiosity. For, in the course of the laparotomy, the examination of the suprarenal region brought to view a bilateral mass overhanging the kidneys, of a fibrolipomatous consistency. The left ovary had atrophied; on the right ovary there was a tumor the size of a large walnut, soft, hemorrhagic, without vegetations or cysts, and of a sort which Tuffier had never seen before. The uterus was neither fibromatous nor sclerotic, but simply in a state of pure muscular hypertrophy.

This symptomatic ensemble, which was known to the ancients, corresponds to the type called by Apert "hirsutism," by Gilbert Ballet and his pupil Gallais "suprarenal virility." It is seen particularly in female infants, and the symptoms are remarkable. This hyperfunctioning of the suprarenal gland manifests itself differently according to the age of the sufferer. If it hastens the growth of infants to abnormal proportions, it acts quite otherwise in the case of adults, particularly after the menopause, when the metabolism can affect only certain organs, and so provokes only hypertrichosis, hypersthenia and hypertrophy of the genitals.

These signs of virilism should suggest the possibility of a suprarenal tumor, for which an early operation may bring happy results.

Antityphoid Vaccination

The prefect of the Department of the Seine, invited by the Minister of the Interior to spread information about antityphoid vaccine and to facilitate its use, has just informed the doctors of his department by circular that he can furnish them with doses of vaccine if they need them. From the appearance of the first case of typhoid fever, if they think it best to vaccinate, they may get the vaccine either by addressing a request for it directly to the Laboratoire d'hygiène de la Ville de Paris, or by writing their request on the same card which is used to declare cases of contagious diseases.

Donation for Medical Museum at Lyons

The Faculté de médecine de Lyon is authorized to accept a donation made by Dr. Lacassagne, a former professor, of a sum of which the yearly interest, 450 francs (\$150), shall be devoted to the use and development of the Musée historique de la médecine et de la pharmacie, built by the Faculté mixte de la médecine et de la pharmacie de Lyon.

BERLIN LETTER

BERLIN, May 22, 1914.

Rachitis and Overcrowding

The well-known Berlin pathologist, von Hansemann, several years ago declared rachitis to be a house disease caused by bad air and lack of exercise. Although this in no way indicates the essential cause, the investigations undertaken in this direction show more and more the importance of this view. Dr. George Levy, the vaccinator, has a very interesting article regarding this subject in the *Archiv für soziale Hygiene*. In 1,000 vaccinated children only 2.2 per cent. were found free from rachitis. The distribution of the illness and its severity are parallel to the density of the population in the respective localities in which the cases originated. The smallest number of cases was found in the homes of three rooms; 350 families who lived in two rooms, living-room and kitchen, and housing from two to thirteen persons had 350 rachitic vaccinated children. If these families lived in groups of three in the two rooms, there would be 25 per cent. medium and 7.3 per cent. very severe cases of rachitis. In groups of four, 35 per cent. and 5.9 per cent. severe; of six, 52 per cent.; of seven, 57 per cent. moderate, and 19 per cent. severe, and lastly of ten—here the figures are unduly small—66 and 17 per cent. If these figures are written under one another, it is distinctly seen how the frequency and severity of the illness rises with the overcrowding.

Annual Meeting of Neurologists and Alienists

At the annual meeting held at Lübeck, May 9, of the neurologists and alienists of northwestern Germany, general papers were read pertaining to the salvarsan therapy of syphilogenous nervous diseases, its dangers and possible complications.

EFFECT OF NEOSALVARSAN INJECTED INTO NERVOUS SYSTEM

The most interesting report was that by Dr. Jacob and Professor Weygandt of the large insane asylum, Hamburg (Friedrichsberg). Using monkeys for their experiments, they studied the pathologic changes in the nervous system that might result from intraspinal injections of neosalvarsan. They used a solution of 0.15 c.c. neosalvarsan in 100 c.c. 0.4 per cent. sodium chlorid solution.

Of this solution, one monkey received 1 c.c. intraspinally; two, 2 c.c. each, one, 0.4 c.c. and one, 0.2 c.c., the corresponding amount of fluid having been previously removed from the spinal canal. The first animal, with 3 c.c. showed no clinical symptoms, was well, and thirteen days later was killed. The macroscopic examination of the nervous system was negative. The second monkey (2 c.c.) killed ten days after the injection, showed neither clinical symptoms nor macroscopic changes in the nervous system. The third monkey (2 c.c.), however, expired the night following the experiment and the fourth animal (1 c.c.) became totally paralyzed two days after the injection (in the hind legs). It was killed seven days after the injection. The macroscopic findings were negative. The animal that received 0.4 c.c. showed paresis two days later and died three days later. The one that received 0.2 c.c. died two days after the injection.

Microscopic changes in the nervous system could be detected in every one of the animals, even in those that gave no clinical symptoms. The parenchymatous changes in the nervous system were very marked, and in the monkey that received 1 c.c., focal lesions were found even in the medulla. The lumbar portion of the spinal cord was affected most.

Two monkeys received each 2 c.c. of the same neosalvarsan solution, intracerebrally and subdurally. One succumbed three days after the experiment; the other developed left emiparesis the next day, and two days afterward had severe epileptic attacks. The paralytic phenomena and the epileptic attacks increased in severity during the following days, and on the sixth day the animal died. In this animal a hemorrhage was found at the place of the injection, and pathologic changes in the brain and spinal cord. The other animal showed such changes only at the place of the injection. Finally, two more monkeys were injected with a 0.15:300 solution of neosalvarsan. The doses were 0.6 c.c. subdurally, and 0.4 c.c. intraspinally. No clinical symptoms resulted and the microscopic examination of the animals, killed, respectively, seven and twenty-four days later showed an intact nervous system.

The conclusions Jacob and Weygandt draw from their experiments is that neosalvarsan in very concentrated solution is dangerous, but in weak solutions is practically harmless.

Marriages

P. A. SURG. ROBERT A. HERRING, U. S. P. H. S., to Miss Emily Humbar White, at the Marine Hospital, New Orleans, June 4.

P. A. SURG. JASPER VICTOR HOWARD, U. S. N., to Miss Prudence Estelle Wyman of Olympia, Wash., May 28.

SIDNEY HERMAN ADLER, M.D., New York City, to Miss Elsie Tobias of Far Rockaway, L. I., N. Y., June 10.

CAPT. WILLIAM A. WICKLINE, M. C., U. S. A., to Miss Grace Gooding of Washington, D. C., May 5.

JERE LAWRENCE CROOK, M.D., Jackson, Tenn., to Miss Millican Cooke Green of Elk Hill, Va., June 17.

BUFORD COSBY BIRD, M.D., Colquitt, Ga., to Miss Chevis Evans Strong of Montgomery, Ala., June 17.

LEWIS A. BUCHMAN, M.D., Canton, Ohio, to Miss Molly Jane Reed of North Industry, Ohio, June 1.

WILLIAM LEMUEL BENEDICT, M.D., Fresno, Cal., to Miss Edith H. Betz of Adrian, Mich., June 2.

JOHN PARKER LOUDON, M.D., to Miss Florence Ellen Jones, both of North Yakima, Wash., June 4.

LEWIS JOHN POLLOCK, M.D., Chicago, to Miss Katherine Percy of Galesburg, Ill., June 6.

JAMES B. LOWRY, M.D., Atlanta, Ga., to Miss Mertie I. Gracy of Lakeland, Fla., May 11.

HOWARD RISK, M.D., Waverly, Ia., to Miss Letha Margaret Kint of Oelwein, Iowa, June 3.

H. H. HORNBECK, M.D., to Miss Ora Stanford, both of Kingston, Okla., May 23.

ARNOLD GARLITZ, M.D., St. Louis, to Miss Elsie Sureth of Wilmette, Ill., June 2.

Deaths

William F. Robeson, M.D. University of Pennsylvania, Philadelphia, 1885; a member of the Medical Society of the State of Pennsylvania; and an ophthalmologist of high rank; formerly president of the Allegheny County Medical Association; ophthalmic surgeon to the Pittsburgh Eye and Ear Hospital, Mercy Hospital, Children's Hospital and Pittsburgh Hospital; ophthalmologist to the Western Pennsylvania Institution for the Blind; oculist for the Pennsylvania, Baltimore and Ohio, and Pittsburgh and Lake Erie railroads; formerly surgeon of the Eighteenth Infantry, N.G., Pa.; died at his home in Pittsburgh, June 3, aged 50.

James Augustus Blake, M.D. Albany, N. Y., Medical College, 1868; College of Physicians and Surgeons in the city of New York, 1869; of Brooklyn; a member of the Medical Society of the State of New York; and a specialist in diseases of the eye, ear, nose and throat; formerly a member of the staff of Charity Hospital, and Manhattan Eye and Ear Hospital, New York City, and the Methodist Episcopal Hospital, Bedford Dispensary and Hospital, and Brooklyn Eye and Ear Hospital; died at his home in Brooklyn, June 9, from cerebral hemorrhage, aged 71.

Dan Millikin, M.D. Miami Medical College, Cincinnati, 1875; a member and once president of the Ohio State Medical Association; formerly professor of materia medica and medical jurisprudence in his Alma Mater; prominent as a physician and writer of Ohio; president of the Hamilton Board of Education; died at his home in Hamilton, June 5, from arteriosclerosis, aged 69.

D. Winton Dunn, M.D. American Medical College, Eclectic, St. Louis, 1890; formerly mayor of Duquoin, Ill.; while alone in his office in Duquoin, June 6, was shot by a coal miner who owed him a bill, and whose child he is said to have refused to treat on that account. Dr. Dunn was taken to St. Louis on a special train, but died from his injuries, June 7, aged 62.

William C. Gilmour, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1882; of Oakland, Ore.; died at his home in that city, May 9, from heart disease, aged 54.

Leland Madden Baker, M.D. Boston University School of Medicine, 1894; died at his home in Lynn, Mass., May 27, from nephritis, aged 45.

George Dallas Nutt, M.D. University of Pennsylvania, Philadelphia, 1869; a prominent citizen of Williamsport, Pa.; one of the organizers of the Williamsport Hospital, and of the Williamsport Private Hospital; for many years dean of the post-graduate school connected with the institution; a Fellow of the American Medical Association; died at his home, May 30, aged 69. The Lycoming County Medical Society at a special meeting, decided to take action on the death of Dr. Nutt, and to attend his funeral on foot in a body.

Amos Lawrence Mason, M.D. Harvard Medical School, 1872; a member of the Massachusetts Medical Society; for twenty years senior physician at the Boston City Hospital; formerly assistant professor, and professor in his Alma Mater; an authority on contagious diseases; and one of the most prominent practitioners of Boston; died suddenly at Menand's, near Albany, N. Y., June 5, from heart disease, aged 72.

Burchard H. Roark, M.D. Rush Medical College, 1903; a Fellow of the American Medical Association, and county physician of Spokane, Wash.; a veteran of the Spanish-American War; while attempting to cross the track of an electric railway near Coeur d'Alene, Ida., in his motor car, May 30, was struck by a train and instantly killed, aged 37.

William L. Grant, M.D. Jefferson Medical College, 1856; surgeon of volunteers during the Civil War; and one of the members of the Wheeling Convention which laid the plans for the State of West Virginia, and also a member of the second convention, which completed those plans; died at his home in Grafton, W. Va., June 2, aged 92.

Francis Bishop Harrington, M.D. Harvard Medical School, 1881; a Fellow of the American Medical Association and American Surgical Association; for many years chief surgeon to the Massachusetts General Hospital; lecturer on surgery at Harvard Medical School; died at his home in Brookline, Mass., June 8, aged 60.

Eugene A. Wheeler, M.D. Denver College of Medicine, 1893; a Fellow of the American Medical Association; surgeon to the L. V. and T. Railroad, and to St. Mary's Hospital, Goldfield, Nev., aged 47; while returning from a meeting in Tonopah, Nev., June 9, was instantly killed by the overturning of his automobile.

Frank Delmont Humphrey, M.D. University of Iowa College of Homeopathic Medicine, Iowa City, 1891; died at his home in Baker, Oregon, May 19, from nephritis, aged 50.

William Justus Jones, M.D. McGill University, Montreal, 1856; one of the oldest and best-known practitioners of Ontario; died at his home in Prescott, May 19, aged 81.

Battle Clark, M.D. Physio-Medical College of Indiana, Indianapolis, 1893; died at his home in New Haven, Ind., May 28, from malignant disease, aged 60.

Robert R. Norris, M.D. University of Maryland, Baltimore, 1878; for thirty years a practitioner at Parkton, Md.; died at his home in that city, May 23, aged 63.

Bernard St. Elmo Ryan, M.D. University of the South Sewanee, Tenn., 1908; died at his home in Philomont, Va., May 25, from heart disease, aged 38.

John A. Jeffries (license, Illinois, 1878). For half a century a practitioner of Rinard, Ill.; died at his home in St. Louis, May 26, aged 80.

George R. Snyder, M.D. Jenner Medical College, Chicago, 1907; of New York City; died in a hospital in San Antonio, Texas, May 25, aged 40.

Charles Murray, M.D. Philadelphia University of Medicine and Surgery, 1864; died at his home in Edwards, N. Y., May 25, aged 82.

Emma J. Roberts, M.D. Minneapolis College of Physicians and Surgeons, 1901; died at her home in Chicago, May 24, aged 48.

William H. Ribble, M.D. New York University, New York City, 1859; died at his home in Wytheville, Va., May 21, aged 79.

Elisha L. Day, M.D. Tulane University, New Orleans, 1872; died at his home in Dallas, Texas, May 24, aged 63.

Edward Joseph O'Brien, M.D. Rush Medical College, 1906; of Chicago; died in West Baden, Ind., June 5, aged 34.

John O. Eberhard, M.D. Jefferson Medical College, 1873; died at his home in Philadelphia, May 29, aged 63.

Frank Love Kiley, M.D. Jefferson Medical College, 1893; of Philadelphia; died about May 22, aged 45.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

POLLUTING THE STREAM AT ITS SOURCE

From day to day, the physician is a recipient, either willing or unwilling, according to his time and ability, of a free postgraduate course in therapeutics. First in importance comes the detail man with his well-memorized "story." Then the doctor is invited to hang on his office walls a host of multicolored advertising posters. He is deluged with enough advertising blotters to absorb an ocean of ink. Through the mails come pamphlets, packages and writeups by men who were failures as physicians. When at last the doctor dies, the unwitting distributors of the literature continue to deluge his home and family with drugs and advertisements until time has worn his name from every medical directory and distributing agent's list.

Physicians, of course, know all this. They may not know, however, that the student, before his graduation, is initiated into this proprietary educational system. It is true that this early appeal is also diminishing. But as proof that a few manufacturers still continue the methods, witness the following correspondence:

"To the Editor:—I enclose two letters which I have received recently. They are the most impudent of the many with which I have been deluged. It seems that their scheme of offering the president or secretary of the graduating class a commission is successful sometimes, for several of these patent medicine houses have written as an encouragement, that at such and such a medical school the president had cleared \$40 on the proposition, etc. From this, and from the cool effrontery with which these houses write, it seems that the students of a number of medical schools are not enlightened on the subject of proprietary medicines. This is a serious reflection on their teachers and emphasizes the importance of teaching the social and ethical, as well as the scientific aspects of medicine. There is very little of such instruction at present.

"ERNST BOAS,
"Secretary Senior Class, Columbia University, College of Physicians and Surgeons."

Enclosed with the foregoing were the following letters:

"Secretary Senior Class, Dept. of Medicine.

"Dear Doctor:

"It has been our practice for a great many years, in January, to furnish all Seniors and members of graduating medical classes with one of our regular \$1.00 Outfits, containing an *improved oil Nebulizer*, a *Pipet* and *bottle of Pineoleum* (formula in upper left hand corner of this letter-head) without cost and *with our compliments*.

"It is also our practice to pay each Secretary or President (whoever makes the distribution) five cents for each receipt furnished us, giving the full name and home address of each member of the class and the faculty, thereby showing that he has delivered to each, one of our Outfits. We ship the goods by prepaid express to the College and when the receipts showing the deliveries, have been returned we forward our check as per the above.

"If you will kindly give us an immediate reply (in the enclosed stamped envelope) indicating whether or not you will attend to the matter for us and informing us of the number of men in the graduating class and faculty, we will at once take up the matter with you further.

"Very truly yours,
"THE PINEOLEUM COMPANY."

"Secretary, Senior Class, Columbia University College of Physicians and Surgeons.

"Dear Doctor:

"It is our intention to present each of the members of the senior class with a copy of our 400 page cloth bound library edition price-list containing a section on clinical suggestion which should make it of interest and value to each of them. With the list we shall include a sample copy of the *American Journal of Clinical Medicine* and our recent issue of 'Helpful Hints for the Busy Doctor,' both of which are of undoubted interest and value.

"So that we may continue mailing our 'Helpful Hints' from time to time, we desire the names and permanent home addresses of each member of the senior class and if you will furnish us with this information we shall present you or the student whom you may select to compile the list and distribute the samples, a 12-vial emergency case filled with active principles suitable for this class of practice.

"On receipt of the list of names we shall forward the above mentioned printed matter by prepaid delivery to either yourself or the student appointed.

"Assuring you of our appreciation of any courtesy you may show us, and of our desire to reciprocate in any way possible, we are, with regards,

"Very truly yours,

"FRANK B. KIRBY, M.D.,

"The Abbott Alkaloidal Company, Department of Sales.

"P. S. We have interesting proposition whereby a live-wire student, preferably in the senior class, can make some money with but little effort and with no loss of time."

The way to get rid of these attempts to debauch the young graduate is indicated in our correspondent's words: "It seems that the students of a number of medical schools are not enlightened on the subject of proprietary medicines." There is need in every school not only of an intensive course in what is worthy and efficient but also of demonstrations and lectures on proprietary methods and "What Not To Prescribe."

"Beneficial in all fevers, especially typhoid."

"It gives the quickest relief in all uric acid troubles, thick or discolored urine, stone in bladder, pain in urinating."

"It cures kidney and bladder troubles, sciatica, rheumatism and gout."

The water was declared misbranded by the federal authorities, first, because of the false statements regarding curative effect, and, second, because while called a lithia water, it did not in fact contain enough lithium to give the therapeutic effect of lithia water. The company pleaded guilty and the court suspended sentence on payment of costs.—[*Notice of Judgment No. 2709.*]

SUN-RAY SPARKING WATER

"Sun-Ray Sparking" was a water claimed to be "the world's purest spring water," marketed by the Sun-Ray Water Company of Ellenville, N. Y. The label bore a picture of a stream of water flowing out of a tunnel, and under the picture was the description, "Famous Sun-Ray Spring Tunnel, Ellenville, N. Y." This water was declared misbranded by the federal authorities in that the label indicated that the product was a natural spring water. As a matter of fact, it was water to which sodium chlorid (common salt), sodium bicarbonate (baking soda), and carbon dioxid (carbonic acid gas) had been added. The Sun-Ray Water Company pleaded guilty and was fined \$50.—[*Notice of Judgment No. 2481.*]

HICCURA MINERAL WATER

P. F. Panabaker of Omaha, Nebraska, trading under the name "Hiccura Mineral Water Company," shipped in interstate commerce, a quantity of mineral water which the federal authorities declared misbranded. The following claims were made for the stuff:

"Natural Mineral Water."

"Pure Natural Remedy."

"Hiccura Mineral Water is the strongest and most perfect of Natural Waters."

The federal authorities declared the water misbranded in that the "Hiccura Mineral Water" was not a "natural" water, but an artificial mineral water, containing ferric sulphate, 84 grams per liter, and aluminium sulphate 21 grams per liter. Panabaker pleaded guilty and was fined \$15 and costs.—[*Notice of Judgment No. 2380.*]

Association News

CLINICAL INFORMATION BUREAU IN NEW YORK

Fellows of the American Medical Association and other visiting physicians will be cordially welcomed at the clinics which are daily held in the hospitals of New York City. An information bureau has been established in the New York Academy of Medicine. The details of about fifty operative clinics are posted there daily.

Propaganda in the Public Schools against Medical Frauds.

—A unique method of propaganda against patent medicines and medical frauds has been inaugurated in the high schools at La Fayette, Ind. An effort is being made to inform the pupils, and through them the families from which they come, regarding various medical frauds. The plan was originated by Professor Pierson of the department of physiology. Pupils were requested to bring to school all newspaper advertisements of patent medicines and "quack" doctors. The iniquity of this form of advertising and the absurdity of the claims of the patent-medicine men and the "quack" doctors were explained to them. Great enthusiasm was shown and literature concerning the subject was gathered by the students in physicians' offices and elsewhere. Special attention was drawn to the dangers of medicines containing habit-forming drugs. This novel method should be highly effective in teaching the public the evils of patent medicine and quackery.—Correspondence, *Indiana State Med. Jour.*

CONVICTIONS UNDER THE FOOD AND DRUGS ACT

BEEF, WINE AND COCA

Warren Sutliff, G. W. Case, J. Weinkauff and Ensley J. Case, who did business under the firm name of Sutliff, Case & Co., Peoria, Illinois, shipped in interstate commerce a quantity of so-called beef, wine and coca. According to the label, the product contained alcohol 15 per cent. and cocain 1/5 of a grain to each fluid ounce. When analyzed by the government chemists, the stuff was found to contain not 15 per cent. of alcohol, but 23.75 per cent. It was, accordingly, declared misbranded. The defendants pleaded guilty to the charge and were fined \$10 and costs.—[*Notice of Judgment No. 2213.*]

MALT NUTRINE

The Anheuser-Busch Brewing Association sold, in violation of the Food and Drugs Act, a quantity of "Malt Nutrine," which the government officials declared was misbranded. The label bore such claims as:

"Alterative, Nutritive, Tonic, Strengthening, Invigorating, Sedative."
"A Non-intoxicant Sparkling Concentrated Liquid Extract of Malt and Hops."

"Makes Blood and tissue. Aids digestion. Lends strength to the weak. Triumphs over disease. Nourishes the convalescent."

"Rests the brain and quiets the nerves. It is invaluable to nursing mothers. Nothing like it for teething children. Enriches the blood and builds up the system."

"A concentrated extract of Malt of Acknowledged Merit."

The label was declared misleading and false in that the claim "highly concentrated extract of malt" signified that the product was a pure extract of malt concentrated, when analysis proved that it was not, but consisted of other ingredients than malt, to wit: Alcohol, 1.6 per cent., and extractive matters from hops. The company pleaded guilty and a fine of \$50 was imposed.—[*Notice of Judgment No. 2310.*]

MANADNOCK LITHIA SPRING WATER

S. A. Scammon of Temple, N. H., shipped in interstate commerce a quantity of Manadnock Lithia Spring Water. Some of the claims made for this product were:

"The most wonderful natural Lithia Spring water now known in the world."

"Recommended for Gout, Dyspepsia, Rheumatism, Eczema, Sugar Diabetes, Bright's Disease, Gall Stones; also reduces temperature in all fevers; and all diseases of the kidneys, asthma, etc."

"As beautifier of the complexion, it has no equal."

This so-called lithia water was declared misbranded, as it contained only an unweighable trace of lithium and not enough to warrant the water being classed as a lithia water. Scammon entered a plea of *nolo contendere* and was fined \$15.—[*Notice of Judgment No. 2814.*]

BUCKHORN LITHIA WATER

A quantity of "Buckhorn Lithia Water" was shipped by a company of the same name from Henderson, N. C., into Georgia. The labels on this product contained the following statements:

"This water has the highest scientific endorsement as a cure for catarrh of stomach or bowels, constipation and indigestion."

Correspondence

Sudden Blanching of the Hair

To the Editor:—In an editorial in *THE JOURNAL*, May 30, 1914, p. 1726, on the growth and color changes of the hair, sudden blanching of the hair is put down as "mythical," and Stieda's views are accepted that the hairs turn gray only as new hairs without pigment grow. "No sudden mutations are found when accurate observations are instituted."

Stieda's reasoning to my mind is not convincing, and I believe that with our ignorance of the factors controlling pigment formation in the skin we are in no position to dogmatize on this subject—certainly in no position to cast aside as unreliable cases because they do not square with our present notions. Most of the recorded cases of this sort are old, but we are not the first generation of reliable observers, and it does not require modern instruments of precision to make a diagnosis of gray hair. I would offer in evidence on this point one modern case, which so far as I know has not appeared in the literature of this subject. It is the following:

"Perhaps you will allow me to digress for a moment to mention to you a very remarkable illustration of the latter fact—increased pigmentation in the vicinity of its diminution. I have mentioned the case elsewhere, but it will probably be new to you. It is that of a man who had traumatic meningeal hemorrhage over the left hemisphere. As a result of this, during the three days he lived after the injury, the right, opposite half of the hair of his head and of his brown moustache and beard became blanched so as to be almost white. The change was watched during life and carefully noted after death. It was like that which has been described as the result of profound emotion, but it was due here to a physical agency. It can only be explained by assuming that the disordered innervation so changed the secretion at the roots of the hair as to produce a material capable of ascending the hairs and discharging their pigment. But after death we noticed another thing, which leads me to mention the case. The very gray, almost white, right half of the beard was separated from the brown left half by a narrow vertical line, or narrow zone, in the middle line, in which the hair had become almost black. Apparently where the disordered influence ceased in its extreme degree, at the blending of the innervation of the two sides, a change in the pigmentary process had occurred of the opposite character. Mysterious as the fact is, and perhaps impossible to explain, it illustrates the close relation between the plus and the minus in pigmentary processes." (Clinical Lectures, by Sir William Gowers, M.D., F.R.S., 1904, p. 153.)

One positive fact of this sort will of course knock down a whole theory based on negative reasoning, and I do not believe that this case can be brushed aside as a myth. Sir William Gowers is not an ancient; he belongs in the forefront of modern neurology—certainly a field whose workers are trained to guard against deceptions—and he has standing as a clinical observer.

"The change was watched during life and carefully noted after death"; and not only that, but hyperpigmentation of bordering hair occurred.

In the face of this observation—leaving all others out of consideration—I believe we are compelled to accept the fact that sudden blanching of the hair may occur. And I am aware of nothing that makes the acceptance of this observation a shock to our knowledge of skin pigment. As a matter of fact, sudden macroscopic changes in the skin's pigment—and the hair's pigment is the same—are not excessively rare observations. As recently as the May meeting, this year, of the American Dermatological Association, Hazen of Washington referred to the sudden appearance of patches of leukoderma in a negro ill in hospital under constant observation; in this case patches of white skin appeared on the abdomen within thirty-six hours. Carmichael mentioned a similar case. How such a change could occur we are at a total loss to explain; but that has nothing to do with the fact.

WILLIAM ALLEN PUSEY, M.D., Chicago.

Preventive Inoculations for Typhoid

To the Editor:—In the Current Comment on "Typhoid Prevention among Seamen" (*THE JOURNAL*, May 16, 1914, p. 1563), the following statement is made: "So far, preventive inoculations for typhoid have been used only in military and naval circles and in hospital work among physicians and nurses. The results have been so favorable that it would seem to be time to secure the introduction of the practice of typhoid immunization to the public." It may interest you to know that the North Carolina State Board of Health has been providing free typhoid vaccine since early in January of this year, and that as whole-time county health officer for Sampson County, I have since January 16 given free preventive inoculation to 258 persons, mostly white, with a few negroes, both sexes, ages ranging from 4 to 61 years, from almost every walk in life. I have many engagements to continue the work on through the summer, and at the end of the year I expect to have some valuable data on the subject. I am not writing this as a criticism, but simply to report the activity going on in an obscure rural county.

G. M. COOPER, M.D., Clinton, N. C.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SPAHLINGER TREATMENT OF TUBERCULOSIS

To the Editor:—Do you know anything about the new cure for tuberculosis as described by Henry Spahlinger to the Academy of Medicine, Paris, April 28, to be a mixture of antigens and ferments? W. W. DILL, M.D., Redlands, Cal.

ANSWER.—The *Bulletin de l'Académie de médecine*, May 4, 1914, gives the following statement:

"PRESENTATION OF MANUSCRIPTS AND PRINTED WORKS"

"M. LETULLE: I have the honor to present a preliminary note entitled 'The Treatment of Tuberculosis by the Method of Henry Spahlinger,' addressed to the academy by Dr. Edmond Lardy of Geneva, Dr. Colbeck, physician of the Hospital of the City of London for Diseases of the Chest, and Dr. L. Williams, physician of the French hospital in London.

"The method consists of a series of intramuscular injections of a combination of tuberculous antigens and ferments. This specific treatment is reinforced by an adjuvant treatment consisting of ferments combined with lipoids which are administered intramuscularly or intravenously. In fifty-four cases of pulmonary tuberculosis, all of the open variety treated for some months by this method, seventeen at the present time have shown marked amelioration. The signs of ulceration have disappeared and bacilli no longer exist in the sputum and there is continuous apyrexia.

"Before treating human tuberculosis, H. Spahlinger had, furthermore, obtained remarkable success experimentally on tuberculous guinea-pigs. More than twenty recoveries led him to make his first trials on man. (Assigned to M. Letulle for examination.)"

The statement given in the preceding quotation must be regarded merely as the claims of the author of the treatment.—ED.

RAYMOND'S PECTORAL PLASTERS—SETON FOR MIGRAINE—ACTION OF ACETANILID, ANTIPYRIN AND PHENACETIN—SCOPOLAMIN ADDICTION

To the Editor:—1. Please inform me as to the composition or therapeutic action, if any, possessed by Raymond's Pectoral Plasters, which are "guaranteed to cure" whooping-cough. They are made by Raymond & Co., 200 Williams Street, New York City. Has it ever been investigated by *THE JOURNAL*'s Propaganda for Reform? Please give some information on this "cure" if you can do so, as it is being exploited in this locality not only by druggists, but by physicians as well.

2. What does Osler really mean in his closing statement relative to the treatment of migraine, viz: "And lastly, in obstinate cases, an ordinary tape seton may be inserted through the skin at the back of the neck, to be worn for three months, a plan of treatment which has the strongest possible recommendation from Mr. Whitehead of Manchester (Osler: Practice of Medicine, D. Appleton & Co., Ed. 7, 1911, p. 1068).

Would there not be serious danger of infection or inflammation from leaving the seton in place so long? Is this a safe procedure to try in such cases?

3. Is there any real difference in the action of acetanilid, antipyrin and phenacetin on the central nervous system, other than a difference in the intensity of their action?

4. Is there much danger of acquiring a habit of hyoscin where the drug is being administered continually in doses of from 3/100 to 1/20 grain daily? What is the danger compared with equivalent doses of morphin administered to a male patient 68 years old?

CHESTER DEMAREE, M.D., Trafalgar, Ind.

ANSWER.—1. We have no information as to the composition and action of Raymond's Pectoral Plasters. The advertising matter in our files shows that the plasters are fraudulently exploited. For further information regarding this nostrum, see "Nostrums and Quackery," p. 689, or THE JOURNAL, June 3, 1911, p. 1671, under the head of "Press Clippings and Nostrum Enterprise."

2. We must take the quotation to mean what it says. The introduction of a seton was formerly much used for the purpose of exciting a lasting counterirritation. The seton is applied by drawing a single large thread or a skein of threads through an opening made in the skin. There is, of course, some danger of infection in making such a wound, but if care be taken to have the materials aseptic, the danger of absorption of toxins or spread of the infection would be comparatively slight. The method is, however, scarcely to be recommended, and we notice that Osler has omitted all reference to it from the eighth edition, 1912, of his work on the Practice of Medicine.

3. No.

4. So far as we know, an addiction to scopolamin (hyoscin) has not been observed to any considerable extent. The danger of inducing such a habit would be far less than with morphin. Scopolamin acts more by depressing the motor area than by its effect on the sensory portion of the brain.

REFERENCES TO ABLATIO PLACENTAE

To the Editor:—Please give me some data or references in regard to "Concealed Internal Hemorrhage" or "Ablatio Placentae" named by Holmes.
A. S. ROSE, M.D., Fayetteville, N. C.

ANSWER.—The following is a list of references to the subject:

- Holmes, R. W.: Two Cases of Ablatio Placentae, *Am. Jour. Obst.*, 1903, xlviii, 519.
Holmes, R. W.: Ablatio Placentae, A Study Based upon Two Hundred Cases in the Literature, *Am. Jour. Obst.*, December, 1901 (complete bibliography).
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FRACASTORIUS ON SYPHILIS

To the Editor:—Will you kindly publish in an early issue the English version of the famous Latin poem of the Italian physician Fracastorius, written in 1530, in which the disease syphilis is first referred to? This poem, now of great historical importance, is not available to the general practitioner, and I think that its publication would be appreciated by the other readers of THE JOURNAL as well as myself.

PAUL E. GREENLEAF, M.D., Bloomington, Ill.

ANSWER.—The celebrated poem of Hieronymus Fracastor is now about four centuries old. To its author is due the credit of having given to this disease the name which has supplanted all others and is to-day in universal use. While the poem is filled with mythological allusions it affords a good clinical description of the symptoms of the disease. It is a version in verse of a small prose treatise published by the author in 1548, entitled "De Contagionibus et Contagiosis Morbis." A translation in prose was issued by the Pilman Company, St. Louis, in 1911, for \$2. It is a booklet of fifty pages. In his little essay entitled "An Alabama Student," Sir William Osler gives an account of Fracastorius with extracts from the poem. The great length of the work prevents its complete publication in THE JOURNAL.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 14. Chairman, Dr. W. H. Sanders, Montgomery.

ALASKA: Juneau, July 7. Sec., Dr. Henry C. De Vigne, Juneau.

ARIZONA: Phoenix, July 7-8. Sec., Dr. John Wix Thomas, Phoenix.

COLORADO: Denver, July 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven, July 14-15. Sec., Dr. Chas. A. Tuttle, New Haven. Homeopathic: New Haven, July 14. Sec., Dr. Edwin C. M. Hall, New Haven. Eclectic: New Haven, July 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

ILLINOIS: Chicago, June 23-25. Sec., Dr. C. St. Clair Drake, Springfield.

INDIANA: Indianapolis, July 14-16. Sec., Dr. W. T. Gott, State House, Indianapolis.

MAINE: Augusta, July 7-8. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, July 14-16. Sec., Dr. Walter P. Bowers, Room 159 State House, Boston.

MONTANA: Helena, June 30-July 2. Sec., Dr. Wm. C. Riddell, Helena.

NEW HAMPSHIRE: Concord, July 1-2. Regent, Mr. H. C. Morrison, Concord.

NEW MEXICO: Santa Fe, July 13. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: June 23-26. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

NORTH DAKOTA: Grand Forks, July 7. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 14. Sec., Dr. John W. Duke, Guthrie.

OREGON: Portland, July 7-9. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

RHODE ISLAND: Providence, July 2-3. Sec., Dr. Gardner T. Swarts, State House, Providence.

SOUTH DAKOTA: Deadwood, July 14. Sec., Dr. Park B. Jenkins, Waubay.

TEXAS: Austin, June 23-25. Sec., Dr. W. L. Crosthwait, Waco.

UTAH: Salt Lake City, July 6-7. Sec., G. F. Harding, 405 Templeton Bldg., Salt Lake City.

VERMONT: Burlington, July 14-17. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 23-26. Sec., Dr. J. N. Barney, Fredericksburg.

WASHINGTON: Seattle, July 7. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

WEST VIRGINIA: Elkins, July 1. Sec., Dr. S. L. Jepson, Wheeling.

WISCONSIN: Milwaukee, June 29. Sec., Dr. John M. Beffel, 3200 Clybourn St., Milwaukee.

WYOMING: Laramie, July 9-11. Sec., Dr. H. E. McCollum, Laramie.

Special Preparation for Ophthalmologists

A statement from the University of Minnesota Medical School says that a course for the preparation of specialists in ophthalmology, covering a period of two or three years is to be offered, this course to start July 1, 1914. Opportunity will also be provided for a course in otology, laryngology and rhinology to be taken at the same time. It is planned to grant a suitable degree in ophthalmology at the expiration of the service, provided the work done is satisfactory. The plan provides for a systematic training, covering laboratory branches so far as they are related to ophthalmology, and the intention is to give the student a good foundation in these allied subjects, both laboratory and clinical, including anatomy, physiology, pharmacology, pathology, bacteriology, general medicine, surgery, experimental and clinical, neurology and other clinical branches.

It is the intention thus to broaden the foundation of the student undertaking these specialties. During this period he will have opportunity for such work as is required clinically in eye, ear, nose and throat. It is expected that this course will prepare the student more quickly and in a better manner in subjects related to ophthalmology than would be the case were the physician to enter on a long period of general practice in which he is obliged to do much work which later will be of little or no value in the practice of his specialty. There is one teaching fellowship offered of \$500 for the first year, and it is expected that the amount of the fellowship will be somewhat larger for the second year of service.

Maine March Report

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the written examination

held at Portland, March 10-11, 1914. The number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 16, of whom 13 passed and 3 failed. Five candidates were licensed through reciprocity. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|--|------------------------------|------------------|-----------|
| George Washington University | (1912) | 87 | |
| Medical School of Maine | (1913) | 78 | |
| Baltimore Medical College | (1913) | 79 | |
| College of Physicians and Surgeons, Baltimore | (1912) | 77 | |
| College of Physicians and Surgeons, Boston..... | (1912) | 76 | |
| Harvard University | (1893) 81; (1900) 88; (1909) | 93 | |
| Tufts College Medical School | (1912) 77; (1913) | 80 | |
| Jefferson Medical College | (1913) | 91 | |
| University of Vermont | (1913) | 84 | |
| McGill University | (1901) | 84 | |
| | | | |
| | FAILED | | |
| Coll. of Phys. and Surgs., Boston (1909) 71; (1911) 72; (1912) | | 63 | |
| | | | |
| | LICENSED THROUGH RECIPROCITY | | |
| College | Year Grad. | Reciprocity with | |
| University of Colorado | (1913) | Colorado | |
| Chicago College of Medicine and Surgery | (1913) | Illinois | |
| Tufts College Medical School | (1894) | Texas | |
| University of Vermont | (1907) Vermont; (1912) | Vermont | |

California Reciprocity Report

Dr. Charles B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports that 39 candidates were licensed through reciprocity and 1 by motion of the board, Dec. 8-10, 1913. The following colleges were represented:

| College | Year Grad. | Reciprocity with |
|--|-------------------------|------------------|
| Coll. of Phys. & Surgs., Los Angeles (1906) Arizona; (1913) | (1913) | Wisconsin |
| Cooper Medical College | (1906) | Oregon |
| Denver College of Medicine | (1902) | Penna. |
| University of Colorado | (1896) | Washington |
| Georgetown University | (1906) | Utah |
| Chicago Homeopathic Medical College..... | (1903) | Iowa |
| Hahnemann Med. Coll. & Hosp., Chi. (1902) Iowa; (1905) | (1905) | Illinois |
| Northwestern University | (1908) Illinois; (1912) | Illinois |
| Rush Medical College | (1909) | Illinois |
| University of Illinois | (1912) | Arizona |
| Keokuk Medical College | (1905) | Washington |
| University of Kansas | (1906) | Missouri |
| Tulane University | (1910) | Texas |
| College of Physicians and Surgeons, Baltimore..... | (1907) | Utah |
| Johns Hopkins University..(1901) Maryland; (1906) Maryland; (1909) | | |
| Maryland; (1910) Maryland. | | |
| Southern Homeopathic Medical College..... | (1904) | Maryland |
| Harvard University | (1902) | New York |
| Barnes Medical College..... | (1893) | Missouri |
| Beaumont Hospital Medical College .. | (1897) | New Mexico |
| Missouri Medical College | (1886) | S. Dakota |
| Columbia University, College of Phys. and Surgs. .. | (1907) | New York |
| Cornell University | (1913) | New York |
| New York Homeopathic Medical College and Hosp... (1908) | (1908) | New York |
| Cincinnati College of Medicine and Surgery | (1880) | Arizona |
| Ohio Medical University | (1906) | Ohio |
| Western Reserve University | (1905) | Mass. |
| Jefferson Medical College..... | (1902) Penna.; (1912) | Maine |
| Medico-Chirurgical College of Philadelphia..... | (1904) | New Jersey |
| University of Penna..... | (1900) Penna.; (1902) | Penna. |
| Woman's Med. Coll. of Penna. (1891) New Jersey (1912) | (1912) | Penna. |

Philippine Islands Report

Dr. C. E. Norris, secretary of the Board of Medical Examiners for the Philippine Islands, reports that 33 physicians were registered during the latter half of 1913. The following colleges were represented:

| College | Year Grad. | Examined |
|---|------------|----------|
| Chicago College of Physicians and Surgeons..... | (1907) | 1 |
| Rush Medical College..... | (1904) | 1 |
| Tulane University | (1907) | 1 |
| Grand Rapids Medical College..... | (1902) | 1 |
| St. Louis University..... | (1905) | 1 |
| Jefferson Medical College..... | (1892) | 1 |
| University of the Philippines, Med. Dept..... | (1913) | 6 |
| University of St. Thomas, Med. Dept..... | (1913) | 19 |
| University of Strassburg..... | (1897) | 1 |
| Medical School of Kanazawa, Japan..... | (1910) | 1 |

Book Notices

A HANDBOOK OF USEFUL DRUGS. A Selected list of Important Drugs Suggested for the Use of Teachers of Materia Medica and Therapeutics and to Serve as a Basis for the Examination in Therapeutics by State Medical Examining and Licensing Boards. Prepared under the Direction and Supervision of the Council on Pharmacy and Chemistry of the American Medical Association. Cloth. Price 50 cents. Pp. 167. Chicago. American Medical Association Press, 1914.

The object of this book, published under the auspices of the Council on Pharmacy and Chemistry, as is well expressed on its title page, is to present "a selected list of important drugs suggested for the use of teachers of materia medica and therapeutics and to serve as a basis for the examination in therapeutics of state medical and examining boards." This object seems to have been achieved. The book is a valuable practical help toward a higher standard for medical therapeutics and medical education. Recognizing the fact that a too large number of drugs is detrimental to therapeutic progress and especially a hindrance to effective medical teaching, a committee of the Council on Medical Education of the American Medical Association prepared a list of the more important drugs in general use and submitted it to the National Federation of State Medical Examining and Licensing Boards with a view to securing the cooperation of that body in largely limiting examination for license to medicaments in this list. The drugs selected by the Council on Pharmacy and Chemistry for this book were chosen from the list described. The drugs are arranged alphabetically. The information given includes a physical and chemical description of the drugs together with their pharmacology, therapeutics, dosage and practical application.

It may be pointed out that the book includes the new and the old. Official drugs whose importance warrants their inclusion have been taken from the United States Pharmacopeia, and their physical and chemical description are in accordance with the official standards; the non-official drugs have been taken from New and Nonofficial Remedies.

Following the main text are tables of solubility, the classification of drugs according to their usage, lists of drugs that may cause eruptions of the skin, discolorations of the urine and feces and drugs that are excreted in the milk. A good index completes the book.

Every student should own a copy of "Useful Drugs" to aid him in bringing scientific laboratory pharmacology to practical application, and to help him to recognize the useless drugs that are still official in the Pharmacopeia, still appear in books on practice, and constantly occur in the medical journals.

Teachers and instructors in practical therapeutics will find the book of great value in the selection of the drugs that their students must be prepared on for hospital and licensing board examinations. The book represents a much-needed advance in therapeutics by tacitly repudiating a large number of useless drugs.

BENZOL AS A LEUCOTOXIN. Studies on the Degeneration and Regeneration of the Blood and Hematopoietic Organs. By Laurence Selling, M.D. Monographs of the Johns Hopkins Hospital Report, New Series, No. 2. Paper. Price, \$1. Pp. 60, with 3 illustrations. Baltimore: Johns Hopkins Press, 1913.

This pamphlet gives an exhaustive review of the action of benzol (benzene, C₆H₆), on the blood-making organs, particularly the bone-marrow and on the different varieties of blood-cells. Benzol is shown to destroy the cells of the bone-marrow until the blood-making tissue becomes aplastic; but the cessation of the injections leads to regeneration in the course of two or three weeks. Examination of the cells in the process of regeneration indicates, according to the authors, the possibility of a conversion of small lymphocytes into large lymphocytes and the further differentiation of the large lymphocytes into granulocytes, erythroblasts and megacaryocytes. The conversion of erythroblasts to erythrocytes is conceived of as a physiologic process consisting in a wandering of the nucleus out of the cells.

Miscellany

The Patent Medicine Problem

An article by M. I. Wilbert (*Jour. Am. Pharm. Assn.*, 1914, iii, 572) discusses the patent-medicine problem from the pharmaceutical point of view and presents a review of some of the opinions expressed and resolutions adopted by members of the American Pharmaceutical Association during the sixty or more years of the existence of that organization.

If resolutions were as potent for good as their proposers would have them to be, the patent-medicine problem would long since have ceased to exist. Even so, however, it is pleasing to learn that pharmacists as a class have consistently opposed quackery and fraud as represented by the nostrum business and have repeatedly gone on record as favoring the degree of publicity necessary to give the purchaser a fair knowledge of the composition of the medicine he is buying. It is interesting to note, for instance, that at the second meeting of the American Pharmaceutical Association the following resolutions were adopted:

Resolved, That the American Pharmaceutical Association believes that the use and sale of secret or quack medicines is wrong in principle and is, in practice, attended with injurious effects to both the profession and the public at large, and believes it to be the duty of every conscientious druggist to discourage their use.

Resolved, That this association earnestly recommend to our pharmaceutical brothers to discourage by every honorable means the use of these nostrums; to refrain from recommending them to their customers; not to use any means of bringing them into public notice; not to manufacture or to have manufactured any medicine the composition of which is not made public, and to use every opportunity of exposing the evils attending their use and the false means which are employed to induce their consumption (*Proc. Am. Pharm. Assn.*, 1853, p. 17).

Three decades later (*Proc. Am. Pharm. Assn.*, 1885, xxxiii, 394), after a somewhat comprehensive study of the problems involved in the sale of patent medicines by retail druggists, a special committee presented a report including the following expression of opinion:

"All medicines, and articles used as such, concern the health of those who use them and put dependence on them. By action or failure of action, a medicine is liable to prove hurtful when misapplied. Therefore, it is the right of a purchaser of medicine to receive information of its constituents, their names and proportional quantities. And it is a legitimate act of the state—so far as it deems expedient—to see to it that such information, in printed form, is placed on each package of articles of medicines, as a condition of their legal sale.

"Moreover, legislation requiring the composition of medicines to be given to the consumer is entirely in accord with the spirit of the institutions of the United States, because it is legislation tending to make the individual responsible for taking care of himself and tending to secure him in the means of self-preservation. The purchaser of a medicine is provided with a record of its constituents, given in terms defined by published standards: now he may guide himself, in his own discretion, or with professional aid, by the information given in the record of constituents, or he may neglect to so guide himself, and depend on advice given on the wrapper of the medicine, in the exercise of his personal responsibility. The state has done its duty, and given the individual the opportunity for the exercise of discretion. The opportunity has an educational value to the individual."

Thirty years later, at the meeting of the American Pharmaceutical Association in Nashville in 1913, that association appointed a committee to inquire into and report on the problems involved in the patent-medicine business. The "Commission on Proprietary Remedies," as it is called, is to consider the following general propositions:

"1. To inquire into and report to the Council, from time to time, on the general subject of proprietary medicines, in their relation to pharmacy, medicine and the public health.

"2. To inquire whether any of the proprietary medicines, commonly known as patent medicines, contain alcohol or narcotic drugs in sufficient amount to render them liable to create a drug habit, or to satisfy such habits where otherwise created.

"3. To inquire whether, or to what extent, the commonly advertised patent medicines contain potent drugs in sufficient amount to render them dangerous in the hands of the laity.

"4. To inquire into the extent to which patent medicines are fraudulently advertised, or differ in properties or origin from the claims made for them, and the extent to which they are advertised for the cure of diseases generally recognized by the medical science as at present being incurable" (*Jour. Am. Pharm. Assn.*, 1913, ii, 1195).

If, as is to be expected, the present committee pursues its investigation along the lines mapped out by the earlier leaders in American pharmacy, and if it will fearlessly report its findings, the American public and the American medical profession will have secured an efficient ally in the present-day fight to eliminate quackery and fraud in the treatment of diseases.

In the summary of the recent accomplishments attempting to solve the patent-medicine problem, Wilbert expresses the opinion that "the questions involved are not to be considered as being answered until they are answered correctly, and that from the point of view of the public the influence of patent medicines on the health and welfare of the individual is the only factor deserving of consideration. Bearing this latter fact in mind, it would appear desirable that all branches of the drug trade give the patent-medicine problem renewed and serious consideration and make an honest effort to adjust their interests in accord with the interests of the public, and thus effectually counteract the frequently made assertions that the economic questions involved must outweigh all others so far as the drug trade may be concerned."

Drunkenness in Massachusetts

The legislature of Massachusetts in 1913 provided, by resolution, for a commission of five persons to investigate drunkenness in that state. The report of the commission is printed in a pamphlet as House Document 2053. It gives the number of arrests for drunkenness in the state during the previous year, the result of hospital treatment in the state institutions for treating inebriates, and discusses the means and measures for the curtailing of the liquor-habit and the prevention of drunkenness. The commission believes that the state of Massachusetts is not yet ready for state prohibition, but that local option is a good measure. As substitutes for saloons it is thought that meeting-places for men should be provided and that possibly for this purpose greater use could be made of the public-school buildings. Recommendations are made for additional legislation to regulate and control the liquor traffic and, as far as possible, prevent drunkenness, which seems to be on the increase in the state. The report is the logical result of a practical, sensible consideration of the liquor problem.

How to Judge a Doctor

Recently there appeared in the department "How to Keep Well" of the *Chicago Tribune* the following query and a reply, which we believe deserves reprinting as a guide to the physician himself. The correspondent wrote:

"Some time ago I saw an article in your columns saying that as long as people would patronize an incompetent physician, simply because of his genial manner, they would have themselves to thank for their misfortunes. As far as I can see, the ordinary layman is in no position to judge a physician, and no one in a position to judge will commit himself further than to say that so-and-so is a recognized specialist in his line. How is the layman to judge a general practitioner?"

And the answer was:

"By the judgment and sense he shows in the ordinary affairs of life; by his attendance at hospitals, clinics, medical society meetings; by his standing with other physicians; by the books and journals he reads; by his knowledge of medicine, medical judgment and skill. Some of these items are get-at-able in every case, and all of them in some cases. At the present time the opportunities for popular education on medical subjects are so abundant that the ordinary layman should be able to judge fairly well between the physician who knows his business and the bluffing ignoramus."

Medicolegal

Proof Rendering Roentgenogram Admissible in Evidence

(*Prescott & Northwestern Railroad Co. vs. Franks (Ark.)*, 163 S. W. R. 180)

The Supreme Court of Arkansas says that it is now a well-recognized fact that by the aid of proper apparatus a picture of the bones of the human body may be obtained that will more or less define the skeleton and show any injuries that may have resulted to the bones, or any foreign substance that may be lodged in the body. Therefore roentgenograms are admissible in evidence when proper proof of their accuracy and correctness is produced. In this case the plaintiff (Franks) had suffered a dislocation and fracture of his hip. His attending physician admitted that he had never had any experience in taking roentgenograms but testified that he was present when the photograph in question was taken; that a glass plate was placed under the injured member of the plaintiff, and the Roentgen ray placed over him, and by reflection of the light from the roentgenoscope the negative was made; that he saw it before it was delivered to the photographer to be developed; that the roentgenogram exhibited to the jury was the same as the impression on the glass which he saw just after it was taken. The witness, although he was not a graduate of any medical school, was a practicing physician and surgeon, and had been for fifteen years. His testimony, detailed above, showed that he was present when the picture was taken, and was familiar with the anatomy of the human body. Therefore the court thinks there was sufficient proof of the accuracy and correctness of the photograph, and that there was no error in admitting it in evidence.

Liability of Operating Surgeons for Negligence of Others—Admissibility of Evidence

(*Hunner vs. Stevenson et al. (Md.)*, 89 Atl. R. 418)

The Court of Appeals of Maryland reverses, on the defendant's appeal, a judgment for \$1,000 rendered against him, granting him a new trial. The court says that, June 20, the defendant performed an operation on a Mrs. Stevenson which consisted in the removal of the lower third of the right kidney and drainage of an abscess around the kidney lying between the kidney and the bowel. About five weeks afterward Mrs. Stevenson returned to her home, and, September 9, a piece of gauze which had been left in her was removed by her family physician. A week after that some rubberized silk was taken out by Mr. Stevenson, her husband. A "cigarette drain" had been used, which was covered with rubberized silk.

The court reached the conclusion that the appellant (defendant) could not be held responsible for the negligence, if any, of the hospital physicians, nurses, or interns in the dressing of the wound after the operation was performed, if he did not know of, or was not privy to, such negligence, and it was not discoverable by him in the exercise of ordinary care. At this day, when it is well known that there are physicians and surgeons of special skill in particular branches of their profession, it could not safely be announced as a general rule of law, applicable to such cases as this, that a surgeon who performs an operation is liable for the negligence of other physicians, nurses, or interns in hospitals in the after-treatment, unless he specially undertakes such employment. A surgeon may be called many miles from his residence to perform an operation, and, if he is to be held responsible for the negligence of others after the operation, it might mean either that one of special skill would refuse to perform such operations at distant points, or that his charges would be such that no one of moderate means could employ him. It might be detrimental to the public if such a surgeon were required to attend to the after-treatment, as it would be impossible for him to do so and perform many operations. It would be unreasonable to expect one performing opera-

tions in half a dozen different hospitals to continue to dress the wounds and have personal charge of the after-treatment in all cases until the patient is discharged from the hospital.

As reflecting on the defendant's right to leave the dressing of the wound to nurses and other attendants in the hospital, the question was relevant whether the postoperative dressing of wounds, as he had described in Mrs. Stevenson's case, was difficult. It was also proper to ask a medical witness what the practice was among reasonably diligent, competent and skilful surgeons practicing in hospitals with reference to the personal care, after-care, and treatment of the wounds of patients on whom they had operated. As the plaintiffs asserted that pulmonary tuberculosis resulted from the gauze and rubberized silk being left in the wound, it was proper to ask another medical witness to state how, in his judgment, the sinus left from this wound became infected with tuberculosis, and what connection, if any, the tuberculous condition of the sinus had with the operation or subsequent treatment of the case by the defendant. It was proper, too, to let the jury know how long it usually takes such a wound as described in the testimony to heal. The fundamental error in this case was as to the responsibility of a surgeon operating under such conditions as the defendant did.

Presence of Tuberculous Person May be Considered in Awarding Custody of Children

(*Kirkland vs. Matthews (Tex.)*, 162 S. W. R. 375)

The Court of Civil Appeals of Texas reverses a judgment awarding the custody and care of certain minor children whose mother was dead, to their father, rather than to their aunt, in which one of the points raised was that living in the father's family was his second wife's mother, who was afflicted with tuberculosis. The court says that the aunt offered to prove that a member of the father's family was afflicted with tuberculosis, a contagious and dangerous disease, but this proof was rejected on the father's objection. The purpose in offering proof of this fact was to show that the minors, should they be awarded to their father, would come into close association with one suffering from a dangerous and contagious malady, and that this was a circumstance to be considered in determining whether the best interest of the minors would be subserved by placing their custody with their father. The court thinks that the testimony was admissible on the issue suggested, and that the trial court erred in rejecting it. What is for the best interest of the children is the question of prime importance in cases of this kind, and any evidence showing or tending to show that their welfare would not be best subserved by placing them in the custody of a contending party should be admitted and considered.

Unlawful Practice of Medicine

(*Allen vs. State (Okla.)*, 138 Pac. R. 178)

The Court of Criminal Appeals of Oklahoma says that it is a penal offense under the laws of Oklahoma for any person to practice medicine or surgery in Oklahoma without having at the time a valid unrevoked certificate. An information charging a person with the violation of that provision of the code which penalizes persons for prescribing or administering any drug or medicine now or hereafter included in materia medica in the treatment of disease, injury, or deformity of human beings, must be substantiated by proof of the fact that some such drug or medicine was so prescribed or administered. This prosecution was begun prior to the adoption of the revised laws, for a violation of this provision. A careful reading of the record disclosed that the accused had been administering certain medicines, but no witness named any drug or medicine prescribed or administered by him, nor was there any proof in the record disclosing that any drug or medicine was administered which was included in materia medica, as required. Without doubt the jury should have been instructed, as requested, that the state had failed to introduce evidence sufficient to establish the guilt of the defendant as charged in the information, and they should return a verdict of not guilty.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

American Academy of Medicine, Atlantic City, June 19-21.

American Gastro-Enterological Association, Atlantic City, June 22-23.

American Proctologic Society, Atlantic City, June 22-23.

Montana State Medical Association, Lewistown, July 8-9.

New Jersey Medical Society, Spring Lake, June 29.

AMERICAN GYNECOLOGICAL SOCIETY

Thirty-Ninth Annual Meeting held at Boston, May 1921, 1914

The President, DR. J. WHITRIDGE WILLIAMS, Baltimore, in the Chair

A list of the newly elected officers was published in THE JOURNAL, June 6, p. 1820.

Forward Fixation of Cervix as Predisposing Cause of Some Retrodeviations of Uterus

DR. EDWARD REYNOLDS, Boston: The supports of the uterus are largely muscular, with the exception of the forward attachments of the cervix. The shortness of the latter forms an essential element in the antelexion of the cervix. Firm, forward fixation of the cervix, while the fundus is comparatively movable, creates a predisposition to retrodeviations. The release of the forward fixation of the cervix as a preliminary to the performance of the standard operations for the retrodeviations adds greatly to their percentage of success.

DISCUSSION

DR. HERMAN J. BOLDT, New York: Heretofore I have always looked on the shortened, and not infrequently indurated, condition of the sacro-uterine ligaments as being the main factor in causing retroversion of the cervix, and have on a number of occasions cut the shortened ligaments to overcome the backache of which many of these patients complain, several times relieving this symptom. That the holding forward of the fundus is due to the action of the round ligaments is questionable in the greater number of such instances. These ligaments are not taut, except when the bladder and rectum are full. The condition is usually an association of antelexion of the body of the uterus with a retroversion of the cervix; and unless there be an atrophy of the anterior cervicocorporal junction, the tissue at this junction is unyielding—indurated—and it is impossible to straighten it permanently by manual or mechanical means. Hence the mechanical dysmenorrhea of which many patients frequently complain. The usually present shortened anterior vaginal wall is part of the congenital malformation, and is an additional factor in causing the retroversion of the cervix. I have always regarded the shortened and thickened sacro-uterine ligaments to be a low-grade inflammatory process—a parametritis posterior. Furthermore, when the condition is of long standing and more or less atrophy has taken place in the anterior part of the cervix at the flexion angle, because of long duration and not infrequently increased size of the body of the uterus, the organ cannot straighten itself by any physiologic factor brought to bear on it. We may see the uterus assume a position farther backward in the pelvis, thus constituting a retroposition; and then the intra-abdominal pressure may cause a still more acute flexion angle.

DR. HENRY T. BYFORD, Chicago: I have in many cases separated the bladder from the uterus through a transverse incision and have drawn the parts together from the side to the median line, with the idea that I was getting support in front of the cervix which would hold it back more.

DR. I. S. STONE, Washington, D. C.: The Mackenrodt fixation operation for retroversion will answer the same purpose and overcome permanently the retroversion.

DR. J. WESLEY BOVÉE, Washington D. C.: In certain anomalies of development there is an abnormally high attachment of the uterosacral ligaments to the cervix and an abnormally low attachment of the anterior wall of the vagina. These defects may be remedied by severing the anterior wall

from the cervix, attaching it at a higher point and severing the uterosacral ligament from the cervix and attaching it to the lower point, thus giving stronger posterior leverage on the posterior wall of the uterus.

DR. JAMES R. GOODALL, Montreal: The type of acute antelexion of the uterus and the type of retroflexion are two distinct types which cannot be considered as belonging to one class. For instance, if we take young girls who complain of severe dysmenorrhea, we find associated conditions of the vagina and pelvis. Associated with an acute antelexion of the uterus there is a short anterior lip of the cervix and a long posterior lip. That type of uterus when removed from the body and held by the cervix cannot be undone. The anterior uterine wall is very fibrous in part and it is a type of uterus which seldom, if ever, becomes retroverted or retroflexed. In the other type of case, in which retroversion and retroflexion take place, there is a lack of tone and a tendency to enteroptosis even before pregnancy has taken place, and with that type of uterus the fundus can be flopped about in very few hours after death.

DR. EDWARD REYNOLDS: There is a distinction between these two classes of retroverted and antelexed uteri. Retroversion seldom occurs in the class in which the anterior wall at the angle of flexion is hard and firm. When we think that the cervix is the cause of the mechanical dysmenorrhea, release of the anterior fixation and posterior discission will straighten the uterus.

An Internal Alexander Operation

This paper, by DR. HENRY T. BYFORD, Chicago; will appear in full in THE JOURNAL.

Effect of Laparotomy on the Circulation

DR. W. D. GATCH, Indianapolis: In a series of experiments carried out on dogs, I took simultaneous tracings of the intrathoracic pressure of the intra-abdominal pressure, of the pressure in the inferior vena cava, and of the general blood-pressure. I raised the intra-abdominal pressure by injecting warm salt solution into the peritoneal cavity. The tracings showed that the intra-abdominal pressure and the pressure in the inferior vena cava were always equal and rose and fell together. When the intra-abdominal pressure is elevated until it is higher than the blood-pressure, the circulation through the abdomen is abolished, the abdominal viscera being found bloodless at necropsy. The chief and essential cause which propels the blood through the abdominal organs is the beat of the heart. The well-known fact that pressure on the abdomen increases the output from the inferior vena cava is not evidence against this view, because such increase is not maintained unless the circulation is greatly depressed. The absence of valves in the abdominal veins prevents any variations in intra-abdominal pressure due to movements of the abdominal walls from pumping the blood toward the thorax with any degree of efficiency, because as soon as the pressure is released there is a regurgitation. That the heart alone is capable of keeping up the abdominal circulation is proved by experiments.

The effect of anesthesia so deep as to abolish completely the tone of the abdominal wall is to promote the accumulation of blood in the abdomen and limbs, and not uncommonly causes a failure of the circulation during and after operation. It is fortunate that laparotomy is nearly always performed with the patient either in the horizontal or in the Trendelenburg position, for if it were usually done with the patient deeply anesthetized and in the feet-down posture, many more fatalities would occur. Operations both on animals and on man are much better borne under an anesthesia so light as to preserve the tone of the muscles. This is the reason why there is much less so-called shock under nitrous oxid-oxygen anesthesia than under anesthesia due to more powerful agents.

Treatment of Procidentia of Uterus by Interposition Operation

DR. THOMAS J. WATKINS, Chicago: Vesico-uterine transposition should be made before much protrusion through the vaginal orifice results, as the prolapse rapidly increases after

this has taken place; the more the prolapse, the greater the dangers of recurrences following the operation. Vesico-uterine transposition cures cystocele, the most important pathologic feature. An occasional recurrence of the uterine prolapse will occur, except in cases in which the vaginal canal can be practically obliterated. This recurrence, however, is not serious, as it can be easily remedied. The operative technique should be adapted to each individual case.

End-Results of Interposition of the Uterus

DR. JOHN OSBORN POLAK, Brooklyn: Interposition operations should be limited to women at or past the menopause, with a relatively small uterus, and when the procedure is elected in those still menstruating, sterilization by tubal ligation should be done at the time of operation. The cases of prolapse in which sliding takes place in the postpubic cleavage plane are not corrected by this procedure. The morbidity is wholly due to technical defects, namely, improper preparation and imperfect hemostasis, vesical injury, etc. In anteverting the uterus the anterior wall of the uterus should rest on the fascial plate just behind the pubis; the fundus should not be brought under the arch, as excessive anterior displacement not only favors recurrence, but anteflexes the uterus and interferes with drainage. The curettings from uteri about to be transposed should always be examined, as degeneration may occur, and hysterectomy is easy after this operation.

(To be continued)

AMERICAN DERMATOLOGICAL ASSOCIATION

Thirty-Eighth Annual Meeting, held in Chicago, May 14-16, 1914

(Concluded from page 1921)

External Vaccine Therapy

DR. HARVEY P. TOWLE, Boston: The results of the tentative experiments with external vaccine therapy were so encouraging in the Massachusetts General Hospital in 1912 that the method has been used with constantly increasing frequency. The present paper is based on the personal observation of more than a hundred and fifty private patients in whom vaccine was used externally. The indications are that external vaccine therapy is most efficient in the treatment of the acute inflammation of infectious disease whose seat is superficial and therefore easily reached from without. Of all infectious processes the staphylococcal is the most easily influenced by external vaccine therapy, and in this the resemblance to the internal method is exact. Vaccine injections are never more efficient than in the treatment of furunculosis, but have also been used successfully in cases of acne, sycosis, and with seeming success in psoriasis and also in oily seborrhea of the scalp. The results on the superficially seated lesions of impetigo contagiosa were usually excellent. Tuberculin was also used externally in several cases of lupus vulgaris, with good effect.

DISCUSSION

DR. JOSEPH GRINDON, St. Louis: About three weeks ago I was called to see a case of lupus which had existed for twenty-five years. Various treatments had failed to give more than fair temporary improvement. I thought that perhaps an additional rubbing in of the organism might produce a large output of the antibodies. So I took the Moro ointment, undiluted, and twice a week rubbed it in for five minutes at a time. There was quite a decided improvement, which continued for several weeks. After a month, however, the lesions flared up again, and I then lost track of the patient.

DR. JOSEPH ZEISLER, Chicago: Many cases of impetigo contagiosa have cleared up under my observation with simple treatment in five days. I remember a case of lupus erythematosus in which I performed scarification and applied a little phenol (carbolic acid), and in a week the patient was cured. There are so many different factors entering into the cure of our cases that it is very difficult to draw any conclusions at all. The mechanical element of rubbing grease into a scaly eruption might help some. I admire Dr. Towle's enthusiasm, and do not wish to criticize him.

A Case of Generalized Congenital Keratodermia

DR. FREDERICK S. BURNS, Boston: The patient whose case I shall report was 16 years of age. The dermatosis was generalized, showing special preference for the flexures of the hands, knees and feet, and the face. The type of lesion was that of an abnormal cornification varying from spine-like elements to marked keratotic thickening. Exfoliation was slight. The process extended on the lips, buccal and nasal mucous membrane, presenting on these surfaces a rather dry superficial thickening that closely resembled leukoplakia. The corneas were thickened and uneven, and surrounded by enlarged blood-vessels which also infiltrated the cornea. The intrinsic tissues of the eyes were unaffected. Deafness was total. The Wassermann was negative. The mucous membrane lesions were unusual, and those of the eyes and ears extremely rare.

DISCUSSION

DR. JOSEPH GRINDON, St. Louis: I am glad that Dr. Burns has once more called attention to the distinction between hyperkeratosis congenita and ichthyosis. So far as I am acquainted with the conditions, there is no such thing as congenital ichthyosis; that is, it is never present at birth, although developing in the first and second years of life.

DR. D. W. MONTGOMERY, San Francisco: I should like to ask Dr. Burns if the usual clinical picture does not show that the palms of the hands are old and smooth.

DR. S. POLLITZER, New York: Please differentiate this process from the possibility of an atypical acanthosis.

DR. A. RAVOGLI, Cincinnati: It is difficult for me to understand the difference in these cases between pityriasis rubra pilaris and ichthyosis. In ichthyosis we have the affection on the surface of the epidermis, but the effect does not go inside into the follicles. In this case, according to the pictures passed around, the openings of the hair follicles are all studded with epidermis, and I have always found this condition in pityriasis rubra pilaris. In ichthyosis the palms, soles and nails are very seldom affected in the way described in this case, which suggested pityriasis rubra pilaris.

DR. FREDERICK S. BURNS, Boston: In answer to Dr. Montgomery's question as to the involvement of the palms and soles, the process, as seen at the time when the photographs were taken, does not show the aggravated condition present a year ago. At that time it presented the appearance of pityriasis rubra pilaris or keratosis follicularis. It has been my impression from reading text-books and various papers, and looking over the literature, that there has seemed to be a consensus of opinion, although an artificial one, that the palms, soles, face and scalp are not usually affected in ichthyosis vulgaris. I do not emphasize that point, because I realize that it is a clinical and artificial distinction. The existence of a greater degree of inflammatory infiltration in the papillary layer of the skin in cases of ichthyosis vulgaris, however, is very common. In my case such changes were entirely absent; but there was a slight hypervascularity, which may help to explain the underlying erythema, and that may be a part of the acanthosis hyperkeratosis having to do with the deformity of the skin.

Regarding Dr. Pollitzer's question with reference to acanthosis, the clinical symptoms presented no pigmentation.

I wish to lay special emphasis on the unusual involvement of the mucous membranes and the organs of special sense, because there seemed little doubt, after consultation with the various specialists who concerned themselves with the examination of the eyes and ears, that the condition of the skin was contiguous with any part of the process having to do with the dermatosis.

Report of a Case of Colloid Degeneration of the Skin

DR. MILTON B. HARTZELL, Philadelphia: From a study of one typical case occurring in a man, aged 43, I am convinced that colloid degeneration of the skin of the type represented by the so-called colloid milium is not a disease of the elastic tissue alone, but affects the collagen and elastin in equal degree. The cells of the epidermis may share in the degeneration, although this is probably infrequent.

DISCUSSION

DR. G. F. FOX, New York: I was convinced that the cases which I reported many years ago as colloid milium were not true cases of colloid degeneration, but similar to a number of cases that had been described. In my cases the tumors looked firm, but were soft, and when dug out of the skin were found to be cystic and removal was followed by an extreme amount of hemorrhage. There was scarcely any cicatrix left after healing.

DR. CHARLES J. WHITE, Boston: The case which I reported some years ago was very different clinically, in that it had very few lesions and decidedly larger ones. Histologically, Dr. Hartzell's patient and my own are extraordinarily similar. My case, however, was much farther advanced than Dr. Hartzell's.

DR. MILTON B. HARTZELL, Philadelphia: It seems to me it is folly to give different names to this one condition. Why not call it degenerative elastin?

Urticaria Pigmentosa, Particularly in Regard to Its Pathology

DR. FRANK CROZER KNOWLES, Philadelphia: I have seen five cases of this disease. It should be dissociated from urticaria, as the course, symptoms and the histologic mast-cell picture are entirely distinctive. A congenital abnormality of the skin has apparently been proved in urticaria pigmentosa by finding abundant mast-cells in the clinically normal skin of these patients. A congenitally abnormal skin is more easily acted on. Some toxin apparently is the cause of this affection, and it probably does not act on normal skin. Its nature and mode of action are unknown.

Personal Observations on Two Thousand Cases of Skin-Disease in the Negro

DR. HENRY H. HAZEN, Washington, D. C.: The skin-diseases more prevalent among negroes than white persons are dermatitis papillaris capilliti, keloids, dry seborrhea, syphilis, tinea tonsurans, urticaria and vitilligo. Alopecia areata, cancer, eczema, erythema, furuncles and boils, angiomas and nevi, *Pediculus capitis* and psoriasis are less prevalent among negroes than among white persons.

Diffuse Erythematous Lupus Treated with Tuberculin

DR. AUGUST RAVOGLI, Cincinnati: My patient, a woman, aged 24, exhibited a typical clinical picture of this disease, with a positive Moro and a negative Wassermann. Local treatment proving ineffective, I resorted to the use of tuberculin T. R., injecting 0.01 mg. into the back. The following day the patient's fever was 104 F., pulse 108, respirations 34. Her face was red and edematous, the eyes closed. In many places an eruption of blisters had formed, leaving extended excoriations discharging serum. Fever continued, ranging from 101 to 105 F., with low delirium, and less than two weeks after the injection the patient died. The clinical diagnosis was acute miliary tuberculosis. A necropsy was refused. I believe that for diagnostic purposes, used locally, tuberculin is safe, but for injection it is dangerous. I am sure that in my case it aroused into acuity a dormant tuberculosis, the patient dying from a tuberculous septicemia. Tuberculin for treatment, even in the smallest dose, is a dangerous remedy.

DISCUSSION

DR. W. A. PUSEY, Chicago: The process which caused the patient's death can only be surmised, but it seems to me we can reasonably conclude that the patient was in a condition of excessive hypersensitiveness to tuberculous toxins. She showed an excessive reaction, giving evidence of acute poisoning within twenty-four hours after the injection. That would exclude the reaction from contaminating infection. The point ought to be made that in a given patient, in a condition of hypersensitiveness, an incredibly small amount of anaphylactic substance produces reaction, and that we are open to these anaphylactic reactions in spite of the most excessive precaution and the greatest skill.

DR. D. W. MONTGOMERY, San Francisco: It occurred to me that this patient might have been tuberculous, and that this process was causing the lupus erythematosus. Therefore, the tuberculin might have excited this toxin into greater activity, and thus caused death. That would be one explanation.

DR. S. POLLITZER, New York: I think it would be a misfortune if, on the basis of this experience and a few others reported, we were to give up so valuable a remedy as tuberculin injections. The present tendency in the use of tuberculin is to give much smaller doses than 0.01 mg. as an initial dose, and if 0.001 or 0.0001 mg. is given, accidents will possibly be avoided. So far nothing has happened from the use of 0.0001 mg. of tuberculin. If the patient bears that well, further injections can be given.

AMERICAN PEDIATRIC SOCIETY

Twenty-Sixth Annual Meeting held in Stockbridge, Mass., May 26-28, 1914

The President, DR. SAMUEL M. C. HAMILL of Philadelphia, in the Chair

A list of the newly elected officers was published in THE JOURNAL, June 6, p. 1820.

Diagnosis of Whooping Cough by the Complement-Deviation Test

DR. ALFRED FRIEDLANDER, Cincinnati: [An account of this work was published in THE JOURNAL, March 28, 1914.]

DISCUSSION

DR. ROWLAND G. FREEMAN, New York: While this work seems promising, there is a general impression that we are still uncertain as to whether we have really found the specific organism of whooping cough. In one laboratory in New York they have been experimenting all winter but with no results.

DR. CHARLES GILMORE KERLEY, New York: Dr. Freeman of London has used the vaccine on 1,134 cases of whooping cough, in doses of two million twice a week. Used in conjunction with the pneumococcus vaccines he felt that the results were good.

DR. SAMUEL S. ADAMS, Washington, D. C.: It seems that the value of this test hinges on the question of its making an early diagnosis of whooping-cough possible. It seems to me that if this test is to be of value we must get the child before there is a distinct history suggestive of whooping-cough.

DR. L. EMMETT HOLT, New York: The close resemblance between influenza and whooping-cough in some instances makes it very desirable to differentiate them bacteriologically. During the past winter we had an epidemic of influenza in the Babies Hospital and took cultures from all the inmates of the institution, and found the influenza organism in a large proportion of the cultures. This close resemblance between whooping-cough and influenza may account for negative results with the test.

Endocarditis in Children

DR. FLOYD M. CRANDALL, New York: It is undoubtedly true that a certain amount of degeneration of the heart muscle occurs during the course of every acute febrile disease or intoxication. It is difficult to believe that in some of the less severe types which run a favorable course any marked degree of myocarditis or pericarditis is present. The probability of grave myocarditis, however, must never be forgotten. Examinations for its detection must be frequent and careful, for on it more than on any other element depends the prognosis and much of the treatment. I have come to rely on four symptoms as particularly suggestive of muscular involvement. The earliest to appear is irregular heart action, and usually this is the most distinctive symptom. Syncope is characteristic of decided myocarditis, particularly in diphtheria. In addition to these two symptoms cyanosis and

precordial distress are very suggestive of muscle involvement. In the later stages the occurrence of cyanosis and edema is of graver significance in children than in adults. It is usually impossible to determine the condition of the heart muscle in a young child unless examination is made during sleep as well as during waking hours. If anemia is found to be marked the prognosis may not be so gloomy, as its relief may mitigate the symptoms. A point of great interest is the occasional rapidity of the development of the physical signs of endocarditis. I have heard a loud endocardial murmur develop in a closely watched child in eighteen hours. Other things being equal, I find it difficult to believe that a loud rasping murmur is not more serious than a soft blowing one. The physician who ignores the gravity of a cardiac murmur and lightly says that the child will grow out of it is taking almost a criminal risk. It is true that some children do change for the better, but the unfortunate opposite has in my experience been the more frequent result. The earlier the primary endocarditis occurs the better is the ultimate prognosis. An aortic lesion is very dangerous in a child, but aortic insufficiency is unfortunately rare in children. Anemia is a contributing factor to weakness and fatty degeneration of the heart muscle. The sources of infection of acute rheumatism are still somewhat uncertain, but the reasons for the removal of the tonsils in a rheumatic child are vastly greater than in any other constitutional type. In the treatment of endocarditis the management of the acute stage has been a comparatively simple matter, resolving itself into rest in bed for at least six weeks or two months. If the heart becomes irregular or too rapid, I insist on continuing the quiet. After the child is out of bed with a murmur many difficult problems present themselves. I am more and more convinced that to maintain the restrictive treatment too long after the preliminary stage is a mistake and may defeat its own object. In regard to the exercise which may be permitted, the action of the heart under exercise is the most reliable guide. In the management of this condition arbitrary rules do harm rather than good. In few other conditions is it more essential that we study the case and treat the patient rather than the disease.

DISCUSSION

DR. HENRY DWIGHT CHAPIN, New York: One feature in connection with these cases is the tendency to acute dilatation under great stress. In young athletes permanent damage is sometimes done. The athletics in our schools are under the charge of a director who is frequently not sufficiently informed in regard to the dangers of undue stress, and the advice of the physician is not sought in regard to matters relating to athletics.

DR. HENRY I. BOWDITCH, Boston: The child with a damaged heart does not have a fair show in life. On close observation it may be seen that family history plays a part in these cases. There are often other cases of endocarditis in the same family, and it is also interesting to note the association with streptococcal infection of the tonsils.

DR. FRITZ B. TALBOT, Boston: If we study the family history of these cases it will be found more often that there are or have been other cases in the same family. The history of a case of endocarditis which I have just seen shows that the sister had rheumatism and endocarditis three weeks before. It seems to me that rest in bed for six weeks or two months is rather too short a time for most cases.

DR. J. P. CROZER GRIFFITH, Philadelphia: It is possible that where there is a certain degree of debility the patient may be kept in bed longer than he should be. These patients may be divided into three classes: (1) A small class where there is absolute failure of compensation; (2) a larger class which responds well to treatment and in which recovery usually follows; (3) a class in which there is a tendency to anemia not yielding readily to treatment. There are heart cases which in spite of arsenic, etc., still remain discouraging.

DR. A. D. BLACKADER, Montreal, Canada: In regard to the effect of rheumatic endocarditis on development, it has been pointed out that growth is dependent on wide arteries and low blood-pressure. A slight endocarditis, by lowering the blood-

pressure, favors wider arteries and an increase in growth, and these children may be found to be a little taller than others in the same family. Another point is the advantage of giving small doses of potassium iodid in these cases of endocarditis in children. This drug may be given in small doses for three, four or five weeks after the temperature has become normal. Its effects on acidosis are well known and it is believed to have some effect on the viscosity of the blood. The after-treatment of cases in which endocarditis has developed is a matter of judgment. Children with mild lesions confined to the mitral valve, excepting for the more strenuous exercises, should be permitted to develop the heart during the period of general development.

DR. I. A. ABT, Chicago: Aortic lesions in children are not as rare as has been supposed. I have seen an increasing number of cases. In these children with murmurs, where there is a slight temporary dilatation after exercise, what should one do? It is very difficult to keep a boy in this condition in bed. No absolute rule can be laid down. It is a question of the individual case.

DR. ROWLAND G. FREEMAN, New York: No one has spoken of the value of the Roentgen ray in these cases of endocarditis. When a child shows an improvement in symptoms he should be subjected to roentgenoscopy. In one case coming under my observation the child seemed to be gaining, and showing an improvement, it was allowed to get up. Roentgenoscopy showed the condition to be worse than when the first picture was taken. In the management of these cases one should be controlled more by the Roentgen ray than by the clinical examination.

DR. D. J. MILTON MILLER, Atlantic City, N. J.: There are a small number of cases of adventitious murmurs not due to endocarditis, but which are exceedingly difficult to diagnose. These cases are sometimes let go without treatment and sometimes disastrously. In endocarditis in children small doses of morphin are valuable and especially so in cases in which there is nervousness or edema.

DR. PERCIVAL EATON, Pittsburgh, Pa.: In the anemia which frequently complicates these cases I would suggest the longer administration of iron. I think we sometimes keep these children in bed too long. In many cases the heart can be trained to meet the needs of the child; we seem to forget how much can be done by beginning with a very little exercise and gradually increasing it.

DR. FRANK S. CHURCHILL, Chicago: One can get around the long rest in bed by passive exercises. The question of allowing the child up when the pulse is 100 or less depends on the age of the child and the blood-pressure.

DR. L. E. LA FETRA, New York: The family tendency to endocarditis may be explained by the hereditary tendency of lymphoid tissue to infection. The blood-pressure can be used as a guide along with the pulse-rate to determine when the patient may be allowed out of bed. Often for the first few days after the child is up the heart will be rapid; then it will get its second wind, so to speak, and go along all right.

DR. HERBERT WILCOX, New York: One should get these children with anemia and endocarditis into the country. We have a hospital branch in the country, and last summer sent a number of children out there who were under the observation of one of the members of the hospital staff. They received no treatment except good hygienic care, and most of them were permanently improved by this method. This shows why better results are obtained in the families of the wealthy than in those of the poor.

DR. FLOYD M. CRANDALL, New York: Many children in poor surroundings get hospitalism if kept in bed too long. It is not well to center the child's mind on his heart, and in order to avoid doing this I often make the excuse that I am examining the child for a cough when I am observing the heart. One cannot tell much about the heart unless the child is asleep. The relation of the family history of rheumatism in these cases is interesting. In a family that came under my observation in which there were seventeen cousins, every one had either chorea, endocarditis or rheumatism.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

May 15, XVI, No. 2, pp. 127-257

- 1 *Cytologic Characteristics of Erythroblasts in Pig Embryo; Origin of Non-Nucleated Erythrocytes by Cytoplasmic Constriction. V. E. Emmel, Washington, D. C.
- 2 Structural Unit and Growth of Pancreas of Pig. G. W. Corner, Baltimore.
- 3 Ameboid Movement in Corial Melanophores of Rana. D. Hooker, New Haven, Conn.
- 4 Weight of Thymus of Albino Rat (*Mus Norvegicus Albinus*) According to Age. S. Hatai.

1. **Erythroblasts in Pig Embryo.**—The data derived by Emmel by investigation involving the study of blood-cultures, living and fixed blood-vessels in the pig embryo, together with the observations of other investigations for both red and white blood-cells in various mammals, raises the question whether the origin of non-nucleated erythrocytes by a process of cytoplasmic constriction does not merit more serious consideration. Concerning the prevalent views of nuclear extrusion and intracellular disintegration, Emmel claims that the arguments so far as they are based on the indirect evidence from free erythrocytic nuclei in the circulation, erythrocytic nuclear inclusions in phagocytic cells, and nuclear particles in plastids, do not appear conclusive for either theory, and seem equally well accounted for on the basis of cytoplasmic constriction. Nor is the more direct evidence for nuclear extrusion, at least in the embryo, sufficiently convincing but that the problem appears still to be an open one concerning which the present data for cytoplasmic constriction may be justifiably introduced. The organ of non-nucleated erythrocytes by cytoplasmic constriction, if correct, renders the erythroblasts in this respect comparable with the megakaryocytes, plasma cells and lymphocytes, to which they are apparently closely related genetically, for according to recent investigations these cells normally contribute to the mammalian circulation at least two important non-nucleated morphologic elements other than plastids, by the constriction off parts of their cytoplasm.

Journal of Experimental Medicine, Lancaster, Pa.

June, XIX, No. 6, pp. 523-602

- 5 *Free Malarial Parasites and Effect of Migration of Parasites of Tertian Malarial Infections. M. R. Lawson, New London.
- 6 Adrenalin Index of Adrenals in Health and Disease. V. P. W. Sydenstricker, B. J. Delatour and G. H. Whipple, Baltimore.
- 7 *Ovarian Infection in Domestic Fowl and Direct Transmission of Disease to Offspring. L. F. Rettger, New Haven.
- 8 Morphologic and Developmental Anomalies of Pathogenic Strain of *Trypanosoma Lewisii* and Their Relation to Its Virulence. W. H. Brown, New York.
- 9 Certain Spontaneous Chicken Tumors as Manifestations of Single Disease. 1. Spindle-Cell Sarcomata Riddled with Blood-Sinusoids. P. Rous, New York.
- 10 Id. II. Simple Spindle-Cell Sarcomata. L. B. Lange, New York.
- 11 *Recognition of Cholera Vibrio. C. V. Craster, Rosebank, N. Y.
- 12 Cultivation of Human Tissue in Vitro. J. R. Losee and A. H. Ebeling, New York.

5. **Free Malarial Parasites.**—The malarial parasite is extracellular throughout its life cycle and migrates from one red corpuscle to another destroying each before it abandons it; in the brief intervals between according to Lawson the parasite is free in the blood-serum; it does not remain free long, but almost immediately attaches itself to another red corpuscle by means of delicate pseudopodia. The compact form of the tertian parasite is the type of free parasite most often observed; in this form the parasite may be seen not only during migration, but after quinin and in the cadaver. Lawson believes the compact form to be the normal resting form of the parasite, all other forms being assumed in order to secure attachment and to obtain food, and cautions against confounding free parasites having protoplasmic pseudopodia ready for attachment with the sexual flagellating parasites, whose flagella are composed of chromatin.

The malarial parasite can live for some time free in the blood-serum, though under normal conditions there is no

reason why it should remain free for any length of time, and there are certain periods in the life of the parasite when it must be admitted that it is free from the corpuscle and survives. If the parasite is attached to the external surface of the red corpuscle, it is constantly exposed to the action of the patient's serum. The destruction of more than one red corpuscle by each parasite, Lawson says, would readily account for the severe and early anemia occurring in malarial infections. Long continued treatment with quinin will eventually cause the death of all malarial parasites.

7. **Ovarian Infection in Domestic Fowl.**—Ovarian infection and germinal transmission of disease have been conclusively demonstrated in Rettger's investigations of bacillary white diarrhea in the common domestic fowl. The disease, which has caused so much loss to the poultry industry in recent years, primarily affects young chicks that are but a few weeks old. Chicks which survive frequently become permanent bacillus carriers, the ovary being the important seat of infection. The eggs from such carriers often harbor the organism of the disease in the yolk. Chicks that develop in infected eggs become in turn infected, and have the disease at the time of hatching. The disease is transmitted to normal chicks through the infected droppings; thus an epidemic is produced, and the cycle of infection is completed. There is no evidence to indicate that germinal transmission through the male takes place. In view of the frequent negative results bearing on this question it seems probable that it does not.

11. **Recognition of Cholera Vibrio.**—Although it cannot as yet be definitely proven Craster believes we are justified in suspecting cholera-like vibrios which eventually develop agglutination properties are of a true cholera nature. It is probable that the production of agglutination and antibodies in the serum brings about the development by the bacterial cell of defensive antiagglutinins, resulting in the disappearance of agglutinating power. In the case of the water vibrios, changed physical conditions could bring about a similar alteration in biologic properties. It may be said that the absence of agglutination in a vibrio isolated from a suspected source does not define conclusively its non-cholera nature. In all probability among a number of cholera-like vibrios isolated from suspected sources a certain percentage will eventually be found to develop agglutination either during laboratory cultivation or by means of animal passage, and until subjected to a procedure that will induce the return of agglutination no vibrio can be regarded with assurance as of a truly saprophytic variety.

Journal of Infectious Diseases, Chicago

May, XIV, No. 3, pp. 403-528

- 13 *Production of Precipitins. L. Hektoen, Chicago.
- 14 *Colon Group of Bacteria. L. A. Rogers, W. M. Clark and B. J. Davis, Washington, D. C.
- 15 *Diminished Coagulation of Blood in Anaphylactic Shock in Dog. O. H. P. Pepper and E. B. Krumbhaar, Philadelphia.
- 16 New Method of Determining Relative Stability of Sewage Effluent, or Polluted River Water. A. Lederer, Chicago.
- 17 *Therapeutic Use of Certain Azo-Dyes in Experimentally Produced Tuberculosis in Guinea-Pigs. L. M. DeWitt, Chicago.
- 18 Comparison of Plating and Microscopic Methods in Bacteriologic Examination of Milk. G. W. Goodrick, Laramie, Wyo.

13. **Production of Precipitins.**—By giving rabbits intraperitoneal injections of increasing quantities of serum or blood on three successive days, Hektoen says, a serviceable precipitating serum may be produced in about fifteen days. The same quantity of antigen injected at one time also appears to give good results. The curve of the precipitin in such cases is like the simple antibody curve following a single injection of other antigens. The injection of whole blood may be more advantageous in producing more precipitins for blood-proteins in general than the injection of serum only. The injection of washed human corpuscles give rise to precipitins for human serum.

14. **Colon Group of Bacteria.**—A collection of typical gas-forming bacteria occurring in milk was obtained by the authors from widely separated and representative sources. These cultures were examined for morphology, spore for-

mation, Gram-stain, amount of gelatin liquefaction, production of indol, reduction of nitrates and neutral red, and amount of acid produced from dextrose, levulose, galactose, adonite, saccharose, lactose raffinose, starch, inulin, mannite, salicin and dulcete. Particular attention was given to the production of gas in media containing dextrose, and for the isolation of this gas the exact method of Keyes with some modifications was used. The carbon dioxid to hydrogen ratio which occurred with the greatest frequency was approximately 1.1. Plotted on the frequency basis this ratio stands apart from all higher ratios. All cultures giving the 1.1 ratio are distinguished from high ratio cultures by the amount of gas formed under exact conditions. This was uniformly less than the amount produced under identical conditions by the high ratio cultures. The amount of acid produced from the individual test substances could not be used to advantage because this was frequently obscured by a secondary alkaline fermentation in which the acid was partially or entirely neutralized. The low ratio cultures fermented a smaller number of test substances than those giving a high ratio, but this difference was not always in those substances usually considered to be fermented with the greater difficulty. The low ratio cultures are distinguished by a high percentage of cultures giving a positive indol test, reduction of nitrates and fermentation of dulcete and glycerin. Very few cultures ferment adonite and starch, and only about 40 per cent. ferment saccharose and raffinose. The high ratio cultures, on the other hand, give a lower percentage of positive test with indol, a much higher number of positive tests with adonite and starch, nearly all ferment saccharose and raffinose but only a few ferment dulcete and glycerin. The low ratio group may possibly be divided into those which ferment dulcete but fail to ferment adonite and starch, and those which do not ferment dulcete but occasionally ferment adonite and starch. No data are available for a logical subdivision of the high ratio group with the possible exception of the small number liquefying gelatin. The 10 gelatin liquefying cultures agreed very closely in the gas ratio, the fermentation of saccharose and glycerin, and the failure to ferment adonite and dulcete. They differed from other high ratio cultures especially in the gas ratio and the fermentation of glycerin. The collection contained a few cultures which differed radically from the others in giving a prolonged fermentation in milk with the production of enormous quantities of gas, and one type which was distinguished by the fermentation of dextrose with the production of carbon dioxid only.

15. Diminished Coagulation of Blood in Anaphylactic Shock.—Of 7 dogs developing marked anaphylactic shock, all showed a delay in, or absence of, coagulation of the blood. In all of these the addition of calcium and thromboplastin solution to the oxalated plasma restored its coagulability much more efficiently than calcium alone, or calcium plus fibrinogen solution. No noteworthy change was observed in the fibrinogen content of the blood in this group. The authors believe that such results point to a decrease of thromboplastin or an excess of antithrombin as the important feature responsible for the loss of power of coagulation in anaphylactic shock. Five dogs with slight or no shock showed no changes in the coagulability of the blood, except that in 4 the freshly prepared oxalated plasma (1.10) clotted spontaneously. In no case was clotting observed in richer proportions of oxalate (1.15). The supposition that this coagulation in the presence of oxalate might be due to an excess of calcium in the blood was shown by the result of quantitative calcium determination to be untenable. The only plausible explanation in the authors' opinion is that suggested by the work of MacRae and Schnack, that is, that some thromboplastic substance, as kephalin, may be present and in the absence of an excess of oxalate is responsible for the clotting of the plasma.

17. Azo-Dyes in Tuberculosis in Guinea-Pigs.—DeWitt found that trypan blue and trypan red readily penetrate the tubercle in all stages of its development, thus showing that it is possible to penetrate the avascular tubercle by chemicals

introduced either subcutaneously, intravenously or intraperitoneally. Trypan blue and trypan red do not penetrate the tubercle bacillus well, and do not kill it in vitro even after twenty-four hours' exposure to a 1 per cent. solution. In therapeutic doses, frequently repeated for long periods, trypan blue and trypan red seem to have no favorable or curative influence in experimental tuberculosis in guinea-pigs. In a single large, nearly lethal dose at the beginning of the infection, they also have no favorable influence. Silver-trypan blue and iron-trypan blue also penetrate the tubercle, but have no bactericidal and no therapeutic influence. It is doubtful whether the metals are carried in with the dye. Copper-trypan blue is soluble, but does not penetrate either the normal or the tuberculous tissues, and is probably changed to an insoluble form or a suspension colloid and retained at the point of injection. Mercury blue is insoluble, is strongly bactericidal in its action on the tubercle bacillus, but is too toxic for therapeutic use, since the pigs died apparently from chronic mercury poisoning rather than from the tuberculous infection, the tuberculous process being generally very slight. The findings with this salt, however, are suggestive, and further experiments with mercury salts will be made.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

May, V, No. 5, pp. 425-525

- 19 Action of Muscarin on Electric Response of Heart. G. R. Mines, Cambridge, Mass.
- 20 *Swelling of Colloids and Hydrogen Ion Concentration. L. J. Henderson, W. W. Palmer and L. H. Newburgh, Boston.
- 21 *Site of Action of Strychnin. H. McGuigan and F. C. Becht, Chicago.
- 22 *Action of Certain Drugs on Bronchioles. D. E. Jackson, St. Louis.
- 23 *Pharmacologic Action of Certain Substances on Bronchioles. D. E. Jackson, St. Louis.

20. Swelling of Colloids.—No influence to increase colloidal swelling has ever been observed through the action of hydrogen ions varying within the ranges of acidity known to occur in the body or in the urine. A number of investigations make clear the quantitative relationship between hydrogen ion concentration and the swelling of fibrin and of gelatin plates. Such variations in osmotic pressure as may occur in autolysis and in a variety of other ways greatly influence colloidal swelling and also the swelling of bits of fresh kidney. A tendency to acidity in the organism is not commonly accompanied by edema, but is usually quite independent of any known disturbance of the water equilibrium of the organism. Hence it is utterly fallacious to assume that any significance, as a cause of edema, attaches to the frequent occurrences of a tendency to acidity—one of the commonest of pathologic states—in edema. A tendency to acidity of the urine often occurs apart from nephritis and albuminuria. Hence it is fallacious to argue that any significance, as a cause of nephritis, attaches to the frequent occurrence of this very common pathologic condition in nephritis and albuminuria.

21. Site of Action of Strychnin.—Strychnin according to McGuigan and Becht acts on both motor and sensory neurons, and no tetanus can develop from its action unless the motor neuron is directly acted on by it.

22. Action of Drugs on Bronchioles.—Jackson found that arecolin produces immediate and profound bronchoconstriction. This can be readily overcome by epinephrin, etc. Small doses of atropin or hyoscin (or of the so-called duboisin) completely prevent the constrictor action of arecolin. Arecolin is very much more active than pilocarpin both on the bronchioles and on the heart. The action of arecolin tends to pass off much more quickly than that of pilocarpin. Hordenin is a very active bronchodilator. This action depends on a stimulation of the sympathetic nervous endings. It stimulates the heart and produces a moderate prolonged rise in blood-pressure. It will produce bronchodilatation after constriction has been established by arecolin, pilocarpin, B-iminazolyethylamin or thebain. The dilatation thus produced is usually of a more prolonged and lasting character than that produced by epinephrin. The

rise in general blood-pressure is, however, only about one-fourth to one-sixth as great as that produced by epinephrin. B-aminazolyethylamin produces marked bronchoconstriction of direct muscular origin and which hordenin, epinephrin, "lodol," etc., may or may not overcome, depending on the extent and duration of the constriction and the quantities of the drugs administered. This practically amounts to a pitting of the direct muscular contracting action of the former drug against the indirect nervous bronchodilating action of any one of the latter drugs. The result in any given case will simply amount to the algebraic sum of these two forces. "Lodal" (6.7 dimethoxy-2 methyl-3.4 dihydroisoquinolinum chlorid) produces a moderate bronchodilatation after constriction produced by arecolin, pilocarpin and sometimes by B-aminazolyethylamin. This dilatation is apparently partly (but probably not wholly) due to the liberation of epinephrin from the adrenal glands which has been shown by others to occur. Hydrastinin has a similar but weaker action. B-tetrahydronaphthylamin produces moderate bronchodilatation after pilocarpin, etc. There is also a marked rise in blood-pressure. Thebain produces profound bronchoconstriction. This is of direct muscular origin. It may be overcome to a considerable extent by hordenin or epinephrin. "Lodal" is much less effective. This intense bronchoconstriction is probably rather closely associated with the strychnin like convulsions observed by Magendie, Bernard and others. The amount of the prescribed therapeutic dose appears to be well within the limits of quantities which may be expected to produce distinct bronchoconstriction in the human subject. Ergotoxin possesses no very marked specific action of its own to the bronchioles, either in the way of dilatation or constriction when injected intravenously into spinal animals. And all other drugs tested out (arecolin, pilocarpin, thebain, epinephrin, "lodol," hordenin) act in a perfectly normal manner on the bronchioles after enormous doses of ergotoxin have been injected intravenously. So far as the action of drugs on the bronchioles is concerned the conclusion is reached by Jackson that bronchoconstrictor nerves always respond true to the vagus type, and bronchodilator nerves always react in a manner exactly analogous to that of the visceral thoracico lumbar sympathetics. But the relative extent of these reactions with various drugs may vary through rather wide limits.

23. Pharmacologic Action of Certain Substances on Bronchioles.—A new method for carrying on artificial respiration by means of a specially devised piece of apparatus is described by Jackson. This piece of apparatus fits inside the thorax and the lungs are inflated by exhausting the air from the cavity of the chest whose walls are held rigidly in place by the apparatus. Experiments were performed mostly on dogs and cats. It has been impossible to confirm (in these animals) the observations of others that epinephrin produces a preliminary specific bronchoconstriction. Arecolin produces extreme bronchoconstriction. Its action may be overcome by epinephrin, "epinine," etc., or prevented by atropin or hyoscin. The action of arecolin differs in several particulars from that of pilocarpin. Hordenin is a very effective bronchodilator. It possesses its action after constriction has been produced by pilocarpin, arecolin, and sometimes after B-aminazolyethylamin and thebain. It raises the general blood-pressure much less than epinephrin. B-aminazolyethylamin produces marked bronchoconstriction of direct muscular origin which, under certain conditions, may be completely overcome (dilatation) by hordenin or epinephrin. Under certain other conditions these drugs fail to cause dilatation after B-aminazolyethylamin. "Lodal" (6.7 dimethoxy-3 methyl 3.4 dihydroisoquinolinum chlorid) produces moderate bronchodilatation. Hydrastinin has a similar but weaker action. This is probably partly due to liberation of epinephrin. B-tetrahydronaphthylamin produces moderate bronchodilatation (active). Thebain produces profound bronchoconstriction of direct muscular origin. Hordenin, "epinine," epinephrin, etc., are able to overcome this bronchoconstriction, to a moderate degree. This bronchoconstriction probably is rather closely associated

with the strychnin like convulsions ordinarily produced by thebain. The prescribed therapeutic dose of thebain would appear to be within the limits of quantities which might be expected to cause a fair degree of bronchoconstrictor. Ergotoxin has a mild specific bronchoconstrictor action which is probably of direct muscular origin. After enormous doses of ergotoxin perfectly normal reactions were obtained by the use of all other drugs tested out (i. e., arecolin, thebain, pilocarpin, epinephrin, tyramin, "lodol," hordenin).

Medical Record, New York

May 30, LXXXV, No. 22, pp. 967-1012

- 24 Clinical Study of Traumatic Nerve Paralysis. A. S. Levery, New York.
- 25 Management of Laryngeal Tuberculosis in Sanatoria and Private Practice. W. Freudenthal, New York.
- 26 Observations, Based on Forty-Five Years of Electrotherapeutic Work. A. D. Rockwell, New York.
- 27 Cesarean Section. S. J. Druskin, New York.
- 28 Tobacco Amblyopia. G. W. Vandegrift, New York.
- 29 Provocative Wassermann Reaction. M. C. Pease, Jr., New York.
- 30 Prevention of Psychic Trauma. H. S. Munro, Omaha.
- 31 Divulsion of Arm and Scapula. G. K. Dickinson, Jersey City, N. J.

New York Medical Journal

May 30, XCIX, No. 22, pp. 1061-1112

- 32 Habitual Constipation and Its Treatment. M. Einhorn, New York.
- 33 Present Status of Abderhalden's Reaction. M. G. Wohl, Philadelphia.
- 34 *Lobar Pneumonia. E. E. Cornwall, New York.
- 35 Recognition of Mental Deficiency. L. E. Bisch, New York.
- 36 Treatment of Insane in Tropics. F. Woodbury, Philadelphia.
- 37 Jung's Libido Theory and Bergsonian Philosophy. B. M. Hinkle, New York.
- 38 Legal Status of Trained Nurses in Administration of Anesthetics. A. C. Vandiver, New York.
- 39 Hydrorrhea Nasalis. J. Guttman, New York.
- 40 Medical Colors. (Scarlet and Gold.) S. P. Gerhard, Philadelphia.
- 41 Capital Punishment in Electric Chair. S. R. Klein, New York.

34. Lobar Pneumonia.—The fifty-four cases of lobar pneumonia cited by Cornwall were treated by a special method. A point in the hygiene which is considered of importance is to temper the cold fresh air to the afebrile patient. During the febrile period of a well marked lobar pneumonia, Cornwall says, the fresh air should be cold, but in the aged and in cases with little or no fever, and always after defervescence, the patient should be kept warm and should be protected from drafts. Careless exposure of the patient when he has no fever may be responsible for complications.

A particular and essential feature of this treatment is the regulation of the diet along the following lines: The quantities of protein and fuel given are less than the minimum health rations; the diet as a whole is non-putrefactive; and it includes a sufficient quantity of the food salts needed by the body, especially the calcium salts, of which a deficiency regularly exists in pneumonia. The purpose of this diet is to supply nourishment sufficient to carry the patient through the short period of this disease with a minimum of trouble from the alimentary tract, that region of special danger in pneumonia, whence may come general poisoning, vasomotor paralysis, nervous disturbances of the heart through reflexes and mechanic disturbances from distension.

Another essential and characteristic feature of this treatment is extreme caution and reserve in the use of cathartics. Castor oil or some other vegetable cathartic is preferred. The popular calomel and Epsom salts are looked on with disfavor by Cornwall, and he believes that the administration of that combination at the beginning of a pneumonia or any time in its course may add materially to the gravity of the prognosis. In this treatment, after an initial gentle purge, simple or soap suds enemas are given every second day if the patient is in good condition, until the expected time of the crisis, which is taken to be the fifth day of the disease; after that time, or at any time if there are signs of heart-strain, the bowels are not disturbed.

The treatment of symptoms according to this method is distinguished by conservatism. If there is severe pain in the early period of the disease, preventing necessary sleep, morphin or codein is given in moderate doses; but later in the disease, and especially near the time of the crisis, and

at any time if there is much respiratory embarrassment, opiates are strictly avoided. Hot poultices are sometimes applied for severe thoracic pain. For relief of restlessness, sodium bromid is the preferred drug. If delirium incites the patient to get out of bed, physical restraint is strictly enforced. If there is gastric irritability or diarrhea or tympanites, reduction of the diet is the only treatment given. The diet may be reduced to peptonized milk and barley water alone, or barley water alone, or water alone, with the food salts. If stimulation of the heart is needed, it is given according to the following plan. In the aged, in alcoholics, and in patients with preexisting myocardial disease, it is given from the beginning. In young adults with originally healthy hearts it is usually delayed until signs of heart-strain appear, which is generally not later than the fourth day. The first stimulant given is strychnin sulphate, in doses of one-sixtieth grain three to six times a day. If more stimulation is needed, tincture of strophanthus is given in doses of one and a half minim every four hours. The strychnin sulphate is increased on occasion to one-thirtieth grain every four hours, which is the maximum amount of that drug permitted in this disease, and the strophanthus to two or three minims every four hours. In a large majority of cases, Cornwall states, more than this stimulation is not called for, but if it should be required, caffein citrate in doses of 1 to 3 grains every four hours is added. In cases with extremely low blood-pressure, epinephrin is given, hypodermically or by mouth. If there is an obstinately dilated right ventricle, digitalin is given hypodermically, in addition to the other heart stimulants. For extreme dilatation of the right ventricle threatening disaster, Cornwall believes venesection to be indicated. Whiskey, in small doses, is given to alcoholic patients and to the aged if they bear it well.

New York State Journal of Medicine

May, XIV, No. 5 pp. 229-287

- 42 *Kinetic System. G. W. Crile, Cleveland.
43 Quarantine Requirements Presented to Legislature. J. J. O'Connell, New York.

42. Abstracted in THE JOURNAL, May 23, p. 1685.

Pennsylvania Medical Journal, Athens

May, XVII, No. 8, pp. 605-686

- 44 Philadelphia Laymen and Physicians Unite to Reform Medical Charities Abuse. J. D. Farrar, Philadelphia.
45 Dispensary Abuse. H. M. Fussell, Philadelphia.
46 *Present Conception of Arthritis Deformans. D. Silver, Pittsburgh.
47 Omental Adhesions. G. P. Muller, Philadelphia.
48 *Clinical Significance of Low Blood-Pressure. G. M. Piersol, Philadelphia.
49 Acute Edematous Laryngitis. J. F. Culp, Harrisburg.
50 Prosecution and Conviction of Malingerer on Strength of an Ophthalmoscopic Examination. J. E. Willetts, Pittsburgh.
51 Intra- and Extranasal Indications for Submucous Resection of Septum. J. H. McCready, Pittsburgh.
52 Some Ocular Disturbances of Nasal and Accessory Sinus Origin. N. S. Weinberger, Sayre.
53 Preservation of Physiologic Functions in Treatment of Gynecologic Diseases. H. D. Beyea, Philadelphia.

46. Abstracted in THE JOURNAL, Oct. 18, 1913, p. 1485.

48. **Significance of Low Blood-Pressure.**—When low blood-pressure is due to the acute infectious diseases, Piersol says, measures should be instituted to promote adequate elimination of the toxins of the disease and to stimulate the flagging heart or failing vasomotor mechanism, as the case may be. When in course of chronic visceral disease low blood-pressure indicates the onset of cardiac weakness, rest, proper food and stimulation of the weakening cardiac muscle must be resorted to. If the hypotension is but the manifestation of some cachectic state, the cause of the cachexia must be removed if possible. When it results from hemorrhage or dehydration of the system due to persistent vomiting and purging, not only should measures be instituted to relieve the underlying cause, but the depleted volume of circulation should be restored and maintained by the use of normal salt solution intravenously, subcutaneously or by the bowel. In the type of case referred to last, in which the low blood-pressure has no definite discoverable cause other than poor

hygiene and malnutrition, Piersol has found that much can be done by forced feeding, proper rest, fresh air, cool bathing, properly graduated exercises, and the use of such drugs as iron and strychnin to overcome the anemia and restore the general muscular tone of the individual.

Wisconsin Medical Journal, Milwaukee

May, XII, No. 12, pp. 379-410

- 54 *Gas Oxygen Novocain Anesthesia. W. E. Bannen, La Crosse.
55 Nitrous Oxid Anesthesia. H. M. Decker, Davenport, Ia.
56 Congenital Stenosis of Pylorus. W. C. F. Witte and P. H. Jobse, Milwaukee.
57 Anaphylaxis in Cancer. F. G. Connell, Oshkosh.
58 Early Diagnosis of Syphilis. O. H. Foerster, Milwaukee.
59 Cancer and Cancer Problem. W. E. Ground, Superior.

54. Abstracted in THE JOURNAL, Nov. 1, 1913, p. 1656.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

May 23, I, No. 2786, pp. 1105-1164

- 1 Objections to Incomplete Operation for Cancer of Breast. C. B. Lockwood.
2 *Report of Work Carried out at Radium Institute, London, 1913. A. E. H. Pinch.
3 Chemico-Physical Laboratory on Radium. W. L. S. Alton.
4 *Case of Multilocular Cystic Disease (Cystadenoma) of Pancreas. E. C. Hadley.
5 Acute Obstruction of Small Intestine. C. A. Pannett.
6 Pituitrin in Postoperative Intestinal Stasis. N. Porritt.
7 Ileocolic Intussusception in Child of Four Months: Resection: Lateral Anastomosis. W. S. Fenwick.
8 Treatment of Imperfectly Descended Testicles. E. M. Corner.
9 *Experimental Proof of Value of Mask over Surgeon's Mouth During Operations. A. L. Candler.

2. Abstracted in THE JOURNAL, Sept. 13, 1913, p. 893.

4. **Multilocular Cystic Disease of Pancreas.**—In 1901 Hadley's patient was operated on for an abdominal tumor. On opening the abdomen, a large cyst first came into view. One and a half pints of dark reddish-brown fluid were withdrawn. The tumor was found to be composed of a multitude of smaller cysts congregated to form a large lobulated tumor extending to the right. It shelled out quite easily until the duodenum was reached. The pancreas was therefore ligated at its neck; the head, although very cystic, was left behind for various reasons. The tumor removed consisted of the whole of the body and tail of the pancreas, and measured 10 inches by 7 inches. It consisted in the main of a large number of cysts varying in size, separated from one another by septa of fibrous tissue and a varying amount of apparently normal pancreatic tissue. The cysts were larger at the tail end than at the head end of the organ. The large cyst, which gave rise to most of the physical signs, was at the extreme tail end. It occupied the whole thickness of the tumor in this situation. The fluid from this large cyst contained altered blood and a large quantity of albumin. It had no amylolytic or proteolytic properties. It was alkaline in reaction. The fluid contained in the smaller cysts was colorless and watery.

From January, 1901, until June 6, 1910, this patient was able to work continuously as overlooker in a large steel pen factory. During that time she had needed practically no medical attendance. In July, 1910, when she again came under Hadley's care, she was almost completely confined to bed. She complained chiefly of gradual loss of power in her hand and arms, with numbness and tingling of the fingers. The muscles of the body generally, and especially of the hands and arms, were much wasted. She had a large tumor in the abdomen situated immediately above and extending to the right of the umbilicus. The tumor was recognized as the head and a portion of the neck of the pancreas in a state of cystic degeneration. It formed a prominent mass and displaced the intestines downward and into the left iliac region of the abdomen. The tumor according to the patient had been getting gradually larger for the last two or three years but much more rapidly during the last two or three months.

It was painless, well defined and slightly movable. A large cyst could be recognized to the left of the tumor, and numerous small tense cysts studded all over the rest of it.

The skin of the chest, abdomen and thighs was curiously pigmented in irregular patches of a dark brown color, producing a piebald appearance. Except that every two or three weeks she had what she called "bilious attacks," the digestive functions were good. These attacks were "bouts" of uncontrollable vomiting; they were unaccompanied by pain or jaundice, and tended to recur more frequently toward the last. The urine, frequently tested, invariably contained a faint haze of albumin, a few granular and hyaline casts, but never any blood or sugar. The Cammidge reaction was positive throughout this part of illness. The course of her illness was, at first, one of rapidly advancing peripheral neuritis, with rapid wasting of the muscles, most marked in the upper extremities. One month later she had very little sensation in her arms or legs. The deep and superficial reflexes were abolished. Soon after this, rigidity followed by contractures commenced in her hands. The fingers became flexed at the interphalangeal joints, and over-extended at the metacarpophalangeal joints. The wrist joints also became over-extended.

Toward the end of November, 1910, her condition resembled an advanced case of progressive muscular atrophy with contractures. In the beginning of 1911 the muscular wasting had become extreme. Both legs were immovably contracted, and both hands clawed (*main en griffe*). There was still a little voluntary movement possible in the arms, but complete loss of coordination. She had been quite unable to feed herself or move herself in bed for some time. There was never any jaundice. Sahli's sign was present. The bowels only moved with aperients, and later, all drugs were vomited, only after enemata. During the last two months of life mucous casts were passed in the stools, which were otherwise normal. Liquid food appeared to be well digested; at all events, no undigested fat or other material were seen in the dejecta. During the last few weeks of her illness there was incontinence of urine and feces. At the time of her death, March 30, 1911, no musculature could be felt; she had literally wasted to a skeleton. There was only partial relaxation of the contractures at death. Her mental condition remained clear until the end. The pancreas was removed en masse with the duodenum and gall-bladder attached. The specimen measured 8 inches in length by 6 inches in breadth at its widest part. The greatest circumference of the head was 11 inches. The stump of the neck—all, in fact, to the left of the groove containing the superior mesenteric artery and vein—was converted into a large unilocular cyst.

9. Value of Mask over Surgeon's Mouth.—In order to demonstrate the value of a mask over the surgeon's mouth during operations Candler carried out the following experiments with *Bacillus prodigiosus*: With ordinary breathing and quiet speaking no bacilli left the mouth. Coughing for two minutes caused only a few bacilli to be emitted, and these were controlled by a mask of eight layers of gauze, one of four layers being insufficient. Sneezing was shown to be a most dangerous source of infection from the mouth. One sneeze, and that an artificial one, producing 130 colonies of microorganisms in a circle of $3\frac{1}{2}$ inches diameter at a distance of 18 inches. A mask of eight layers is not sufficient to keep back all organisms during prolonged sneezing, although it reduces the infection considerably. There was, however, no growth on a plate exposed to one sneeze through such a mask.

Clinical Journal, London

May 13, XLIII, No. 19, pp. 289-304

- 10 *Classification of Arthritis. D. W. C. Jones.
 - 1 Acute Generalized Infective Paralysis in Adults. W. B. Warrington.
 - 2 New Growths of Testicle. H. W. Wilson.
 - 3 Clinical Study of Acapnia. J. F. Lessel.
- May 20, No. 20, pp. 305-320
- 4 *Causes and Treatment of High Blood-Pressure. F. de H. Hall.
 - 5 Danger-Signals in Suppuration of Middle Ear. H. A. Kisch.
 - 6 Malingering. J. Collie.

10. Classification of Arthritis.—The following list of the common manifestations of pathology and their application to joints is quoted by Carmalt-Jones: 1. Senility—osteoarthritis, in part, overworked, malnutrition—contributory to osteoarthritis. 2. Metabolic toxemia—gout. 3. Infective toxemia—acute rheumatism, rheumatoid arthritis. 4. Focal infection—gonococcal, pneumococcal typhoid, purulent arthritis. 5. Granulomatous infection—tubercular syphilitic arthritis. 6. Neoplasms—rare. 7. Trauma—traumatic synovitis. Arthritis in hemorrhagic diseases.

14. Causes and Treatment of High Blood-Pressure.—The longer Hall watches cases of arteriosclerosis the less value does he place on drugs in the treatment of this condition. A serviceable group of drugs is that which has an aperient effect. Among these he would give the first place to calomel and blue pill. These preparations are not only useful as aperients, but they also have a very remarkable effect in lowering blood-pressure. A teaspoonful of Epsom or Glauber's salts may be taken in half a tumblerful of warm water before breakfast, or one of the mineral waters be substituted. Next to the aperients Hall places the iodids. He usually employs the potassium salts, but some patients tolerate the sodium salt better. In patients with a syphilitic history the Wassermann reaction should be tried, and, if positive, mercury should be administered, preferably by inunction. Hall would not advise salvarsan in these circumstances. After a mercurial course potassium iodid may be given in full doses.

At the menopause or in the obese, small doses of thyroid extract, together with a combination of bromid and iodid of potassium, will be found most useful in diminishing weight, lowering tension, and relieving the patient of the flushes and feeling of fulness in the head. If the iodids are badly borne, potassium or sodium nitrite in 1 to 2 grain doses may be tried, but doses up to 5 grains have been warmly advocated. In solution they are unstable, so they are best ordered in chocolate tablets.

In a few cases Hall has found much benefit from the administration of hippurates of ammonia and lithia. The latter is the one he usually employs; 3 or 4 grains may be given daily. The ammonia salt is less powerful; 6 to 7 grains may be given daily. The more powerful and more quickly acting vasodilators, such as amyl nitrite, nitroglycerin and erythrol tetranitrate, Hall reserves for emergencies, chiefly for anginal or dyspneal attacks coming on in patients with high blood-pressure. For the very acute attacks the inhalation of 3 minims of nitrite of amyl on a pocket-handkerchief will often give immediate relief, and its action may be continued by giving $\frac{1}{100}$ grain of nitroglycerin. This dose may be increased up to $\frac{1}{10}$ grain, i. e., ten times the initial dose. He has found erythrol tetranitrate in doses of $\frac{1}{4}$ grain most useful in patients who get anginal symptoms on starting to walk. The drug should be given a quarter of an hour previously.

Blood-letting is a remedy which Hall has found of the greatest possible service in certain cases of high blood-pressure. Venesection is indicated where the patient is unconscious and cerebral hemorrhage is feared; also in convulsive cases attended with high tension. In these cases the timely abstraction of from 10 to 20 ounces of blood, according to the severity of the attack and the sex of the patient, will often be attended with a most satisfactory result. Hall emphasizes the value of the sphygmomanometer in cases of coma, as an indication for the employment of venesection; as by this means one is able to distinguish between coma due to hemorrhage and that caused by thrombosis, as in the latter condition blood-pressure is invariably low.

Lancet, London

May 23, I, No. 4734, pp. 1441-1514

- 17 *Work at Radium Institute for 1913. A. E. H. Pinch.
- 18 *Diagnosis of Pulmonary Tuberculosis. A. C. Inman.
- 19 So-Called Reeducation of Deaf. R. Lake.
- 20 Knowledge of Experimental Nephritis. H. Oertel.
- 21 Syphilis of Central Nervous System, Salvarsan. J. E. R. McDonagh.
- 22 *New Combined Method of Prostatectomy. J. L. Thomas.
- 23 Case of Congenital Defect of Ulna. P. B. Roth.

- 24 Secondary or Symptomatic Leukemia. G. R. Ward.
25 Bacillus Coli as Cause of Septic Onychia. Report of Three Cases. T. Houston and W. W. D. Thomson.
26 *Case of Tetanus Treated with Subcutaneous Injections of Phenol; Recovery. W. G. Reynolds.

17. Abstracted in THE JOURNAL, Sept. 13, 1913, p. 893.

18. **Diagnosis of Pulmonary Tuberculosis.**—Inman is convinced from experimentation that the antihemolytic power of tuberculous serum can be made manifest in a hemolytic experiment by introducing Besredka's antigen into the mixture. He says that repeated positive reactions, especially with a 32-fold serum dilution, in the absence of a positive Wassermann reaction, indicate the presence of an active tuberculous lesion. Repeated negative reactions indicate the absence of an active tuberculous lesion, if cases of under twelve months' duration be excepted.

22. **New Combined Method of Prostatectomy.**—An incision is made into the bladder under spinal analgesia, and as soon as the bladder is emptied of fetid urine, Thomas pours about an ounce of pure tincture of iodine into it, then drains perineally after injecting tincture of iodine through the meatus along the urethra into the prostatic bed. The patient is lying on his back as in the ordinary suprapubic operation during the whole of its performance, the perineal opening being made on the point of the forceps passed transvesically from above, while the legs are simply spread apart in order to see and to cut on the projecting end of the forceps under the skin. The enucleation is done by the forefinger in the bladder, but frequently Thomas passes the other forefinger into the perineal opening to assist the enucleation from below as in the ordinary perineal prostatectomy. The pouring of pure tincture of iodine into the bladder before the enucleation is started he claims is of great importance, because as soon as fresh raw surface is made in the process of enucleation the tincture follows into every hole and corner. The injection of the tincture along the urethra also ensures a cleaner urethra and further floods the freshly made "prostatic bed."

26. **Tetanus Treated with Injections of Phenol.**—In the case cited by Reynolds the wound and the scar were excised and pure phenol was applied. At the same time the subcutaneous injection of phenol was started, 1 ounce of a 1 per cent. solution being given in the right axilla. Under chloroform anesthesia the injections were repeated, the strength of the solution being raised to 3 per cent. The groins and axilla were treated alternately. Chloroform was administered at each injection owing to the spasms produced by the stimulation of the needle-prick. A careful watch was kept for phenol poisoning, but at no time did the patient show any symptoms. The urine retained its normal color throughout.

On the following morning the spasms became very violent, and the child suffered great pain. Potassium bromide gr. xx and chloral hydrate gr. xx were administered four hourly, and the patient became more quiet. On the sixth day cutaneous erythema and slight edema were noticed at the sites of injections, and these were discontinued. The spasms were increasing in violence and frequency, and the phenol solution was again administered on the seventh day. The injections were discontinued on the eighth and ninth days, but were recommenced at 2 a. m. on the tenth. On the thirteenth day the opisthotonos became very marked, and it increased during the following six days. By the twentieth day it had become excessive, although the spasms decreased both in violence and in frequency.

On the same day the opisthotonos suddenly began to diminish, and had entirely disappeared by the twenty-third day. The rigidity, especially that of the abdomen, did not relax for some time; in fact, this did not disappear for about seven weeks. The patient was able to open the mouth slightly about the sixteenth day, and by the eighteenth was eating bread and butter. Improvement continued uneventfully during the next four weeks, and he was discharged cured on the fifty-sixth day. He was seen three weeks later on return from a convalescent home, and was in perfect health. No antitetanic serum was administered.

Annales de Médecine et Chirurgie Infantiles, Paris

May 15, XVIII, No. 10, pp. 321-356

- 27 Never Fail to Examine the Throat. (Regarder la gorge.) E. Périer.
28 Dietary Deficiency Disturbances. (Troubles provoqués par une alimentation exclusive.) E. Weill and G. Mouriquand.
29 *Wassermann Positive in Infant, Negative in Mother. M. Cassoute.
30 Gangrene of the Foot in Diphtheria. V. Veau and Weber.

29. **Conflicting Wassermann in Mother and Child.**—The reaction was negative in the mother but positive in the nursing. The child showed no signs of syphilis but did not seem to thrive until after it had been given a course of specific treatment. A number of similar cases from the literature are compared with this to emphasize the importance of the Wassermann test for young children, even those apparently normal. It may reveal those liable to develop serious nervous or other trouble late in life which there was nothing to suggest in childhood, the mother and other children apparently free from any taint of syphilis. Cassoute has encountered three cases in which dementia praecox developed about 20, like a bolt from a clear sky, as there had been nothing in the history of the family to suggest syphilis. If proper treatment had been started in childhood—on the basis of a positive Wassermann—irreparable injury of the nervous system might have been warded off.

Bulletin de l'Académie de Médecine, Paris

May 5, LXXVIII, No. 18, pp. 637-647

- 31 Nevus Cancers in Man and Horse Are Infra-Epitheliomas. Borrel.
32 Cure of Fracture of Clavicle in Ten Days by Letting Arm Hang over Side of Bed; At First without Support. Couteaud.
May 12, No. 19, pp. 649-664
33 *Grafting Operation to Prepare Orbit for Artificial Eye. (Greffes épidermiques orbitaires devant permettre dans les cas de symbiopharons le port d'un œil artificiel.) Magitot.
34 Black Secretion from Sebaceous Glands of the Breast. (Mélanodrose mammaire.) V. H. Torkomian.

33. **Grafting Procedure to Prepare Orbit for Artificial Eye.**—Magitot refers to cases in which the resection has had to be so extensive that there is no pocket left to hold the artificial eye and no material to which a graft can be sutured to make a pocket. He has been quite successful in such cases with a convex, hollow, silver support, flat at the back, with a hole at the rear into which fits a spring. This almond-shaped support is covered with a Thiersch flap at least 5x6 cm. in size. The edges of the flap are tucked into the opening at the back and are held there by the spring. This skin-coated prosthesis is then slipped into the orbit, where it forms an adequate support for the artificial eye.

Bulletins de la Société de Pédiatrie, Paris

April, XVI, No. 4, pp. 197-240

- 35 *Modification of Diet Saves Ducklings from Epidemic Disease. P. Merklen.
36 Translucence of Skull in Diagnosis of Hydrocephalus, etc. C. Chatelin.
37 Defective Nourishment and Dilatation of the Stomach; Progress on Sweetened Milk; Two Cases. G. Variot and Grandjean.
38 Separation of the Epiphysis in an Infant and Young Child. (Décollement épiphysaire avant l'apparition du noyau osseux dans l'extrémité cartilagineuse.) Lance.
39 New Spiroscope. Lance.
40 Leg Grows Abnormally Long after Tuberculous Knee Process; Two Cases. Savariaud and Roederer.

35. **Modification of Diet Saves Ducks from Epidemic Disease.**—Merklen refers to the disease called *la crampe* which affects ducklings three or four weeks old. Their legs drag and finally they become paralyzed and die of starvation unless they are brought up by hand. A number of cases having occurred on a farm near Paris, he had the feed changed to a greater variety, and no further cases developed. A return to the former monotonous diet was speedily followed by development of new cases, and the epidemic subsided again when the mixed feed was resumed.

Presse Médicale, Paris

May 16, XXII, No. 39, pp. 369-380

- 41 *Poisoning from Food. (Les infections alimentaires par le groupe du bacille de Gaertner.) A. Zuber.
42 Botulismus. (Le botulisme hier et aujourd'hui.) C. Esmein.

41. **Poisoning from Food Contaminated with Bacteria of Gaertner Group.**—Zuber compares a number of cases of wholesale poisoning from food, including the Cholet poisoning from a *crème royale*, discussed editorially in THE JOURNAL, March 21, 1914, p. 939. The symptoms were similar in every respect to those with meat poisoning from the same group of paratyphoid bacilli, but the mortality was even higher; 10 deaths in 38 cases. Sacquépée found a mortality of only 41 in 2,723 cases on record, that is, 1.5 per cent. The interval was unusually short, only two hours; from twelve to thirty-six hours is the more usual interval. Treatment can be only symptomatic, inducing vomiting, rinsing out stomach and bowels, keeping up diuresis by hot baths, hot compresses to the abdomen and saline infusion. In the extremely toxic, cholera-like cases, stimulants for the heart and application of heat are indispensable. The fact that the toxin is apparently not modified by heat renders the paratyphoid bacillus particularly dangerous.

Revue de Chirurgie, Paris

May, XXXIV, No. 5, pp. 553-720

- 43 *Aneurysms and Injury of Nerves on the Battle-Field. O. Laurent.
44 *Sporotrichosis of the Breast. E. Quénu.
45 *Cecopexy. (Fixation du caecum au tendon du petit psoas.) P. Duval.
46 *Treatment of Injury of the Knee. (Plaies du genou et leur traitement.) L. Hayem.
47 *The Liver with Appendicitis. (Le foie dans l'appendicite.) J. W. Sallis. Commenced in No. 4.

43. **Battle-Field Aneurysms and Injury of Nerves.**—Laurent remarks that aneurysms used to be rarely encountered by the army surgeons but now they are frequent. The smaller size of the bullet facilitates spontaneous arrest of the hemorrhage, but the aneurysm which forms is liable to be mistaken for an abscess, especially as the pressure is so painful that the man clamors for operative relief. The danger of secondary hemorrhage, infection and gangrene is imminent, and the first dressing should be reinforced with elastic bands and splints as if the limb was fractured. Then expectant treatment should be the rule for five or six weeks, as the hematoma might possibly be absorbed, if the pain is not so violent as to demand intervention. Measures to promote collateral circulation, compression under water, baths, etc., may aid the process. It is rarely possible to suture the vessel. A ligature may be necessary before transportation but it favors infection and gangrene; an emergency ligature is indicated rather more for a diffuse aneurysm. He applies an elastic ligature at first, but it cannot be trusted for long. It is applied above and exactly at the limit of the injury to the artery. The pocket is opened and the clots removed with a gauze and the hand. The peripheral stump may bleed and this is ligated also, but within the limits of the injury. Then the soft parts are sutured in tiers. Seventeen cases are reported in detail from the Balkan campaigns, with recovery of all but 3. The most distressing are the aneurysms in the neck; in one such case two unsuccessful attempts were made to ligate the injured common carotid before he succeeded and then another hemorrhage proved fatal.

Laurent operated in 18 of the 61 cases of injury of nerves of which he kept records, and he thinks operative treatment should be the rule for injury of a nerve in a limb, supplementing it with massage, hydrotherapy and injections of strychnin in 3 or 5 mg. doses. The results are better when the operation is postponed until all chance of infection is probably past. He describes 41 cases, with the details of his operative treatment when such was applied. The left radial nerve was the one most often injured, and his experience indicates that spontaneous restoration of a nerve is a most exceptional occurrence.

44. **Sporotrichosis of the Breast.**—Quénu adds another to the four cases on record in which women had a sporothrix tumor in the breast, not tender and not adherent to the skin, deeper tissues, resembling more a cyst than a malignant tumor in some of the cases. In others the tumor was as large as a hen's egg and adherent to the skin, hard except at one point, where there was fluctuation, the nipple retracted,

the whole resembling a scirrhus. In cases of this type there were generally other lumps elsewhere which aided in the differentiation. In one case on record there was a concomitant cancer in the breast. All the patients were over fifty-seven; there was one man in the group. The subsidence of the tumors under potassium iodid confirms the diagnosis. In Quénu's case the lesion was curetted but was long in healing until iodid was given, when the breast healed rapidly as also an ulceration on the thigh and the lump in the arm promptly disappeared, but the abscess in the back still persists and he intends to hasten its healing by opening it.

45. **Cecopexy.**—Duval gives five plates to show the preferable technic for fastening the cecum to the psoas parvus.

46. **Gunshot, Stab or Crushing Injury of the Knee.**—Hayem analyzes 11 cases with thirteen operations, remarking that the old saying "the less one does, the better one does," cannot be accepted nowadays. For such injuries as these he advocates intervention and the sooner the better, and the prompt and complete recovery in the 2 cases in which he operated the fourth and sixth hours after a bullet or large stab wound severing the tendon of the quadriceps, confirms the advantages of this. The patients were dismissed completely restored the twenty-fifth and twenty-sixth day. Five patients did not regard their injury as serious and did not apply for treatment until several days or two weeks after the injury; 2 were left with a stiff knee and 3 died from the septicemia already installed or suppuration dragging through months. In 4 other cases the operation came the second day; the joint was already infected or the wound extensive and soiled at the time. Partial or total ankylosis could not be warded off, and the patients were in the hospital from 54 to 146 days.

47. **The Liver with Appendicitis.**—Sallis discusses twenty-five cases, pointing out the variety of disturbances liable in the kidney from the toxic and infectious features of appendicitis. There does not seem to be any effectual means of treating appendicular liver trouble. Prophylaxis is the only weapon at our command, removing the appendix before serious damage results.

Revue Mens. de Gyn., d'Obstét. et de Pédiatrie, Paris

April, XIX, No. 4, pp. 233-300

- 48 *Treatment of Hemorrhage with Placenta Praevia. A. Brindeau.
49 Weakness of Cicatrix after Extraperitoneal Cesarean Section. S. Delle Chiaje.

38. **Placenta Praevia.**—Brindeau clings still to the obstetrical treatment of hemorrhage from placenta praevia, relying on the rupture of the membranes, the inflatable bag, bipolar version, manual or instrumental dilatation, etc. Surgical treatment is only exceptionally required. The child is generally born prematurely when there is placenta praevia and the mortality is high, 25 to 70 per cent. even in recent statistics. Rupture of the membrane suffices to arrest the hemorrhage in about 50 per cent. of the cases, but this may lead to complications if labor does not follow. The metreurynter is not always easy to introduce with placenta praevia, and it might push up the placenta and separate it completely. Instrumental or bimanual dilatation still has a mortality of 7 or 8 per cent. All of these measures thus have their drawbacks for the mother and all are distinctly unfavorable for the child. If the hemorrhage still continues, the uterine artery can be clamped through the posterior roof of the vagina, or the aorta can be compressed by the hand or rubber-tube wound around the waist. Still another aid is to slip a chair under the mattress so as to raise the woman's pelvis until the venous pressure is less than the intra-uterine pressure, when the hemorrhage stops of itself.

Berliner klinische Wochenschrift

May 18, LI, No. 20, pp. 917-964

- 50 *Behring's Method of Vaccinating against Diphtheria. (Ueber das Diphtherieschutzmittel "Ta.") E. v. Behring and R. Hagemann.
51 Some Fundamental Principles of Chemotherapy. H. Ritz.
52 *Effect of Compressed Air. (Physiologie und Pathologie des Lebens in verdichteter Luft.) A. Bornstein.

- 53 *Obesity from Abnormally High Sugar Content of the Blood. (Hyperglykämische Obesitas.) N. Roth.
 54 Multiple Diverticula of Large Intestine. H. Kohn.
 55 Punctate Application of Thermocautery over Entire Erysipelas Area Aborts Attack. (Abortive Erysipelbehandlung.) J. Kumaris.

50. **Behring's Diphtheria Preventive.**—Behring's mixture of toxin and antitoxin, or "TA" as he calls it, is here officially described and the field for its application outlined. A colored plate shows the local reaction to the vaccination with it. The main points of this communication were summarized in the Berlin Letter, June 14, 1913, p. 1896, and May 30, 1914, p. 1738.

52. **Physiology and Pathology of Working in Compressed Air.**—Bornstein states that among the 694 men with caisson sickness whom he has attended, 90 per cent. had it in the form of "bends," that is, intense pains in the limbs, with marbling. The affection generally is transient, but he has known men incapacitated by the resulting chronic changes in the bones and joints. He remarks that in very few other affections have we so clear an understanding of the nature of the trouble as in compressed-air disturbances. They are the result of the absorption of nitrogen by the tissues, especially by fat and lipid tissues—which include the nervous system—and then the formation of gas-bubbles as the pressure is released and the gas escapes from the tissues. The symptoms from the gas infiltration of the tissues predominate with caisson sickness and those from gas-bubble production in the disturbances in workers in diving bells. The corpulent are more liable to suffer than the lean, and the persons and organs with sluggish circulation suffer most.

In treatment, means to promote the circulation are an important factor, and Bornstein says that physical exercise is the safest and most effectual means to accomplish this. Men who have never experienced any disturbances at their work in compressed air are liable to begin to suffer if anything happens to hamper their circulation, either general or local. A heart or kidney affection or even an acute bronchitis has been known to bring on fatal caisson sickness in men who had been working for months in compressed air without suspicion of injury. Some of the men seemed to become habituated; fully 75 per cent. escaped recurrence among those who kept on working after their first attack of "bends." Gradual changing from the compressed to ordinary atmospheric pressure gives the gas a chance to escape into the lungs and be expelled without production of gas-bubbles. Oxygen helps; he has established by experiments on animals, on himself and on large numbers of workmen that pure oxygen under a pressure of three atmospheres can be borne for thirty minutes, and help in the expulsion of the nitrogen, as this gas diffuses most readily into a gas which contains little or no nitrogen. Stage decompression is aided by return to the compressed air at need, and "bends" is treated with massage and warm baths, supplementary to the inhalation of oxygen.

53. **Hyperglycemia with Obesity.**—Roth found the sugar content of the blood decidedly above normal in 4 of 16 obese patients examined. Alimentary glycosuria followed ingestion of 100 gm. of dextrose in only 3 of the 4 cases, but determination of the sugar content of the blood revealed the latent diabetes in all the cases. Restriction of the intake of carbohydrates was soon followed by marked improvement. Bang's method for determining abnormal proportions of sugar in the blood proved simple and reliable, and Bornstein commends it highly. Three drops of blood are soaked up into a piece of blotting paper, 16 by 28 mm. When dry, 5 c.c. of a boiling solution of potassium chlorid is poured over it (136 c.c. of a concentrated solution of potassium chlorid; 64 c.c. distilled water and 0.15 c.c. of 25 per cent. hydrochloric acid). This coagulates the albumin in the blood while the sugar diffuses in the fluid and the Fehling reaction is applied after half an hour. If this does not precipitate out any suboxids, then the sugar content of the blood is normal (below 0.15 per cent.). A precipitate means hyperglycemia. With four drops of blood a reaction is obtained with a sugar content of only 0.12 per cent. which is the lowest limit of the normal range.

When hyperglycemia is thus ascertained, an antidiabetic diet will not only tend to ward off further trouble from the underlying diabetes, but it will tend to cure the obesity. Hyperglycemia is liable to predispose to arteriosclerosis, contracted kidney, cerebral hemorrhage, cataract, eczema, furunculosis and gangrene, so there is every reason to get on its track early and put an end to it by appropriate dieting.

Centralblatt f. d. Grenzgebiete d. Med. u. Chir., Jena
 XVIII, No. 3, pp. 205-318. Last indexed April 4, p. 1126

- 56 *Roentgen Treatment of Goiter. (Behandlung der Strumen und des Morbus Basedowii mit Röntgenstrahlen.) M. Lüdin.
 57 *Biologic Diagnosis of Surgical Tuberculosis. G. Wolfsohn.
 58 *Pulsating Pleurisy. (Pulsierende Pleuraergüsse.) E. Levi.

56. **Roentgen Treatment for Goiter.**—Lüdin lists and compares 208 articles on this subject, with special reference to exophthalmic goiter. The general verdict with simple goiter seems to be that a cautious trial of the Roentgen rays seems justified in cases of growing parenchymatous struma in the young. Under other conditions it is indicated only when operative treatment is contra-indicated or refused. Roentgen treatment has more of a field with exophthalmic goiter, and experience is accumulating that it has a favorable action on the Basedow goiter in numerous cases, F. A. Stoney regards it as the treatment of the future; only one of her 41 cases failed to show benefit and 14 were entirely cured. A number have reported benefit from this after failure of all other measures. The nervous disturbances and the impairment of the general health are what respond most favorably to Roentgen treatment. Stegmann's patient gained 3.3 kg. in three sittings and 20 kg. (44 pounds) by the seventh sitting, and four others have mentioned gains of from 4.8 to 22.7 kg. in two to four months. Next in order the tachycardia is influenced but more slowly, and the pulse may grow slower in time. Forty-two report that in time the protruding eyes receded entirely in 6; almost completely in 2; very slight protrusion was left in 9; in 14 there was very little change and none at all in 11. Subsidence of every symptom is rare; only eight writers have reported cases under this heading, but gratifying improvement has been reported by a number in proportions ranging from 33 to 100 per cent. Incomplete abortive forms and cases of acute iodine intoxication seem to have benefited from Roentgen treatment in the hands of some, but Lepine's patient did not seem to be affected.

Holzknacht asserts that the length of time required for treatment reflects the duration of the affection before treatment was begun. One patient with exophthalmic goiter for three months, was cured by a three-months' course of treatment; with three others the figures were respectively twenty-four, three and seven months, cured by twenty-two and six-months' courses of treatment. Two others whose Basedow dated from seven and four years were not cured even under eighteen and seven months of treatment. A few instances have been published of return of symptoms after radiotherapy; more numerous are the reports of durable cures, for one to four years. Ledoux urges exposing the thymus as well as the thyroid, and Kuchendorf includes the heart. Among those who denounce Roentgen treatment are Gebele, v. Eiselsberg, Hohenegg, Hahn and Schloffer. Their main objection is that in case an operation has to be done on the goiter later, the changes in the capsule from the radiotherapy interfere with the operation. But Lüdin remarks that time has shown that this interference is not of much moment. A more serious objection is the liability to transformation of the clinical picture into myxedema under too long Roentgen treatment; Wagner, Howell, Holland, Bergonié and Speder have each reported a case displaying this tendency. Zimmern, Raymond and Gilmer witnessed aggravation of the Basedow in 4 cases. Lüdin says in conclusion that the voices raised against Roentgen treatment are less numerous than those advocating it, but all agree that extreme caution is necessary.

57. **Biologic Diagnosis of Surgical Tuberculosis.**—Wolfsohn's article is based on 264 articles in recent literature discussing serologic findings, the tuberculin reactions and inoculation of animals as aids in differential diagnosis of surgical tuberculous affections. As there is comparatively

little toxic destruction of albumin with localized tuberculous processes, there is little or no instigation to production of antibodies, and hence such processes scarcely ever respond to ordinary serodiagnostic measures. More instructive are tests for opsonins, test transmission of anaphylaxis, and the meiostagmin reaction. These three technics are comparatively reliable but require such skill that they are beyond the reach of most.

The reaction at the focus after subcutaneous injection of tuberculin is extremely instructive, but a number of instances are on record in which this reaction seemed to have contributed to the spread of the disease. Pankow was led to assume bilateral disease from the pain coming on in each kidney after the test subcutaneous injection. The course of the case later proved that one was sound at the time. Krönig has never witnessed a focal reaction with less than 1 mg. of "old" tuberculin, and more than this dose he regards as dangerous. Hohlweg had hematuria in one case; Kremser has reported the flaring up of a latent process in one case—he apparently sound testicle suppurating; Schröder, supuration around the rectum and epididymitis; Wegner, inflammation of the ribs, while Stricker has compiled a number of instances of prolonged reactions in children with aggravation of the disease or flaring up of old latent foci, generally in lymph-nodes, and acute exacerbations which proved fatal.

It is impossible to foretell any special general or local excessive susceptibility, so that Sahli and some others renounce the subcutaneous tuberculin test altogether. In Diem's two cases the joints swelled and endocarditis developed in one, and he thinks there can be no doubt of the tuberculous nature of this "articular rheumatism" which developed immediately after injecting 0.5 or 1 mg. of tuberculin.

The Pirquet skin tuberculin reaction is more constant and more intense with surgical than with pulmonary tuberculosis, unless the bone process is in the fungous, walled-in stage. This applies also to lupus; a positive reaction can generally be obtained only by applying the tuberculin directly to an opening made in the lupus patch; then an intense focal reaction becomes evident. According to the evidence to date a positive skin tuberculin reaction in children under 2 is a sign of active tuberculosis in every case. With children up to 10 or 12 it suggests a probable surgical tuberculous affection. A negative reaction, especially when repeated, renders the latter improbable.

58. Pulsating Pleurisy.—Levi gives brief summaries of 118 cases of pulsating pleurisy which he has found on record. The left side was the seat of the pulsating effusion in 93.6 per cent. of 110 cases, and 77.4 per cent. of 84 cases were in men. In the 45 cases in which the cause was known tuberculosis was incriminated in 55.5 per cent., pneumonia in 15.5, and in one case each, cancer, puerperal pyemia, influenza, polyarthritis and aneurysm, in 3 cases each, trauma and scarlet fever, and twice pneumococcus empyema. The outcome is known in 74 cases: 43.2 per cent. terminated in recovery; 10.8 were improved, 1.4 showed no change and 4.6 per cent. of patients died. The figures make a better showing in the 24 operative cases: recovery in 66.6; improved 2.6, and died 20.8 per cent. No attempt at operation was made in 44 purulent cases and 25 per cent. recovered and 1.3 per cent. died. If the effusion is not purulent medical measures should be given a thorough trial. If they fail the effusion should be aspirated by simple tapping. With purulent effusion, no time should be lost before resecting ribs for thorough drainage of the pleural cavity. Any delay is dangerous not only on account of progressive debility but toward off pericarditis.

Deutsche medizinische Wochenschrift, Berlin

May 14, XL, No. 20, pp. 993-1040

59 Operative Treatment of General Sepsis Originating in the Ear. (Die chirurgischen Eingriffe bei otogenen septischen Allgemeininfektionen.) W. Kummel.

60 Influence of Santonin and Digitalis on Perception of Colors. H. Schulz.

61 *Salvarsan in Treatment of Progressive Paralysis. W. Runge.

62 Loss of Pupil Reflexes after Trauma. (Doppelseitige reflektorische Pupillenstarre nach Schädeltrauma.) R. Finkelnburg.

63 Treatment of Motor Disturbances of the Stomach. (Motilitätsstörungen des Magens.) II. Winternitz.

64 *Spastic Ileus. A. Fromme.

65 *Secondary Anesthesia Fatalities. (Der sekundäre Narkosentod.) G. Keil.

66 Cure of Advanced Urogenital Tuberculosis by Operative Means. R. Gutzeit.

67 To Avoid Anaphylaxis on Reinjection of Antitoxin. F. Cuno.

68 Friedmann's Remedy for Tuberculosis; Reply to Kraus in No. 19. L. Brauer.

61. Salvarsan in Progressive Paralysis.—Runge states that remissions worthy of the name occurred only in 3.9 per cent. of 380 cases in which no treatment had been taken; in 9.3 per cent. of 140 treated with iodid alone; in 11.4 per cent. of 35 with mercury alone; in 14 per cent. of 44 treated with a total dosage of 1 gm. salvarsan, and in 60 per cent. of 47 treated with a larger dosage of salvarsan, ranging from 1 to 10.5 gm. These figures speak in favor of salvarsan treatment, especially as the proportion of remissions increased with the dosage, from 28 per cent. among 72 given less than 3 gm. to 74 per cent. in the 19 given over 3 gm. The general health improved remarkably as a rule, even when the mind showed no special improvement. Full earning capacity to date was restored in 11 per cent. including some whose mind had shown impairment for several months. In general, however, results were better the shorter the interval since the first mental symptoms.

The best technic seems to be by repeated courses, bringing the total dosage up to 5 or 10 gm. At the same time Runge warns that entirely refractory cases are sometimes encountered. His experience has shown further that large doses may in some cases fail to induce a remission and the disease may grow more severe and terminate fatally. He gave the salvarsan at five-day intervals but some recent experiences warn that an eight-day interval would be safer. It is often impossible at present to differentiate with certainty between cerebral syphilis and paresis, which renders it all the more necessary, he declares, to treat the patient vigorously with salvarsan at the first onset of symptoms, testing the tolerance cautiously. The paralysis did not seem to be modified by the salvarsan in 42 per cent. of the cases, and in 4 cases the course of the disease seemed to be accelerated although the dosage had been only 0.2 to 1.5 gm. Possibly, better results might have been attained finally if the medication had been pushed farther.

64. Acute Ileus from Spasm.—Fromme reports two cases of ileus in which the laparotomy disclosed a spastic constriction as the cause of the trouble. He knows of only twenty such cases on record, exclusive of lead-poisoning cases. The first patient was a boy of nearly 12; the severe pain came on suddenly during a running race. The small intestine was found contracted over quite a stretch, and pale; the entire small intestine was rather small. During the operation the contraction subsided and there were no further disturbances or pain. The second patient was a woman of 55, and in this case also the laparotomy, done on assumption of mechanical ileus, put an end to the spasmodic contraction and all trouble ceased. The woman's small intestine was contracted over a stretch 10 or 20 cm. long at four different points. The patient had broken several ribs four days before the spastic ileus came on. The spastic contraction liable to follow a laparotomy is probably of this same class of cases, all traceable to some injury of the intestines from within or without. Morphine and atropine are the main reliance in treatment, but unless one is certain of the spastic nature of the trouble it is dangerous to give morphine with ileus as liable to mask the clinical picture. The spastic contraction may be the precursor of invagination and may outlast it. This occurred in a case in his experience, the infant dying from the persisting contraction after the invagination had been corrected by a laparotomy. In two other cases a girl of 8 and a young man had several stretches of intestine contracted and the bowel was found invaginated at two or more points. The young man's appendix had been removed for an abscess a few months before and the child had been taken suddenly sick after eating nuts. The laparotomy for

the ileus in each case was followed by complete recovery. There had been no blood in the stools in either case and no adhesions had developed.

65. **Secondary Anesthetic Fatalities.**—Keil has been analyzing and classifying 4,000 cases with general anesthesia given by various technics. There was no immediate fatality in any instance for which the anesthetic could be incriminated, but there were ten deaths which he thinks were the direct result of later injury from the anesthetic used. The first symptoms were observed the second day, with death the fourth day. The patients were between 38 and 61. His experience testifies to the smaller amount of anesthetic required when a mixing apparatus is used instead of the drop method. Preliminary scopolamin-morphin did not display any advantage over the ordinary technic in respect to lesser requirement of the chloroform and ether. The exact figures of the average amount of anesthetic used with each method for the total 4,000 cases are cited.

Medizinische Klinik, Berlin

May 17, X, No. 20, pp. 837-878

- 69 *Nature of Whooping-Cough and Conditions in regard to Contagion. (Keuchhusten.) E. Feer.
- 70 Roentgen and Radium Therapy of Cancer. A. Lorcey.
- 71 Gangrene of the Lungs; Three Cases. Kaiser.
- 72 Benzol in Leukemia. L. Boehm.
- 73 Physical and Mental Disturbances Persisting after Strangulation. L. Sztanojevits.
- 74 Courses of Mineral Water in Treatment of Bronchiectasia. Stemmler.
- 75 *Chronic Joint Disease Resulting from Metabolic Disturbances. (Die durch Stoffwechselstörung bedingten chronischen Gelenkerkrankungen.) S. Gara.
- 76 Balneotherapy and Pediatrics. Krone.
- 77 Arsacetin Glycosuria. K. Georgiewsky and B. Chmelnitsky.

69. **Whooping-Cough.**—Feer gives statistics which show that whooping-cough is twice as deadly as measles for young infants and six times deadlier than diphtheria (Bavaria, 1893-1902). The Basel statistics show that young infants contracted whooping-cough five times more than measles and scarlet fever and nearly ten times more than diphtheria (1875-1891). Whooping-cough maintains its lead in prevalence over the other diseases up to the age of 5. In 1900 there were 14,000 deaths from whooping-cough in the German empire, the same figure as for diphtheria. And yet, with all this experience, it is still a question whether whooping-cough is contagious during the whooping state or not. In Feer's own experience the institutional epidemics always originated from cases that had not reached the whooping stage. Weill of Lyons thinks that after one week of the paroxysmal cough at farthest there is no more danger of infecting others. He analyzed 104 cases very carefully from this standpoint, and his experience since has confirmed his view that isolation is unnecessary as a rule at this stage.

The assumption that contagion occurs only during the catarrhal stage explains why the disease runs through a family but why there is so seldom contagion after the whooping child has entered the hospital while an epidemic is almost certain to develop if a child in the catarrhal stage enters the hospital and begins to whoop later. He has never known of an instance of contagion from clothes or from sleeping in a room after a whooping-cough patient. Direct contact seems indispensable. Healthy carriers may play an important rôle. He says that no remedy has proved its usefulness but that much can be accomplished by tranquilizing the patient. Sometimes replacing an over-anxious nervous mother with a well-poised and capable attendant may have a remarkable influence for the better.

75. **Thyroid Treatment of Chronic Joint Disease.**—Gara reviews what is known of chronic joint affections developing on a basis of metabolic disturbances, gout, gastro-intestinal derangement, etc. He has encountered a special group of cases of chronic joint disease accompanied by various symptoms suggesting neurasthenia and disturbance in the genital sphere besides the rheumatic joint affection. Closer study of this group of cases during the last three years has shown that the thyroid is always more or less enlarged. Discovery

of this suggested that abnormal functioning on the part of the thyroid might affect the functioning of the ovaries. This assumption explained at once all the different symptoms observed, from the nervous palpitations and restlessness to the amenorrhea or dysmenorrhea, all of which had proved refractory to ordinary measures. The evidence which Gara presents makes a good plea on behalf of the thyroid origin and necessity for treatment on this basis in a certain proportion of cases of chronic articular rheumatism. He has encountered 132 cases of the kind, all but 11 in women from 16 upward; 43 were over 45. This "thyroid" group formed about 20 per cent. of his cases of chronic "rheumatism" of the joints. He practices at a spa, and consequently sees the patients only while they are taking the waters, so he has no opportunity to apply treatment on these premises. He urges general practitioners to be on the lookout for such cases and to give them systematic thyroid treatment on the above basis.

Münchener medizinische Wochenschrift

May 12, XLI, No. 19, pp. 1041-1096

- 78 Derangement of Ovary Functioning with Myoma in the Uterus (Störung der Eierstocksfunktion bei Uterusmyom und einseitige Myomfragen.) A. Mayer and E. Schneider.
- 79 Deposits of Albumin in the Liver after Ingestion of Albumin (Eiweiss-speicherung in der Leber nach Fütterung mit genuinen und gänzlich abgebautem Eiweiss.) Berg.
- 80 *Shape of Stomach with Exaggerated Vagus and Sympathetic Tonus. P. Klee.
- 81 *Treatment of Malignant Disease with Cancer Extract. (Behandlung maligner Geschwüre mit Tumorextrakt.) H. Lunckenbein.
- 82 Paratyphoid in Munich Children; Ten Cases. F. Breuning.
- 83 *Poliomyelitis in Orphan Asylum. (Anstaltsendemie von Heine-Medinscher Krankheit.) H. Kern.
- 84 Barium Sulphate in Roentgenoscopy. (Bariumsulfat als Kontrastmittel in der Röntgendiagnostik des Magendarmtrakts.) E. Crone.
- 85 Deep Radiotherapy. (Zur Frage der Strahlentiefentherapie.) J. Rosenthal.
- 86 Extreme Ankylosis of the Spine; Alleged to be Forty-First Case on Record. Wenzel.
- 87 Principles for Mechanical Treatment of Subcutaneous Injuries of the Legs. A. Ritschl.

May 26, No. 21, pp. 1153-1208

- 88 *Treatment of Tuberculosis with Friedmann's Vaccine. A. Schittenhelm and G. Wiedemann.
- 89 Bacteriologic Findings with Lymphogranulomatosis. H. Verploegh and others.
- 90 The Blood-Picture of Acute Leukemia as a Transient Symptom. C. Klicneberger.
- 91 *Keeping Pneumonia Patients Out of Bed. (Das "Ausserbett"-Behandlung der Pneumonien.) C. Widmer.
- 92 Sacral and Local Anesthesia for Laparotomies. M. Traugott.
- 93 The Protective Ferments. (Das Wesen der Abwehrfermente bei der Abderhaldenschen Reaktion.) A. Hauptmann. (Zur Frage der sog. Abwehrfermente.) L. Flatow.
- 94 Treatment of Phimosis in Children. E. Rominger.
- 95 Intramuscular Injection of Neosalvarsan. H. E. Kersten.

80. **Shape of the Stomach with Exaggerated Vagus and Sympathetic Tonus.**—Klee gives a number of skiagrams to show the typical changes in the shape of the stomach of cats when the nerves connected therewith were subjected to cold or to heat or were severed.

81. **Cancer Extract in Treatment of Malignant Disease.**—Lunckenbein states that the theory of the protective ferments has explained the unmistakable benefit derived from intravenous injection of cancer extract. The general health improves even in advanced cases, and many inoperable growths have retrogressed until they could be successfully removed. With no other method of treatment to date do the patients show such a remarkable and speedy change for the better as with this tumor-extract treatment. The sero-diagnosis after this tumor-extract treatment may show when the cancer has actually been conquered or whether merely transient improvement has been realized. As this method of treatment is a kind of vaccination, the production of the protective ferments being the task of the organism being treated, the technic and estimation of the progress of the case are not always easy. He uses mammary cancer extract, having found that the outcome was apparently the same whether the patient's own cancer material or that from another person was used; the nature of the cancer also seemed to be immaterial. The course of treatment must be

long and persevering. He has sometimes noticed that after a certain length of time the organism seems to have reached the limit of its capacity for protective-ferment production, and the case enters on a stationary phase or begins to go down. When this happens, every effort must be made to raise the tone of the general health so that it can go on with its ferment-production task. Remarkable results are sometimes accomplished in this way. Lunckenbein practices at Aunsbach, and his statements are based on his experiences in forty cases.

83. Epidemic of Poliomyelitis in Orphan Asylum.—There were only five cases, but four developed practically all on the same day and three of the children were isolated at once. The symptoms were so mild that they were not recognized at once in the fourth child and it was not isolated until the fifth day. The fifth case developed three weeks later and evidently from contact with the case that had been unrecognized at the very first. Only one of the children has entirely recovered; the others still have more or less paralysis.

88. Treatment of Tuberculosis with Friedmann's Remedy.—Schittenhelm and Wiedemann report from the medical clinic at Königsberg 40 cases of various forms of tuberculosis in which they have applied Friedmann's remedy, supplied to them free of charge. They review the history of the remedy to date and give full details of their 40 cases. One patient was a man of 32 with Addison's disease who was given the *Simultaninjektion*—as advised by Friedmann in a letter. The temperature ran up to 104, the pulse to 110, and the patient vomited incessantly and rapidly grew weaker, dying the third day. This unfortunate occurrence, they state, was unmistakably the consequence of the febrile reaction to the injection which the debilitated organism was not able to stand. In the 25 cases of pulmonary tuberculosis there was no improvement in the objective findings but 5 showed a relative improvement, the temperature dropping, the amount of sputum growing less in some and certain subjective symptoms and the general health showing some benefit. On the other hand, a much larger number of patients showed no influence from the treatment and 9 grew constantly worse, including 2 in whom the condition became aggravated directly after the injection. A favorable influence was apparent in 3 cases of tuberculous rheumatism of the Poncet type and in a few cases of tuberculous joint processes, the patients showing rapid improvement, notwithstanding the suspension of all other measures. Tuberculous processes in the kidneys were apparently not influenced in the least. Previous treatment with another kind of tuberculin did not seem to affect the action. Friedmann declares that cases in which some other tuberculin has been given often prove refractory to the first injection of his remedy; they display no essential improvement after the first injection but do after the second. This should be given after an interval of four or five weeks. One of the cases here reported was treated on this advice and the second injection had an absolutely aggravating deleterious influence.

They add: "To the question whether the Friedmann remedy is superior to other specific measures for treating tuberculosis the answer according to our results can be only in the negative. We believe positively that the few apparently favorable results which we have to chronicle in pulmonary tuberculosis and Poncet could have been attained with other measures. But we regard the dangers of the treatment as so great that we shall not apply it further. (*Wir halten die Gefahren der Behandlung für so gross, dass wir sie nicht weiter üben werden.*) This judgment is not qualified by the favorable result in the 3 joint cases. Such observations call for experimental following up of the subject; but they cannot justify the further therapeutic application of the remedy which has won disrepute in the majority of the cases by its failure to benefit and its harmfulness."

91. Keeping Pneumonia Patients out of Bed.—Widmer relates that ten years ago at a conflagration in a village the men fighting the fire were so chilled and exhausted that between the ninth and thirteenth days thereafter eight devel-

oped extremely severe pneumonia, delirious from the first day. As the distances between the farms were so great he was unable to spend much time with any one patient, and the families were in great distress with their delirious sick men. To aid them in tending the sick at night, Widmer had the sick men dressed and allowed to be up at night. To his surprise he found that great improvement in the delirium and in the condition generally followed as soon as the men were thus dressed and up. Analyzing the conditions convinced him that the subconsciousness called into play by the acts of dressing, walking about and especially by rocking in a rocking chair, steadied the higher brain functioning and this in turn steadied and regulated the blood-pressure and other vital processes. Since that time he has made a point of thus calling on the subconsciousness in treatment of pneumonia and has found it a great help in fifty-two cases thus treated. He compares conditions to the difference in the effect when water is poured into a glass held in the hand in a moving railway car; it can be poured without spilling, but if the glass is standing on a solid table, it is almost impossible to pour the water into it without spilling.

Wiener klinische Wochenschrift, Vienna

May 14, XXVII, No. 20, pp. 645-692

- 96 *The Process in the Brain with an Epileptic Seizure. (Gehirnvorgänge beim epileptischen Anfall.) I. P. Karplus.
 - 97 Pathogenesis of Auricular Fibrillation. (Flimmerarrhythmie.) C. J. Rothberger and H. Winterberg.
 - 98 Variability of Makes of Hexamethylenamin. (Qualitative Unterschiede des Formaldehydgehaltes im Urotropin und Hexamethylenetetramin.) O. Sachs.
 - 99 *Clinical Significance of Quantitative Test for Albumin in Sputum. M. Melikjanz.
 - 100 Necessity for Graduation of Doses of Sunlight, etc., in Heliotherapy at the Seashore. H. v. Schrötter.
- May 21, No. 21, pp. 693-740
- 101 Angina Pectoris. L. Braun.
 - 102 Case of Rumination with the Roentgen Findings of Intermittent Hour-Glass Stomach. E. Schütz and S. Kreuzfuchs.
 - 103 The Diet in Certain Alpine District. (Ueber die Ernährung der Senner auf zwei Hochalpen im Bezirk Innsbruck-Umgebung.) L. E. v. Ceipek.
 - 104 Heliotherapy in Austria. M. Jerusalem.
 - 105 *Friedmann's Remedy for Tuberculosis. Friedländer and others.

96. Experimental Epileptiform Seizures.—Karplus found in experiments on dogs and monkeys that slitting the corpus callosum its entire length did not prevent general epileptic convulsions when weak electric stimulation was applied to some circumscribed area of the cortex.

99. Albumin in the Sputum.—Melikjanz summarizes ten cases of pneumonia to sustain his previous statements in regard to the importance of quantitative estimation of the albumin in the sputum. The later it appears and the later it disappears again, the graver the prognosis. The amount is also proportional to the severity of the lung affection. Large amounts long persisting speak for tuberculosis.

105. Friedmann's Remedy for Tuberculosis.—Friedländer reports the case-histories of eight children with tuberculous bone or joint affections in his service given the Friedmann treatment by Friedmann's assistant. A general reaction was observed in all, but it was slight in three cases. The other children had a very considerable temperature reaction and impressive tachycardia, and their subjective reaction, especially the following night, could not be lightly regarded. There was no local reaction but no benefit of any kind followed. The hip-joint disease in one case grew worse but Friedländer does not ascribe this directly to the Friedmann remedy so much as to the neglect of the old and tried orthopedic fixation which was omitted in hopes of benefit from the Friedmann remedy. He exonerates the remedy also from any share in the development of facial paralysis soon after its application in a case of spondylitis. He is confident, however, that the remedy did not display the slightest specific efficacy in his eight cases; and he will decline to use it further even if the objections recently raised against the constancy and purity of the remedy are dissipated.

This communication supplements several others presented at the meeting of the Vienna Medical Society, May 15, of

which a full report is given in the Society Proceedings Department of the *Wochenschrift*. All report "no benefit" and some describe actual harm done by the remedy. It had been administered in all cases by Friedmann himself. One of Bachrach's 5 patients had an isolated mild chronic tuberculosis of one kidney. After the Friedmann remedy had been given, the bladder lesions progressed rapidly and became much aggravated, and the kidney showed a fresh miliary eruption when it was finally removed after waiting three months for any possible benefit from the treatment. The conditions in this case were the most favorable possible, but aggravation rather than benefit was all that was realized. No benefit was observed in the other urogenital cases.

Jungmann reported similar discouraging results in 8 cases of lupus; no benefit has been apparent in the four or five months to date and in 3 cases the lupus has spread materially, the new patches promptly ulcerating. (A few of these cases were treated by Friedmann's assistant.)

Kovacs reported 7 cases of pulmonary tuberculosis. The course was not modified for the better in any instance. One patient died two weeks after the intramuscular injection and a subacute and acute miliary tuberculosis was found in the lungs and some other organs. He called special attention to this case as several others are on record in which this was observed, although it is of course impossible to prove any connection between the remedy and the miliary tuberculosis developing later.

Neumann commented on the way in which Friedmann in determining the indications pays heed only to the subjective symptoms and ignores the stage and extent of the tuberculous process. This rendered particularly noticeable the experiences in Ortner's service in that the subjective disturbances became much worse after injection of the Friedmann remedy. There was but slight reaction to the intramuscular injection (2 cases), but in the 6 intravenously injected cases severe injury followed. The temperature ran up to 104 F. in all and still higher in one (40 and 40.5 C.) and kept at this height for three days, accompanied by intensely severe headache, vomiting and brain symptoms. At the same time severe degeneration of parenchymatous organs was evident; the liver and spleen became much enlarged and tender; there was pronounced urobilinogenuria but elimination of galactose kept within normal range. In one case there was pronounced jaundice; in another subicterus of the conjunctiva. Albuminuria was evident in nearly every case; with tube-casts in one. The muscles became also intensely sensitive to contact, especially in the calf. The appetite was also poor for months, and for weeks there were repeated nausea and vomiting. All complained for months of a dull headache. The heart seemed to feel the deleterious effect most. The blood-pressure dropped 20 or 30 mm. mercury, and did not return to normal for two weeks. The heart became dilated, and systolic murmurs over the initial valve are audible, accompanied by palpitations and pains in the heart—all these symptoms persisting unmodified by valerian or bromids during the five months to date, and influenced only by strophanthus or digitalis. One elderly woman with a goiter had never had cause to complain of her heart before, but after the Friedmann injection she developed a perpetually irregular pulse with extreme weakness of the heart, edema in the legs, and cyanosis, requiring camphor and a course of digitalis, and the heart has not recuperated since.

In short, Neumann concluded, speaking for Ortner, the remedy is not so harmless as Friedmann would have us believe. The tuberculous processes were aggravated and injury of parenchymatous organs was evident, persisting for months and affecting the vital organs. The application of the remedy should be absolutely denounced.

Büdinger reported no benefit in his 4 cases and considerable aggravation in one. Förderl had negative results in all but one of his 5 cases. Nephrotomy had been done before the injection in this case and the operation was more than probably responsible for the improvement that followed. Improvement was noticed after the operation alone in a similar case not given the Friedmann treatment. In one

case the injection was followed with fever, rapid pulse, vomiting and diarrhea.

Policlinico, Rome

May 1, Medical Section, No. 5, pp. 193-244

- 106 *Fat Necrosis in and Around the Pancreas. C. Verdozzi.
- 107 Primary Sarcoma of the Liver. (Sui sarcomi primitivi del fegato e su la migliore conoscenza anatomo-clinica delle neoplasie epatiche.) G. Pisano. Commenced in No. 4.
- 108 *Thick-Film Technic for Microscopic Work in Differential Diagnosis. P. Bosco.

106. **Fat Tissue Necrosis in and Around the Pancreas.**—Verdozzi has recently encountered a case of acute hemorrhagic pancreatitis and one in which there were only minute foci of fat necrosis in the interstitial tissue of the pancreas. He gives a colored plate of the findings and reviews the history of fat necrosis in this region and discusses the pathologic anatomy and syndrome. The attack came on before breakfast in one case; in the other after a hearty meal. In the latter case there was a history of recurring attacks of abdominal pain and vomiting, subsiding after a few days, and the pancreas showed signs of chronic inflammation. The temperature was subnormal in both the women; they were 68 and 78 years old and the first died in three, the other in thirteen days. The localization of the pain in the epigastrium and the meager findings on palpation in contrast to the grave general condition and distress, pointed to pancreatitis. The various hypotheses advanced to explain the fat necrosis are compared; Bignami's theory that the trouble is analogous to a peptic ulcer has much to sustain it.

108. **Thick Films in Microscopic Diagnosis.**—Bosco lauds the thick film technic as a great aid in diagnosis of malaria and relapsing fever.

Brazil-Medico, Rio de Janeiro

XXVIII, Nos. 16-17, pp. 153-172

- 109 *Endemic Adenomycosis. II. E. Dias.
- 110 *Yellow Fever. (Tratamento racional da febre amarela.) P. Valladares.
- 111 Causes of Fatalities at Operations. (Das causas do exito lethal nas operações cirurgicas.) R. C. Prevost.
- 112 Brazilian Ornithostromylus Parasites of Cattle and Fowls. (Triostromylinae brasileiras.) L. Travassos.
- 113 The Larvae of the Fly Does Not Feed Habitually on Cadavers. (A larva da mosca domestica é habitualmente necrophaga?) O. Freire.

109. **Endemic Adenomycosis.**—Dias here gives the description of the fungus causing the affection to which he called attention recently, as summarized in THE JOURNAL, May 30, p. 1765. He has named the fungus the *Adenomyces cruzi*.

110. **Yellow Fever.**—Valladares gives a number of reflections and suggestions based on the most recent progress in medicine which has thrown light on the symptoms seen in the yellow-fever syndrome for which the ductless glands are responsible. There is much evidence to show that, the acute phase once past, the acutely defective or perverted functioning of the adrenals in particular dominates the clinical picture. Treatment should aim to restore the lacking internal secretion. He proposes therefore as the logical treatment of yellow fever, venesection and saline infusion, lumbar puncture and the usual measures for revulsion. The usually early insufficiency of the liver should be combated with alkalines, sodium benzoate, ether and cold enemata twice a day. As soon as there are signs of defective adrenal functioning, epinephrin should be given systematically. This should be followed by serum from the renal vein of the goat, according to Teissier's technic (described in THE JOURNAL, Nov. 14, 1908, p. 1738), when symptoms suggest uremia or impending anuria. Still another measure to be systematically applied is baths if the temperature goes above 39 C., with other symptomatic measures as needed.

Hygiea, Stockholm

LXXVI, No. 8, pp. 449-512

- 114 Unilateral Eye Symptoms in Exophthalmic Goiter. (Var Iandströms förklaring till uppkomsten av ögonsymtomen vid morbus Basedowi riktig?) A. Troell.
- 115 Splenectomy in Treatment of Pernicious Anemia. R. Dalil.

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THE SERVICE OF MEDICINE TO CIVILIZATION *

VICTOR C. VAUGHAN, M.D.

President of the American Medical Association

ANN ARBOR, MICH.

Fellow members of the American Medical Association: I wish to express my appreciation of the honor conferred on me in being called to officiate as your President at this time. I had been content to serve in the ranks, and I have regarded this position as too honorable to be sought, or to be lightly regarded when spontaneously bestowed. During my term of office I will give you my most devoted service.

In ancient times, civilization was born, grew for a few generations and fell into decay. In all instances it was local and covered only small areas. Its habitations were oases in the world-wide desert of ignorance and superstition, and after an ephemeral existence all were buried in the sand. Relatively small bodies of men occupying salubrious regions developed the elements of science and for a few centuries flourished. Their superior knowledge gave them dominion over their less fortunate neighbors, who were converted into slaves. Conquest brought disease and the local civilizations were obliterated by contagion. History is replete with instances in which triumphant heroes have brought to their rejoicing countries with their prisoners of war invisible and intangible agents of death, which have ultimately vanquished the victors.

The Egyptians of the Pharaohs drained the land, built aqueducts, disposed of their dead hygienically, reared temples and cities, maintained law and order, developed the elements of literature and science and devised and employed simple machinery. In speaking of the ancient Egyptians, Diodorus says: "The whole manner of life was so evenly ordered that it would appear as though it had been arranged by a learned physician, rather than by a lawgiver." Herodotus declared ancient Egypt the healthiest of countries, but filled with physicians of whom "one treats only the diseases of the eye, another those of the head, the teeth, the abdomen or the internal organs." Writing of a later time, Gibbon said: "Ethiopia and Egypt have been stigmatized in all ages as the original source and seminary of the plague." It is evident that in the time of its great civilization Egypt was salubrious; coincident with the decline in the learning and wisdom of its people, it was visited and desolated by pestilence. That Egypt had lost its salubrity as early as the period of the exodus of the Israelites is shown by many

passages in the Bible in which the chosen people are threatened with the diseases of Egypt if they neglect or violate the laws. Moses, "learned in all the wisdom of the Egyptians," codified his sanitary rules and regulations in the form of religious rites and ceremonies and thus secured their observance among the faithful even down to the present time.¹

The Greek developed the most glorious civilization of antiquity because he was the most ardent student of science, but he was unable to cope with malaria and bubonic plague, and his descendants have been in bondage to malaria for nearly twenty-four centuries. The medicine of Hippocrates, the wisdom of Socrates, the philosophy of Plato, the plays of Aristophanes, the laws of Pericles and the science of Aristotle could not save the Greek from the degrading effects of disease, and under its withering influence the civilization of this great people slowly but surely decayed. Its matchless marbles were thrown into the waste, its magnificent temples were allowed to crumble, its altars were deserted, its literature became insipid, its philosophy lost its virility, its science was forgotten and the children of this blighted civilization were sold in the slave markets of Rome and in later generations paid tribute to the Slav and the Turk. There certainly were eminent Greek scientists and physicians for centuries after Hippocrates, but they were not products of Greek soil. They developed in Asia Minor, Egypt, Italy and elsewhere. It is of interest to note in this connection that malaria, according to Jones, was introduced into Greece in the fifth century, B. C., and the fourth century showed the decline of Hippocratic medicine. Neuburger says: "The sons and grandsons of Hippocrates, as well as his immediate disciples, Apollonios and Dexippos, were at the head of that series of physicians who laid emphasis upon theoretical conjecture and gave to medicine in the fourth century B. C. its speculative coloring." Taken with the fact that other departments of learning showed similar retrogression at the same time, this sequence between the introduction of malaria and the trend of medicine toward speculation is worthy of record. That pestilence aided the barbarians in the final desolation of Greece is indicated by the following quotation from Thumb:

At a time when the German tribes began moving, that is to say, at the end of the third century A. D., a gradual immigration of Slavonic tribes into the Balkans began; their

1. Neither the papyrus of Ebers nor that of Brugsch throw any light on the problems discussed in this article. Indeed the value of both these papyri was at first overestimated. They are now regarded as compilations and consist largely of lists of remedies and furnish no information concerning epidemics or their effects upon the people, except to indicate that hookworm or bilharzia infection, one or both, at that time (about 1500 B. C.) afflicted the Egyptians. These parasites may have contributed to the deterioration of the people; this is a suggestive possibility.

* President's address before the American Medical Association, at the Sixty-Fifth Annual Session, Atlantic City, June, 1914.

invasions became more and more frequent, since the Goths chose Western Europe as the goal of their conquering expeditions and left to the Slavs an open passage into the Balkan countries. But a real Slavonisation of some Greek territories took place only in the eighth century, and attained its highest point when a horrible plague in 746 depopulated the Greek territories.

I am aware of the fact that some have objected to considering the present inhabitants of Greece as descendants of ancient Greeks. The former have been designated as "so-called Greeks," "a bastard people," "a mosaic of Vlacks, Arnauts and Slavs." Some years ago Fallmerayer made the very positive statement that "no drop of ancient Greek blood flows in the veins of the modern Greek." Thumb has shown the absurdity of these statements and declares that cranial measurements, local names, customs and religion show that while some admixture with the Slav has taken place, the modern Greek is a lineal, and on the whole a fairly pure descendant of those who established the greatest civilization of antiquity. Modern Greek Christianity is only a modification of ancient Greek paganism, in which gods have been supplanted by saints. "Charon the old ferry-man in the underworld is to-day the god of death; he conducts the souls in a dreary procession to his realm. As in antiquity, a copper coin is put into the mouth of a dead person as a fee for the ferry into the other world. The ancient Moirai or fates (to-day, Mires) still determine the fate of the new-born child, spin and cut the thread of life. The bride is conducted into her new home, the dead are buried with ceremonies which the Greeks used already two thousand years ago. A sick person seeks recovery by laying down to sleep in the church of a saint, like those persons who once made a pilgrimage to the temple of Asklepios in Epidaurus. The Greeks of to-day are descendants of the ancient Hellenes, not in the sense in which every modern Greek could trace his origin back to an ancient Athenian or Spartan, but in the sense that in the modern people ancient blood flows largely and in some districts almost purely, and still more in the higher sense that the modern race shows a development of the Greek population of the ancient world."

The broken remnants of older civilizations found refuge and asylum in the salubrious climate of the Italian peninsula and soon its hillsides were covered with vines and olives while its plains and valleys bore abundant harvests. Rome was built and her empire promised to extend to the remotest parts of the world, but the ancient Roman contributed but little to science, and we are told by the historian that "a pestilence raged for fifteen years (251-265) and carried off one-half of the inhabitants of the Empire." The seat of civilization was moved to the shore of the Bosphorus, but the lamp of science was well-nigh extinguished and the clouds of the middle ages enveloped the world and shrouded its inhabitants for more than a thousand years. "A fabulous and formless darkness overcame the fairest things of earth."

If one reads the history of the decline of the Roman Empire, he can hardly fail to see that disease was an important factor in that retrograde movement, which involved the greater part of the then known world. Jones and Ross find the earliest reference to malaria among the Romans in the comedian Plautus, who died 184 B. C., and they quote Terence, who died 159 B. C., and whose language is explicit in showing not only

the prevalence of malaria, but also the recognition of the different forms. From that time on, reference to the wide prevalence of malarial diseases, not only in the open country, but also in the city, is frequent and definite. Jones says:

There is then, every reason for supposing that malaria was unknown in Italy in early times, was well known at the beginning of the second century B. C., and that it gradually became more common during the next two hundred years. If this be so, it is at least a plausible conjecture that it was introduced by Hannibal's Carthaginian mercenaries. Africa seems to have been the original home of the disease, and it is probable that some of his troops were infected. The constantly repeated devastation of Italy in the second Punic war would be sure to turn a large part of it into marshy land, thus affording a convenient breeding-place to the mosquitoes which were infected by the malarial patients among the Carthaginians. The similar conditions of Attica during the closing years of the fifth century B. C. offers a striking parallel. This opinion does not rest on mere conjecture. We are told by Livy that in the year 208 B. C. a severe epidemic attacked Italy. It did not cause many deaths, but resulted in much lingering disease, that is, most probably, chronic malaria.

Malaria, however, was not the only disease which contributed to the degeneration of the Roman people. I have already referred to the pestilence of the third century, which is said to have destroyed half the inhabitants of the vast empire within fifteen years. This certainly was not malaria. Moreover, this was not the first great pestilence which afflicted the Roman Empire. Neuburger says:

The "plague," so called by Galen or Antonine, was first introduced from Syria by the Roman army. . . . The extraordinary contagiousness of the epidemic is emphasized in all contemporary reports. There appear to have been a variety of simultaneous manifestations, the descriptions indicating afflictions chiefly resembling small-pox, or dysentery, but adequate criteria on which to express an opinion are wanting. The "plague" commenced 165 A. D., claimed innumerable victims and lasted at least fifteen years.

Jerome writes: With peace, order and good government a curious lethargy fell on the warrior state deepening into a coma in which it died so quietly that neither the contemporaries nor we moderns can fix the date of the decease. The fact, however, finally became apparent when the phenomena of decay were indubitable and the world, deprived of the master, fell back helplessly into a condition hardly more advanced than in the ages before its subjection, save that it had the imperishable memory of Rome to give it hope, direction and courage.

In the fourth century the seat of government was removed to Byzantium. It is probable that this change was, in part at least, determined by the insalubrity of Italy. Early in the fifth century Rome was pillaged, but the real conquerors of Rome were not the Goths and Vandals, but malaria and the plague. Disease continued to devastate Italy. Creighton says:

About the year 668 the English archbishop-elect, Vighard, having come to Rome to get his election confirmed by the pope, Vitalianus, was soon after his arrival cut off by the pestilence with almost all who had gone with him. Twelve years after, in 680, there was another severe pestilence in the months of July, August and September, causing a great mortality at Rome and such a panic at Pavia that the inhabitants fled to the mountains. In 746 a pestilence is said to have advanced from Sicily and Calabria and to have made such devastation in Rome that there were houses without a single inhabitant left.

From that time on the plague periodically spread over Italy until the seventeenth century, while malaria

has been in continuous possession down to our own time. We are told that the epidemic of 1348 reduced the inhabitants of the Eternal City to 20,000.

We are familiar with the graphic description of the plague in Florence by Bocaccio, who wrote:

Such was the cruelty of Heaven, and perhaps of men, that between March and July following, it is supposed, and made pretty certain, that upwards of a hundred thousand souls perished in the city only, whereas, before that calamity, it was not supposed to have contained so many inhabitants. What magnificent dwellings, what noble palaces were then depopulated to the last person, what families extinct, what riches and vast possessions left, and no known heir to inherit, what numbers of both sexes in the prime and vigor of youth—whom in the morning neither Galen, Hippocrates nor Esculapius himself, but would have declared in perfect health—after dining heartily with their friends here, have supped with their departed friends in the other world.

There are but few passages in literature so tragic as the short record of the plague of the fourteenth century begun by the friar of Kilkenny, but soon interrupted by his death:

I friar, John Clyn, of the order of Friars Minor and of the convent of Kilkenny, wrote in this book those notable things which happened in my times, which I saw with my eyes, or which I learned from persons worthy of credit. And lest these things worthy of remembrance should perish with time and fall away from the memory of those who are to come after us, I, seeing these many evils, and the whole world dying, as it were in the wicked one, *among the dead, awaiting death*—as I have truly heard and examined, so have I reduced these things to writing; and lest the writing should perish with the writer, and the work fail altogether with the workman, I leave parchment for continuing the work, if haply, any man survive, and any of the race of Adam escape this pestilence and continue the work I have commenced.

That the period of the Byzantine Empire (395-1453) was one of general degeneracy is shown on every page of the historian. It produced no literature of merit, and "the study of nature was regarded as the surest symptoms of an unbelieving mind." Neuburger says:

The Byzantines merely followed the downward path. Surfeited with tradition, which made modes of thought appear inevitable, because customary, filled as a nation with overweening self-conceit, fed by the glories of the Graeco-Roman past, they neither could nor would destroy the historic bridge nor replace the crumbling ruin with a new edifice. It lay outside the sphere of their interests to enter into that conscious emulation of antiquity which, emphasizing the growing contrast between past and present, and eliminating the obsolete and the inert, is the essence of mental cultivation. Forgetting that it was the free development of the national spirit which constituted the greatness of the past, they went so far as to smother its liveliest expression by denying, in their rigid adherence to Attic speech, all part in literature to the language of the people. The more incapable did the Byzantines become of grasping the spirit, the more tenaciously did they cling to the letter—a reflection of the mania for titles and ceremonies in political life—and thus they ragged the inanimate mechanism, the dry bones of antiquity through a thousand years, instead of erecting a new edifice on the foundations of antiquity.

The physician and historian, Procopius, in his account of the great pestilence in the reign of Justinian emulated the skill and diligence of Thucydides in the description of the plague at Athens." Of this epidemic Gibbon says:

In time its first malignancy was abated and dispersed; the disease alternately languished and revived; but it was not till the end of a calamitous period of fifty-two years, that mankind recovered their health, and the air resumed its pure and

salubrious quality. No facts have been preserved to sustain an account, or even a conjecture, of the numbers that perished in this extraordinary mortality. I only find that during three months, four and at length ten thousand persons died each day at Constantinople, that many cities of the east were left vacant, and that in several districts of Italy, the harvest and the vintage withered on the ground. The triple scourge of war, pestilence and famine afflicted the subjects of Justinian, and his reign is disgraced by a visible decrease of the human species, which has never been replaced in some of the fairest countries of the globe.

This epidemic spread over the whole of Europe and it took more than a century to reach England, where "it fabled long after in prose and verse as the great plague of Cadwalladers-time." Then for quite a thousand years it reaped its periodic harvests as often as immunity was lost in new generations.

The historian, as a rule, confines his descriptions to martial and political events and consequently gives a wholly erroneous idea of true conditions. Gibbon says: "If a man were called upon to fix the period in the history of the world, during which the condition of the human race was most happy and prosperous, he would without hesitation, name that which elapsed from the death of Domitian to the accession of Commodus" (from 96 to 180 A. D.). Noah Webster, in his work on epidemics and pestilence, quotes the preceding with the following just comment:

It is certain that, at this time, the Roman Empire was in its glory, and governed by a series of able and virtuous princes, who made the happiness of their subjects their principal object. But the coloring given to the happiness of this period is far too brilliant. The success of armies and the extent of empire do not constitute exclusively the happiness of nations; and no historian has a title to the character of fidelity, who does not comprehend, in his general description of the state of mankind, moral and physical, as well as political evils.

Let us make brief inquiry into the diseases of this "most happy and prosperous" period. It was preceded by, it begun in, continued in, and closed in pestilence. That the plague was endemic in Italy at that time and that it developed in epidemic form with each increase in susceptible material there can be no doubt. Of the epidemic of 68 A. D. Tacitus says:

Houses were filled with dead bodies and the streets with funerals; neither age nor sex were exempt; slaves and plebeians were suddenly taken off, amidst the lamentations of their wives and children, who, while they assisted the sick, or mourned the dead, were seized with the disease, and perishing, were burned on the same funeral pyre. To the knights and senators the disease was less mortal, though these also suffered in the common calamity.

About this time the plague appears to have spread over the whole of Asia, northern Africa and Europe. According to Short, the deaths from this disease in Scotland between 88 and 92 A. D. amounted to not less than 150,000. This was probably not less than one-fourth, possibly one-half, the population of Scotland at that time.

In the year 80 A. D. the deaths from the plague in Rome at the height of the epidemic numbered 10,000 a day. It is estimated that the population of Rome at that time was somewhat more than one million. Exacerbations of the disease in Rome are recorded for the years 102, 107 and 117 A. D. According to Short, 45,000 died of the plague in Wales in 114. The year 167 A. D. is noted for an unusually severe outbreak of the plague at Rome, where it continued for many years. In the year 173 A. D., the Roman army was

threatened with extinction by disease, and special epidemics, or rather exacerbations of the epidemic, prevailed in Rome in 175 and 178 A. D. That the "happy and prosperous" period was followed by a continuation of the plague is shown by the following quotation from Herodian:

A great pestilence raged throughout Italy at that time (about 187 A. D.), but with most violence in the city, by reason of the great concourse of people assembled from all parts of the earth. The mortality among men and cattle was great. The Emperor, by advice of physicians, retired to Laurentium, on account of the coolness of the place, which was shaded with laurels. It was supposed that the fragrance of the laurels acted as an antidote against the contagion. The people in the city also, by the advice of physicians, filled their noses and ears with sweet ointments and used perfumes, etc.

Under the spell of the historian we have been inclined to regard the period when the greater philosopher, Marcus Aurelius Antoninus, sat on the throne of the world, as the golden age. Let us therefore listen to a few words from his personal attendant, courtier and historian, who writes:

Unless he, M. Antoninus, had been born at this juncture, the affairs of the empire would have fallen into speedy ruin; for there was no respite from military operations. War raged in the east, in Illyricum, in Italy and in Gaul. Earthquakes with the destruction of cities, inundations of rivers, frequent plagues, a species of locusts ravaging the fields; in short every calamity that can be conceived to afflict and torment man scourged the human race during his administration.

It is estimated that during the dark ages the average of human life was less than twenty years. A high birth-rate was necessary to keep the race alive, but notwithstanding this, Europe was sparsely inhabited. At the time of the Norman Conquest the inhabitants of England numbered between two and two and one-half million, probably nearer the former, for they had not reached the greater number a hundred years later. Creighton says: "It would be within the mark to say that less than one-tenth of the population was urban in any distinctive sense of the term. After London, Norwich, York and Lincoln, there were probably no towns with five thousand inhabitants." Indeed, urban life, as we now know it, was quite impossible in this age of pestilence and would soon become so again were the functions of preventive medicine relaxed.

Most of the great epidemics of the middle ages were designated as *pestilentia* or *magna mortalitas*. In the most deadly visitations the bubonic plague is so accurately described that there can be no doubt about its identity, but it must not be supposed that the people enjoyed any high degree of health even in those periods when this contagion languished on account of exhaustion of susceptible victims. Ergotism, under the name of Saint Anthony's fire, was endemic in France and adjacent territories; Normandy was filled with lepers, but Christ's poor were not confined to that country. England was regarded as the special home of hunger, but abundance was a stranger to the masses in every land. The mysterious sweating sickness, apparently brought to England with Henry Tudor in 1485, developed in five distinct epidemics which were characterized by the fact that the mortality was greater among the rich than the poor. Typhus, known as *morbus pauperum*, prevailed largely in the jails, on ships and among the squalid inhabitants

of the cities. Even the discovery of America carried to Europe the scourge of syphilis, which was spread over Italy by the soldiers of Charles VIII, and within a few years reached the most distant parts of Europe. Small-pox appeared in England in the sixteenth century, having journeyed, according to the most reliable authority, all the way from the Orient. That tuberculosis, diphtheria, dysentery and other diseases, still with us, prevailed during the middle ages is shown by the records, but they were overshadowed by the higher mortality of those mentioned above. Improved agriculture has extinguished the fire of St. Anthony except in the most benighted provinces of Russia. The great fire in London in 1666 destroyed the infected rats and relieved England of the bubonic plague, which had been endemic in that country since 1349. Something more than one hundred years later the discovery of Jenner robbed small-pox of its horrors, wherever vaccination is properly enforced. The investigations of Howard improved the sanitation of jails and workhouses, and did much to eradicate typhus.

The claim has been advanced that the infectious diseases have benefited the race by the destruction of the unfit. This idea I have combated most vigorously since our study of typhoid fever in the Army in 1898. My colleagues and I found that out of 9,481 soldiers who had previously been on the sick report and could not be regarded as possessing standard health, 648, or 6.8 per cent., contracted typhoid fever; whereas, out of 46,384 men who had no preceding illness, 7,197, or 15.3 per cent., developed typhoid fever. More than 90 per cent. of the men who developed typhoid had no preceding intestinal disorder. Under ordinary conditions the strong, busy man, especially the one whose activities demand wide excursions from his home, is more likely to become infected than the one whose sphere of action is more limited on account of infirmity. The reason for this is too obvious to need statement, and it follows that more men than women and more adults than children have typhoid fever. Moreover, the case mortality is greater among the strong, because death in the infectious diseases is often due to the rapidity with which the invading organism is broken up by the secretions of the body cells and the protein poison made effective. From this I have concluded that contagion, like war, destroys the very flower of the race. This view is sustained by the historians of the pestilences of former times.

Thucydides in his description of the plague at Athens says: "Moreover, no constitution, whether in respect of strength or weakness, was found able to cope with it; nay, it swept away all alike, even those attended to with the most careful management."

Procopius in his account of the Justinian epidemic states that youth was the most perilous season, and females less susceptible than males.

Cogan, in describing the outbreak of typhus at Oxford in 1577, writes: "The same kind of ague raged in a manner over all England, and took away very many of the strongest sort, and in their lustiest age, and for the most part, men and not women and children, culling them out here and there, even as you would choose the best sheep out of a flock."

In his account of the plague of 1665 in London, Boghurst makes the following statement: "Of all the common hackney prostitutes of Luteners-lane, dog-yard, cross-lane, Baldwins-gardens, Hatton-gardens and other places, the common criers of oranges,

oysters, fruits, etc., all the impudent drunken, drubbing bayles and fellows and many others of the *rouge route*, there is but few missing — verifying the testimony of Diemerbroech that the plague left the rotten bodies and took the sound." Like testimony comes from an account of the plague at Moscow: "Drunkards and persons of feeble temperament were less subject to attack."

Davidson observed that typhus fever was more frequent among the robust than the weak. He states that out of 429 cases the spare and unhealthy taken together made only about 17 per cent. He adds that the death-rate among the poor was one in twenty-three, while among the well-to-do it was one in four. The greater mortality of typhus among the higher classes has been noted by Barber and Cheyne and by Braken.

Hurty, nearly a century ago, wrote: "A fever which consigns thousands to the grave, consigns tens of thousands to a worse fate — to hopeless poverty, for fever spares the children and cuts off the parents, leaving the wretched offspring to fill the future ranks of prostitution, mendicancy and crime."

Creighton says:

The best illustrations of the greater severity and fatality of typhus among the well-to-do come from Ireland in times of famine, and will be found in another chapter. But it may be said here, so that this point in the natural history of typhus may not be suspected of exaggeration, that the enormously greater fatality of typhus (of course, in a smaller number of cases) among the richer classes of the Irish families, who had exposed themselves in the work of administration, of justice, or of charity, rests on the unimpeachable authority of such men as Graves, and on the concurrent evidence of many.

A surgeon in the British navy at the time of William III and Anne tells how he was led to practice bleeding in fever as follows:

I had observed on a ship of war, whose complement was near 500, in a Mediterranean voyage in the year 1694, when we lost about 90 or 100 men, mostly by fever, that those who died were commonly the young, but almost always the strongest, lustiest, handsomest persons, and that two or three escaped by such natural hemorrhages, which were five or six pounds of blood.

The middle ages were indeed dark physically, intellectually and morally. Here and there, now and then, some man of genius towered above the general low level of his contemporaries and not infrequently he paid dearly for his audacity. For some centuries the Arab, especially in Spain, stood out alone as the torch-bearer of science, and he, when driven back into the insalubrity of Northern Africa, lapsed into barbarism. Neuburger writes:

Fortunately the fate of medieval medicine was not dependent on Byzantium alone. An admirable illustration of the doctrine of conservation of energy is afforded by the fact that, with the decline of intellectual energy at home, a contemporaneous development of Greek medicine took place abroad, which, if at times misguided, was yet full of vitality, whilst the medical art of the newly arisen world of Islam reached a height unsurpassed during the middle ages.

In the greater part of Europe, ignorance and disease held full sway. In the midst of great calamities "the will-o-the-wisp of superstition is an irresistible attraction and offers the only ray of hope." Strong men, neglectful of their earthly duties, betook themselves to secluded places and lost themselves in dreams of a

heavenly paradise. Mysticism, fanaticism and superstition dominated all conditions of men. Rulers, illiterate, immoral and even incestuous, occupied palaces while the masses died of starvation. The history of the time is a record of diseased, degenerated, demented man. There can be no doubt that disease has overthrown civilizations in the past, and there is no surety that it may not do so again. The recent outbreak of the plague in Manchuria and its more recent appearance in Cuba are not without their warnings. It remains to be seen if those who control our government have the intelligence necessary to protect our country against the invasion of pestilence. The failure to provide for camp sanitation in 1898, the behavior of California officials on the finding of plague in San Francisco and the general indifference of national and state authorities toward the eradication of disease discourage the hope that intelligent patriotism is widely distributed among us. As a contemporary of Mr. Dowie and Mrs. Eddy and as a citizen of a country in which the osteopath and chiropractic flourish, I feel some embarrassment in speaking of the fanaticism and ignorance of the dark ages.

The history of medicine is that of mankind. Born in naked ignorance, bound in the swaddling-clothes of credulity and nursed on superstition, medicine has had its savants and its fakers, its triumphs and its failures, its honors and its disgraces. It has attracted and still attracts to its ranks men of the purest motives and those who are impelled by the basest desires. It can be said without fear of contradiction that medicine has done more for the growth of science than any other profession, and its best representatives in all ages have been among the leaders in the advancement of knowledge, but the average medical man conforms in intellect and character to the community in which he lives. The food of the faker is ignorance and he thrives where this commodity is most abundant. The uncontrolled fool moves to his own destruction. This is the only way in which Nature can eliminate him. A wise government protects its incompetents from medical and other fakers, but such government can exist only where wisdom predominates.

A study of epidemics shows that in the presence of wide-spread contagion mankind in the mass tends to revert to the barbaric state. This is the unvarying testimony of all authorities, medical and lay, secular and religious, who have made the records. The historian Niebuhr, in discussing the report on the plague in Athens by Thucydides says: "Almost all great epochs of moral degradation are connected with great epidemics." F. A. Gasquet, abbot president of the English Benedictines, in his history of the black death, writes: "The immediate effect on the people was a religious paralysis. Instead of turning men to God, the scourge turned them to despair, and this not only in England, but in all parts of Europe. Writers of every nation describe the same dissoluteness of manners consequent upon the epidemic." A Venetian historian notes the general dissoluteness which followed the disease and its effects in lowering the standard of probity and morals. Covino of Montpellier bears testimony to the baneful effects of the scourge on the morals of those who escaped, and concludes that such visitations exercise the most harmful influence on the general virtue of the world. William of Nangis, in his history of the plague in France in 1348, concludes with the following:

But alas! the world by this renovation is not changed for the better. For people were afterwards more avaricious and grasping, even when they possessed more of this world's goods than before. They were more covetous, vexing themselves by contradictions, quarrels, strifes and lawsuits.

Many similar references could be given, but these suffice to show that disease breeds ignorance, immorality and strife. Our inquiries into the influence of disease on civilization, however, have brought out the fact that people living in comparative health have within a few generations made beginnings, at least, some, highly creditable, in government, literature and science. The Hellenic tribes of Greece built up their wondrous civilization within a few centuries. It is true that Rome was not built in a day, but the seven hills were covered with houses and temples, the great aqueducts brought abundant supplies of pure water from the mountains and the wonderful sewers remain as evidence of sanitary skill, and all this was accomplished in a relatively short period measured in the history of the race. The world moved forward at a rapid pace with the dawn of science in the last century. It is not extravagant to prophesy that with ten centuries of freedom from disease, both inherited and acquired, the world would be regenerated and the superman be born.

It is not necessary to turn to history for examples of the degrading effects of disease on man. We see it to-day in the physical inferiority, intellectual weakness and moral irresponsibility of those peoples who are still under the domination of malaria and kindred diseases. My illustrious predecessor in this office, Dr. Gorgas, has demonstrated what scientific medicine may accomplish in these pestilential regions, and it is within reason to look forward to the time when the tropics may supply choice locations for civilized man. In like manner the valleys of the Tigris and Euphrates are being reclaimed and Babylon and Nineveh may again become seats of learning and culture. The modern sanitarian is quite competent to rebuild the home in which the cradle of civilization was rocked.

After the last epidemic of the plague in London in 1665 the death-rate, so far as it can be ascertained, fell to between 70 and 80 per 1,000. During the next century it fell as low as 50, but fluctuated greatly with recurring epidemics of typhus and small-pox. In the nineteenth, it gradually and quite constantly decreased and is now about 14. In 1879-80, the first year in which the mortality statistics of the United States possess sufficient accuracy to be of any value, the death-rate in the registered area was 19.8; in 1912 it was 13.9—a decrease of 30 per cent. During the same time the mortality from typhoid fever has decreased 50 per cent.; that from scarlet fever 89 per cent.; that from diphtheria 84 per cent.; that from tuberculosis 54 per cent. Hoffman states that had the death-rate for tuberculosis in 1901 continued there would have been 200,000 more deaths from this cause from that date to 1911 than actually did occur, or the actual saving of lives from death by tuberculosis accomplished in that decennium averaged 20,000 per year. A battle in which 20,000 are slain stirs the world at the time and fills pages of history later. Preventive medicine measures its successes by the number of lives saved, and 20,000 a year preserved from death from one disease is no small triumph. In the last century the average of human life has been increased fifteen years and this increase could be duplicated in

the next twenty years if the facts we now possess were effectively employed.

Hoffman further states that the addition to the material wealth of this country secured by the reduction of deaths from tuberculosis within ten years amounts approximately to 6,200,000 years of human life, covering its most productive period. Medicine discovered the facts which have made this great work possible and has directed their application. With evidence of this kind before them, will our lawmakers listen to those who demand recognition as practitioners of medicine without proper qualification?

The further developments of medicine, both curative and preventive, depend on scientific investigations. The public is the beneficiary and should in every way encourage medical research. By the application of discoveries already made, the burden of disease has been lightened, sickness has become less frequent and less prolonged, a greater degree of health has been secured, the efficiency of the individual and of the nation has been increased and life has been prolonged and made more enjoyable. The federal government and the states should sustain and promote scientific research. That government is the best which secures for its citizens the greatest freedom from disease, the highest degree of health and the longest life, and that people which most fully secures the enjoyment of these blessings will dominate the world.

Medicine consists of the application of scientific discovery to the prevention and cure of disease. All else which may go under the name of medicine is sham and fraud. Without advancement in the physical, chemical and biologic sciences there can be no progressive movement in medicine. Scientific knowledge is gained only by observation and experiment. Before the time of Jenner, we are told by the historian, it was unusual to meet in London one whose face was not marked by small-pox. There was a popular belief that one who had cow-pox was immune to small-pox. Jenner put this belief to a scientific test and the result was the discovery of vaccination, and this secured the abolition of this disfigurement and a marked reduction in mortality.

In 1849, a village doctor, with a crude microscope, studied the blood of animals sick with anthrax and compared it with that of healthy ones. He discovered the anthrax bacillus. This work was extended by Davaine, Pasteur, Koch and others, and from this the science of bacteriology has been developed. The particulate causes of many infectious diseases have been recognized, isolated and their effects on animals demonstrated. Many of the mysteries of contagion have been revealed and the conditions of the transmission of disease made known. The fundamental principles of preventive medicine have been developed into a science which is to-day the most potent factor in the progress of civilization.

Finlay suspected a certain mosquito to be the carrier of the virus of yellow fever. Reed and his co-workers demonstrated the truth of this theory and the work of Gorgas has freed Havana from the pestilence and the construction of the Panama Canal is an accomplished fact.

We are sorry for the Greek, whose bodily health, mental strength and moral sense were depressed by the invisible and insidious organisms of malaria, and truly his memory deserves our sympathy. He had no microscope, and how could he detect or even suspect

at the mosquitoes which had annoyed his ancestors for generations had armed their lancets with deadly poison brought from Africa? The Greek had never heard of quinin and the other cinchona alkaloids. He did not know the land whose forests were even then elaborating those products, which, centuries later, were of greater value than gold to man, and proved to be an essential help in the uplift of mankind. Laveran discovered the *Plasmodium malariae*. Ross studied its life history and the fetters of this disease, which has so long retarded the progress of man, have been broken. Mitchell and Reichart investigated the poisonous properties of snake venom. Sewall immunized animals with it. Ehrlich studied the similar bodies, pruin, ricin and diphtheria toxin, and von Behring and Roux gave the world antitoxin, the magical curative value of which has greatly reduced the mortality from this disease. The experiments of Villemin demonstrated the contagious nature of tuberculosis, long suspected and frequently denied. The diligent research of Koch resulted in the recognition and isolation of the causative agent, and since this discovery the mortality of the Great White Plague in Europe and the United States has been diminished more than half, and it is within the range of sanity to look forward to the time, when the former "Captain of the hosts of death" will be known only by the fearful records he once made in the history of man's struggle to be relieved from the heavy tribute paid to infection.

We boast of a great civilization, but this is justified only within limits. Science more nearly dominates the world than at any time in the past. Learning permeates the masses more deeply, but credulity and ignorance are widely prevalent. In this country of nearly one hundred millions, there are thousands whose greed impedes the progress of the whole, tens of thousands whose ignorance retards their own growth, and other thousands who live by crime and recreate their kind to feed on generations to come. We have our schools, colleges and universities, while our almshouses, insane asylums and penal institutions are full. In our cities we see the palatial homes of the ultra rich, the splendid temples of trade and commerce, the slums of want and poverty and the homes, both rich and squalid, of vice and crime. No nation in this condition can be given a clean bill of health. Our hill-tops are illuminated by the light of knowledge, but our valleys are covered by the clouds of ignorance. We have not emerged from the shadows of the dark ages. The historian of the future will have no difficulty in convincing his readers that those who lived at the beginning of the twentieth century were but slightly removed from barbarism, as he will tell that the school, saloon and house of prostitution flourished in close proximity; that the capitalist worked his employees under conditions which precluded soundness of body; that the labor union man dynamited buildings; that whilst we sent missionaries to convert the Moslem and the Buddhist ten thousand murders were committed annually in our midst, and that a large percentage of our mortality was due to preventable disease.

Evidently there is much to be done before we pass out from the shadows of ignorance into the full light of knowledge. In this great work for the betterment of the race the medical profession has important duties to perform. I do not mean to imply that the uplift of mankind devolves wholly on the medical man. The

burdens are too many and too diversified, the ascent too steep and the pathways too rough for one profession to hope to reach unaided the high plateau we seek. Moreover, other callings have no right, and should have no desire, to shirk the moral responsibilities, which rest alike on all. But in past ages, medical men have been the chief torch-bearers of science, the only light in which man can safely walk, and we must keep and transmit to our successors this trust and honor. I know of no scientific discovery, from the ignition of wood by friction to the demonstration of the causes of infection and the restriction of disease, which has not sooner or later assisted in the betterment of the race. It may be added that nothing else has so aided man in his slow and halting progress from the pestilential marshes of ignorance to the open uplands of intelligence.

In so great a work as the eradication of preventable disease, all intelligent people must cooperate. The law must support by proper enactments, and these must be enforced with justice and intelligence; it must recognize that the right to enjoy health is quite as sacred as that to possess property; that to poison men in factories and mines, to pollute drinking water-supplies, to adulterate foods and to drug with nostrums is manslaughter. Religion must teach the sanctity of the body as well as that of the soul, that ignorance is sin and knowledge virtue, that parenthood is the holiest function performed by man and that to transmit disease is an unpardonable sin. The teacher must know hygiene as well as mathematics. The capitalist must recognize that improvement in health and growth in intelligence increase the efficiency of labor. There never has been a time when scientific medicine has had so many and such efficient and appreciative helpers as it has to-day. Our sanitary laws are for the most part good, but their administration is weak, on account of ignorance. The pulpits of the land are open, for the most part, to the sanitarian. The respectable newspapers are most effective in the crusade against quackery and disease. The philanthropist has learned that the advancement of science confers the greatest and most lasting benefits on man.

There is a moral obligation to be intelligent. Ignorance is a vice and when it results in injury to any one it becomes a crime, a moral, if not a statutory one. To infect another with disease, either directly or indirectly, as a result of ignorance, is an immoral act. The purpose of government is to protect its citizens, and a government which fails to shelter its citizens against infection is neither intelligent nor moral. To transmit disease of body or mind to offspring is an unpardonable sin. In a reasonable sense it is worse than murder, because it projects suffering into the future indefinitely.

That medicine has become a fundamental social service must be evident. To return one incapacitated by illness or injury to the condition of self-support benefits not only the individual, but the community, inasmuch as it increases its productive capacity. Infirmary is a direct burden on the individual and scarcely less direct on the community. Weakness in any part diminishes the strength of the whole. It is a fully established principle in social economy that widespread intelligence and growth in knowledge are beneficial to the state.

It was in full recognition of this that the framers of the Ordinance of 1787 wrote into that immortal

document: "Religion, morality and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged." The Territory of the Northwest, the government of which was provided in this ordinance, was at that time a vast waste of forest and prairie, furnishing a scant and precarious subsistence for savage tribes and attracting to its borders a few of the most hardy sons of civilization. The knowledge for whose growth and diffusion the wise provision was made, has drained the malarial marshes, converted wild prairie and tangled wood into fruitful orchards and fertile fields, dotted the whole area with neat villages, reared great cities, linked all parts with steam and electric roads, and provided comfortable homes and abundant food for millions. The men who wrote the Ordinance of 1787 left a great inheritance which is temporarily in our possession. Let us write into this great document: "Every ill which can be relieved shall be removed, and every preventable disease shall be prevented." The wisdom of our fathers has secured for us a greater measure of health and a longer term of life; let us do as well for those who are to possess this fair land in the next generation. Let us live not only for ourselves and the present, but for the greater and more intelligent life of the future.

Not myself, but the truth that in life I have spoken
Not myself, but the seed that in life I have sown
Shall pass into ages—all about me forgotten,
Save the truth I have spoken, the things I have done.

All things are relative and health is no exception. With a greater degree of health among all, religion will become more effective for good, morality will have a deeper significance and a wider application and knowledge will multiply and distribute its blessings more widely.

In the further improvement of the physical, mental and moral conditions of the race, medicine should continue to be a leader. There is no other calling so essential to this movement, and in order to more thoroughly fit itself for this important task the profession should first of all look to its own betterment. The medical man should possess intelligence of high order, manifest industry without stint and show the highest integrity in all he does. That it is the aim of this Association to attract to its colors men possessing these qualifications and to deny admission to others is shown by the advance in the standard of medical education, the enforcement of medical registration laws and the denunciation of every form of medical charlatanism. In all these directions the profession has the support of the more intelligent men in other callings. The improvement in medical training secured within recent years in this country is without a parallel in the history of education. The requirements for admission to the medical schools have been rapidly advanced and standardized; the number of medical schools has been reduced from 166 to 104 by obliteration and combination, much to the improvement of all, and a far better class of matriculates has been secured. The courses of instruction have been lengthened and made more scientific. Each good medical school is doing more or less of research which is not confined to laboratory investigators, but is fast finding its way into hospitals. Indeed, some of our clinical men are now making most valuable contributions. Every medical man should have much of the spirit of research.

It is the pabulum on which medicine feeds and without it the profession atrophies and starves. It is the glory and strength of the profession that it is not bound by dogma and pays no heed to ipse dixits. I have no sympathy with the idea that medical research should be largely relegated to special non-teaching institutions. These have their function and we rejoice in their foundation and support and hope that they may multiply, but the man who is devoid of the spirit of scientific investigation has no place in medicine as student, practitioner or teacher, and the most elaborate medical training without opportunity for scientific observation is barren. Besides, opportunities for medical discovery should be widely distributed. Science makes no provision for an aristocracy. There can be no papal bulls issued in the domain of medicine. The workers must be many, all must be free to pursue knowledge in their own way, and all must be compelled to prove their claims, for "life is short, art is long, opportunity is fleeting, experiment fallacious and judgment difficult."

In this work of self-improvement the profession has had the aid of the more intelligent law makers and administrators. In carrying out these progressive changes there has been much sacrifice of money and personal pride by many members of the profession. Large schools have willingly submitted to marked reduction in the numbers of their students and consequently in financial support. A medical education costs more in time and money than that demanded by any other profession, and the emoluments of the average practitioner have decreased as preventive medicine has become more effective. No other profession pays so heavily the great cost of eradicating the infectious diseases, but this is the function of medicine and no sacrifice should be regarded as too great. While intelligent medical men have been leading the crusade against greed, ignorance and disease, our legislative halls have been crowded with the representatives of sects, cults and charlatans demanding legal recognition. If I mistake not, herculean efforts will be made in the near future to lower the standards demanded of the medical practitioner. These endeavors have been promised aid from those who have heavy financial backing, but if we are worthy of the trust which we bear, we will not yield. We must appeal to the good sense of the people for whose welfare we labor. We must show what scientific medicine has done for the public good and point out the greater things it may do with increased opportunity. It must be admitted that in the crusade for the restriction of tuberculosis many physicians have manifested but little interest. This is shown by their slowness to employ methods of early diagnosis and consequently by their failure to recognize the disease in its curable stage, also by their unwillingness to comply with the laws of notification. It is an undeniable fact that there are many medical men who know less about hygienic measures than the more intelligent of the laity. With advancing knowledge among the masses these professional fossils will be correctly labeled and properly shelved in the local museums of antiquities.

I believe that medicine is now attracting excellent young men. It should appeal to this class. It does not point the way to great financial reward, but it offers a service unsurpassed by any other calling. The historian tells us: "For the Roman patriot the only worthy stage was the forum or the battlefield; every

other pursuit was left in the hands of slaves and could not free itself from the taint of servitude." Modern medicine offers a field in which the advancement of knowledge, the improvement of health conditions and the saving of lives are the measures of success.

Preventive medicine, still in its youth, has accomplished great things. As I have stated, within the past thirty years in this country the mortality from tuberculosis has been reduced more than half and with scarlet fever and diphtheria the results have been more striking. Within the past ten years the average life has been increased four years. Great epidemics which once devastated continents are no longer known in the more intelligent parts of the world. In fact, it may be said that the death-rate is now an excellent measure of intelligence. In 1911 the death-rate in London was 15 per one thousand, while that of Moscow was 27.3. Preventive medicine is the keystone of the triumphal arch of modern civilization, and its displacement would precipitate mankind into relative barbarism. Should the health administrators of any great commercial center fail, for even a few months, to exercise the function of restricting disease, the history of the epidemics of the middle ages might be repeated. Great things have been done, but greater tasks lie before us, and their accomplishment depends on the scientific wisdom of our profession and the intelligence of the people. Without the harmonious adjustment of these forces the greatest efficiency cannot be secured. While the mortality from tuberculosis has been reduced half in the past thirty years, we must not assume that the total eradication of this disease will be accomplished in the same number of years. Only the more progressive members of the profession have taken the initiative, and only the more intelligent members of the community have responded. Intelligence and the sense of moral responsibility must grow as the work proceeds. It remains for all who have the welfare of the race at heart to plan wisely and carry forward courageously the campaign against greed, ignorance and disease.

The sanitarians of this country seem to be in harmony in regard to the general procedures to be followed. These are embodied in bills recently introduced in the legislative assemblies of a number of states. In New York an excellent bill was passed and its operation is now being inaugurated under the directorship of Dr. Biggs, whose long and effective service in the city of New York demonstrates the wisdom of his selection. I regard it as highly fortunate that the operation of this new and important law is to be directed by one so well qualified.

My own ideas are embodied in the "Amberson bill" of the Michigan legislature of 1913. Among the provisions of this bill the following may be mentioned: The state is to be divided into health districts. In each such district a health commissioner is to be appointed for a term of four years. The fitness of the commissioner is to be determined by the State Board of Health after examination. The salary of the commissioner varies with the population of the district, but in most instances would run from three to six thousand dollars. There is to be an additional appropriation for laboratory expenses and for carrying out the purposes of the act.

It shall be the duty of the health commissioners to be vigilant in the work of disease prevention and the conservation of the public health, and to enforce all health laws of the

state and health ordinances of their respective localities, together with all rules and orders of the state board of health; to collect and report to the state board of health morbidity statistics and to make a monthly report of the work done by them in narrative form to the state board of health and in such tabular form as may be prescribed by the state board of health. Copies of such reports shall be retained by each commissioner in permanent record books. They shall make such sanitary inspections and surveys of the district as may be required from time to time by the state board of health or by the city for which appointed, or by resolution of the board of supervisors of each county. They are hereby authorized and invested with the power to enter on and inspect private property at proper times in regard to the possible presence, sources or cause of disease, to establish quarantine and in connection therewith to order whatever is reasonable and necessary for the prevention and suppression of diseases; to close schools, churches, theaters, or any place of public assemblage, to forbid public gatherings in order to prevent or stay epidemics; to collect statistics concerning insanity, feeble-mindedness, tuberculosis and other infectious diseases; to inspect slaughter-houses and markets of all kinds where food is sold. They shall inspect at least once each six months and make a sanitary survey of the publicly owned buildings and institutions within their respective jurisdiction and shall keep a report thereon as part of the records of their office. They may inspect any school buildings or grounds within their jurisdiction as to sanitary conditions and shall have power to close any school when the sanitary conditions are such as to endanger or imperil the health or life of the pupils attending the same. They shall include all such sanitary inspections in their monthly reports to the state board of health. They shall at all times be subject to the orders of the state board of health in the execution of the health laws of this state and may perform any duty where required by the state board of health, or any member of said board acting for the entire board, which might be performed by said board of health or an officer thereof.

Further duties of the health commissioners are defined in the bill, and I have given only enough to show the purpose and scope of its provisions.

The successful operation of such a law would require the highest class of sanitarians. They must possess intelligence, industry and integrity. They must be devoted to their work, remembering that the Father of Medicine said: "Where love of mankind is, there also is love of art." With these qualifications I believe that such a law might be operated with great benefit to the people. Is the medical profession of this country prepared to do this work? I believe that many of the recent graduates of our best schools are fitted for this highly important function. They may need special training in the courses in public health now being inaugurated. If I mistake not, our profession will soon have wide opportunity to demonstrate its usefulness in this direction. If the public makes this demand, preventive medicine will have the opportunity to do a patriotic service which has never come to any profession at any time. With proper facilities and helpers, such commissioners might within a few years become acquainted with the conditions surrounding every permanent resident within his jurisdiction, and with properly qualified administrators of the law much might be done to abate disease, improve health, increase efficiency, eradicate the venereal diseases, stamp out vagrancy, pauperism, prostitution, alcoholism and crime. Crime is a disease due to heredity or environment, one or both. We now permit it to breed and multiply in our midst. Its causes must be determined and eliminated and its habitations must be dis-

covered, disinfected or destroyed. We have heard too much about the rights of the individual; let us know more about his duties. Too much stress has been laid on the sacredness of private property and too little on the duty of all to contribute to the welfare of the whole. Preventive medicine has demonstrated in a practical way the force of the biblical statements that no man liveth to himself alone, and that every man is his brother's keeper. Preventive medicine is the most potent factor in the socialistic movement of the day with which every good man feels himself more or less in sympathy; besides it is at the same time the most powerful weapon against the anarchy with which some would threaten us.

If preventive medicine is to bestow on man its richest service, the time must come when every citizen will submit himself to a thorough medical examination once a year or oftener. The benefits which would result from such a service are so evident to medical men that detail is not desirable. When recognized in their early stages most of the diseases which now prevail are amenable to treatment. The early recognition of tuberculosis, cancer, diabetes, nephritis, heart disease, etc., with the elimination of the more acute infectious diseases would add something like fifteen years to the average life, besides saving much in invalidism and suffering. The ultimate goal of science is the domination of the forces of nature and their utilization in promoting the welfare of mankind. Science must discover the facts and medicine must make the application for either cure or prevention.

The local health authorities for which the bills referred to make provision must be supervised by State Boards of Health or State Commissioners. Many of our State Boards of Health are already doing much, but this is little compared with what they might do. They should be absolutely free from party dictation, should be made up of men both qualified and interested and their executive officers should be distinguished for their knowledge of sanitation. Their appropriations should be greatly increased, for health is a purchasable commodity. Pure water, pure food and even pure air cost money, but they lead to health, which is worth more than gold to both the individual and the state.

Our present national health service is doing most excellent work. It demonstrated its strength in eradicating the plague in California and the suppression of yellow fever in New Orleans. It has charge of the administration of the laws affecting the admission of immigrants, so far as their health is concerned, and it performs this service well. The Public Health Service is now investigating the pollution of certain rivers, studying trachoma in the mountains of Kentucky, pellagra in South Carolina and the spread of typhoid fever in certain districts. The Hygienic Laboratory at Washington has made valuable researches in addition to the routine work of the examinations of vaccines and serums. This bureau should be developed into a department with a member in the cabinet. The study of contagion in our midst is quite as important as anything within the range of the activities of the Departments of the Interior, Agriculture and Commerce and Labor. Our health relations with other nations concern us quite as much as our trade relations. The one thing above all others against which our doors should be shut is disease, whether it be of plant, animal or man, whether it be of body, mind or morals. The highest function of the state is

not to make millionaires out of a few importers or to find profitable investments for its surplus wealth in foreign lands, but to advance to the highest degree the health, intelligence and morality of its citizens.

In each state there should be a hygienic laboratory equipped with able men supplied with facilities for the study of sanitary conditions and for the prosecution of scientific research. The Hygienic Laboratory at Washington should be developed into a great institution for research which would improve the conditions of life. The greatest asset of any nation is the health of its citizens and the people who secure this in the highest degree will dominate the earth for the dominion of the superman, when he comes, will extend from pole to pole, not by force of arms, but by example and education.

Younger members of the profession: One who is soon to be mustered out of service, on account of disability and old age, salutes you. An old soldier who has served in the ranks nearly forty years, steps from his decimated regiment, lifts his cap and cheers you, as you pass by in your new dress and armed with weapons of greater efficiency than was known when he enlisted. The cause is the liberation of the race from the bonds of superstition and ignorance and it is a glorious one. The contest began before the genus *homo sapiens* came into existence. Countless generations have served their time, some well, some ill, and have passed into oblivion, but their partial victories have made you stronger and placed on you a greater responsibility. Your intelligence is greater, your judgment is sounder and your effectiveness has been increased. Where the past has failed or only partially succeeded, your success will be greater. But the battlements of ignorance still bristle with heavy-fire guns. Only a few of the outposts of the enemy have been captured. It is for you to do and then like all your predecessors to die. You stand to-day within the firing-line. Go on courageously and when eons of the future have become the past, the superman, born out of the struggles of his predecessors, will demolish the last citadel of ignorance and vice, and firmly plant on the highest peak of the mountain of knowledge the flag of human progress and when the silken banner shall unfold, there shall appear on it this legend:

Pro gloria omnium nationum et hominum honore.

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AEROPHAGY *

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DETROIT

Belching of gas is the most common symptom accompanying gastric disease. We find it present in nearly every organic and functional affection of the digestive tract. The several gastric neuroses always have eructations as their one prominent symptom. These eructated gases were formerly supposed to be the result of fermentation or putrefaction; we now know that in the majority of instances the eructations consist in the main of swallowed air. This is easily understood when we consider what really takes place.

When patients are suffering from a disease of the stomach, the proteins or carbohydrates are apt to decompose, producing some little gas. The pressure

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induced by this gas is readily relieved by belching. The patient remembers the great relief thus produced, and when he has a similar attack of gastric weight, pressure, distention or pain, his first thought is to get relief by raising the gas from the stomach. An effort is required, and in the effort the patient unconsciously swallows air, allowing it to come back quickly after each expulsive contraction of the stomach, and thus he becomes an aerophagic. The spasmodic swallowing of air, followed by eructations, has been termed "aerophagy," and it accompanies more or less every disease of the alimentary tract. It is seldom found by itself, although there are cases of primary aerophagy.

Neurotic persons are known to have a habit of eating or swallowing air (aerophagy). At one time it was supposed to be pathognomonic of a neurosis, and when a case was encountered the physician would look for other evidence of hysteria or neurasthenia. Aerophagy is present in many neuroses and it is also found as an accompaniment in several gastro-intestinal diseases.

Physiologically, a certain quantity of air is carried into the stomach in the act of eating and drinking and when swallowing saliva. It is only when the quantity becomes excessive that the process assumes pathologic significance. Not infrequently, when large quantities of air are swallowed, a cardiospasm occurs, inducing many disagreeable symptoms, because the air cannot return through the cardia.

The persistent swallowing of gum-chewers leads to aerophagy. This might also occur in patients who are continually swallowing mucus from a retropharyngeal catarrh. In the majority of cases, however, the patient experiences discomfort after meals which he attributes to gas, and in his effort to obtain relief forces air directly into the esophagus so that he may belch. These patients unconsciously become air-swallowers.

Notwithstanding the fact that aerophagy is common, careful study and observation are required for diagnosis. Most patients ridicule the idea that they are air-swallowers, and the physician who would accuse them of it before he is quite sure he can prove it to them would show lack of tact. Many patients, however, who complain of pressure after meals with eructations of gas, are neurotics.

In every case of persistent belching, the clinician's attention must be called to the possibility of aerophagy. This is especially true if the patient can belch seven or eight times in succession, and particularly if he can do this when he pleases.

Such patients always wear their clothing loose, to give the abdominal wall sufficient room. The eructations may begin at any moment and continue for several minutes or hours. At first the belching is slow and practically noiseless, but it soon becomes more rapid and loud, so that not only the patient but also the whole household is disturbed. By close observation the physician will notice that the patient collects a little saliva in his mouth, slightly flexes the head on the thorax, closes his mouth and swallows. By this procedure the air is forced into the esophagus, producing a sound which leads the patient to believe that the act is an eructation, while just the opposite is the case. On opening the mouth the air is noisily belched, and then swallowing and eructation follow closely on each other almost continuously. At times it

requires eight or ten swallowings of air to induce one good eructation.

Attacks of aerophagy usually occur after meals, and may continue from fifteen to thirty minutes. The thyroid cartilage, it may be observed, rises and falls alternately as in deglutition. Any excitement or shock may induce an attack.

In cases of aerophagy, fermentation or putrefaction of the gastric contents need not be considered. When the gas has been analyzed it has been found to consist simply of swallowed air that has been thrown off. This finding is confirmed by examination of the gastric contents removed by the stomach-tube.

The entering air does not always pass to the stomach; not infrequently it remains in the esophagus and is from there ejected through the mouth. Occasionally a large quantity of thin, glairy mucus is expelled at the same time.

Sometimes the swallowed air is retained and the stomach assumes the shape of a balloon. Grave consequences may result from this accumulation. The persistent distention may so interfere with the circulation of the blood as to inhibit gastric secretion, and a paretic condition may ensue. Pain soon appears, all the symptoms become worse, and the whole process results in an acute dilatation of the stomach. This condition may be serious when it occurs following major surgical operations, particularly on the stomach. This is comparatively rare, because patients are usually able to belch the air.

Aerophagic patients are often treated for various forms of indigestion without benefit, because the cause of the difficulty is overlooked. They usually regurgitate part of their food and suffer from malnutrition. Their mental condition is disturbed and their nervous manifestations are manifold.

At times the air passes through the pylorus, causing a distention of the intestine. It passes quickly through the small intestine and remains in the colon. Part of it is absorbed or, if not too abundant, all of it will be taken up and eliminated through the lungs.

During an acute aerophagic attack, patients may suffer from dyspnea, tachycardia and cyanosis. These are instantly relieved by introducing the stomach-tube, which allows the air to escape. The distention of the stomach with air pushes the apex of the heart upward and to the left. This pressure on the ventricles rotates the heart on its axis and distorts the great vessels at its base. The distended stomach or esophagus may disturb the heart in a reflex manner because the common innervation of these organs is through the vagi. Stimulation of the vagi causes a slowing of the heart. These factors often produce cardiac arrhythmias, which become apparent to the patient by periods of different pulse-rate and irregularities, causing them considerable worry and anxiety.

Aerophagy always intensifies preexisting disease conditions. As a complication of gastric ulcer it may cause hemorrhage. It is one of the main factors in postoperative dilatation of the stomach. The clinician must always make sure that patients suffering from gastro-intestinal diseases with gaseous eructations are not aerophagics.

It is of the utmost importance that an accurate diagnosis be made, because the affection is easily remedied. The Roentgen fluoroscope will always show the rise and fall of the thyroid cartilage. This is helpful when one is not sure of his diagnosis.

The examination of the stomach contents in all aerophagics shows the presence of bile. A positive reaction for bile, with eructations, is a pathognomonic sign. The eructation of the air acts as a siphon and frequently draws the bile from the duodenum backward into the stomach. The finding of bile in the gastric contents is decisive. I usually depend on this reaction.

In the treatment of aerophagy, it is necessary to impress the patient with the way he is distending his stomach with air. This can easily be done by telling him to belch and, while this is going on, asking him to keep his mouth open. While the mouth is open he cannot swallow air and the eructations quickly cease. At this stage it is wise to explain to the patient that he has been swallowing air instead of emptying the stomach of gas. In order to keep the mouth open a cork may be placed between the teeth and held there. In this way the air is prevented from entering the esophagus. Then again, in order to keep the thyroid cartilage from rising, one may tie a ribbon moderately tight around the neck; this not only is a direct restraint but also serves as a reminder to the patient.

Hyperalimentation is known to have a salutary effect on weakened patients. Methodic treatment by sounds introduced into the esophagus is sometimes followed by beneficial results. The underlying nervous condition will in many cases yield to electricity, change of climate or hydrotherapeutics. The medicinal agents indicated in this condition consist of the bromides, belladonna, chloroform-water and preparations of valerian.

In cases of aerophagy accompanied by severe pain, opium or some of its preparations are indicated. Suppositories of opium and belladonna serve a good purpose. At the same time the disease which aerophagy accompanies must receive careful attention. The cases of chronic gastritis receive lavage and the ulcer cases their treatments. The neuroses require the most careful consideration. Alkalies and acids are necessary as the functional examination of the gastric contents may indicate. When the air remains in the stomach and cannot be expelled, the stomach-tube should always be employed. As a rule, the psychic treatment brings about complete recovery from the aerophagy itself.

CONCLUSIONS

1. Continued belching of gas for a considerable length of time indicates aerophagy.
2. All eructated gas consists in the main of atmospheric air swallowed in attempting to belch.
3. Aerophagy accompanies many neuroses and is a frequent symptom of functional and organic disease of the gastro-intestinal tract.
4. The presence of bile in the stomach content with eructations is suggestive of aerophagy.

Kresge Building.

Fatigue.—Work performed by any of the body-cells produces waste-products and other changes in the cells. Up to a certain limit, work, with the resulting changes in the cells, is beneficial and improves the physical condition of the cells, but when the work is excessive, too prolonged, or too fast, waste products begin to accumulate, the cells become exhausted, the proper changes fail, and if the cells are not properly rested, damage results. If the work is continued without proper rest early breaking down and failure of the individual to perform his task are the final results.—B. S. Warren in *Pub. Health Rep.*

MEDICAL VERSUS SURGICAL TREATMENT OF PYLORIC STENOSIS IN INFANCY*

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Nearly all that we know of pyloric stenosis in infancy has been contributed since 1897. It seems surprising, in view of the definiteness of the clinical picture and the frequency of this condition as shown by the number of reported cases since that time, that it was so long unrecognized; even now it can hardly be called common, although almost every one in active public or private practice among infants is likely to meet one or more cases each year.

My own experience with pyloric stenosis of infancy includes fifty-seven cases, of which number eighteen were seen in private practice and the remaining thirty-nine were inmates of the Babies' Hospital. The steadily increasing number of cases seen would seem to indicate that we now often recognize this condition where formerly it was overlooked.

Pyloric stenosis in infancy presents many interesting and curious features. In the first place, it occurs nearly always in those who are breast-fed. In one of my cases the previous feeding is not given; of the remaining 56, 52 were breast-fed; of these, 40 had nothing else, while 12 had some breast-feeding and some bottle-feeding; only 4 had nothing but the bottle. Bad feeding can hardly be invoked as a cause of this condition—a point of considerable importance in distinguishing it from gastric indigestion, which its symptoms most frequently resemble.

The predominance of the male sex has been noted by all writers. Of 55 cases of my own in which the sex was noted, there were 49 males and but 6 females. No reasonable explanation for this difference has yet been suggested.

SYMPTOMS

The condition is frequently spoken of as congenital stenosis of the pylorus; yet it is very exceptional for the symptoms to be seen soon after birth or even in the first week. I have seen several infants with persistent, forcible vomiting beginning on the first day of life and with other symptoms which were suggestive of pyloric stenosis; but not one of them proved to be examples of this condition. Such an onset speaks strongly against this diagnosis. In four-fifths of my cases the first definite symptoms began in the third, fourth or fifth week and in only two during the first week of life.

In the great majority of the patients the symptoms begin abruptly. The mother can frequently give not only the day, but also the hour when the symptoms began. An abrupt onset of forcible vomiting with no history of previous vomiting was present in 30 of 57, or over half the cases. In 9 of the remainder there was an abrupt onset of forcible vomiting, though occasional vomiting of the ordinary type had been present for some time before.

This abrupt development of symptoms, coming in most patients some weeks after birth, admits of only one explanation: that in the production of symptoms at least, pyloric spasm plays a most important part.

* Read before the New York Academy of Medicine, April 16, 1914.

Again, the complete recovery, or to speak more exactly, the disappearance of all symptoms, which occurs in a certain proportion of instances in the course of a few weeks, points in the same direction. On the other hand, when the stomach has been examined at necropsy, there has, I think, been invariably found marked hypertrophy of the pylorus, principally involving the circular muscular layer, whose fibers are increased not only in size but also in number. It is to this hypertrophy, say the pathologists, that the stenosis is chiefly due. The symptoms according to this view have an organic rather than a functional basis.

It is difficult to reconcile satisfactorily the clinical symptoms and the pathologic findings with either one of these views alone, although one or the other view has been adopted by different writers in support of a method of treatment. Some have sought to escape the difficulties by dividing cases into two groups, hypertrophic and purely spasmodic cases. A study of the cases reported by different writers shows that they do not at all agree with regard to the symptoms on which a case is placed in one or the other category. Some would make the presence or absence of a palpable tumor the differential point, while others contend that a tumor is usually found when the patient is carefully examined by an experienced observer in cases which others would class as spasmodic. Nor can the fact of recovery without operation be considered diagnostic; we know that patients having identical symptoms with those that have shown hypertrophy at necropsy or operation do recover and, so far as one can judge by symptoms, they recover completely.

On the other hand, if spasm were in a large proportion of the cases the only factor, why should recovery be, as we find it, a matter of weeks, often of months? A temporary pyloric spasm undoubtedly occurs in many conditions, as in the projectile vomiting of cerebral disease, *but definite, persistent spasm of the pylorus without hypertrophy* is, I believe, yet to be proved. At necropsy, hypertrophy has been in my experience invariably present. It was found in every one of twenty-six necropsies on this condition made at the Babies' Hospital, the description in the record being almost always as follows: A firm, hard, cartilaginous tumor was present. It would be well if the term "pylorospasm," as defining a group of these cases, were dropped from our nomenclature. Its use as indicating the sole pathologic condition present has led to much confusion of thought on the subject, especially regarding the indications for operation. It is, I believe, responsible for neglect of operation when operation might have saved life.

There has been too much discussion of terms in this disease. No two men will agree in the classification of cases seen at the bedside, for no sharp division into spasmodic and hypertrophic types is possible. The real question is whether or not there exists an obstruction sufficient to endanger the child's life, and how it may best be relieved.

A better division is into mild and severe cases. The two elements, the spasmodic and the hypertrophic, are probably present in every case, sometimes one and sometimes the other predominating. It is my own view that the essential difference between the groups of cases is one of degree rather than a difference in kind, but the same elements are present in the two.

Many points in the pathology of pyloric stenosis are still very obscure, and we find it hard to believe that

the spasm is the cause of the hypertrophy, and difficult to explain why it is, if the essential condition is hypertrophy, that symptoms are so infrequently seen during the first ten days or two weeks of life.

When we come to the clinical aspects of the disease, however, we find no such divergence of views. The clinical picture is distinct and with careful observation easily recognized in the great majority of cases. In a typical case an infant, usually breast-fed, who has previously shown few or no signs of disturbance of digestion, begins to vomit persistently and forcibly. These symptoms have their most frequent beginning in the third or fourth week of life, and in most cases the onset is abrupt and without assignable cause. To the forcible vomiting are added marked constipation, steady loss in weight and all the symptoms belonging to failing nutrition. Careful examination reveals definite gastric peristaltic waves and in most cases a palpable tumor in the pyloric region about the size of a peanut. In a certain number of cases the vomiting becomes less and less frequent, all the symptoms gradually abate and the child very slowly regains its lost weight. This may require only a few weeks, but more often it is several months. At other times the vomiting is persistent and uncontrollable, the loss of weight is progressive, and unless surgical relief is given, the child dies of failing nutrition.

DIAGNOSIS

Since the question of exact diagnosis and early diagnosis is so important, the essential diagnostic symptoms may be advantageously considered in greater detail. The most constant and usually the earliest symptom is vomiting. So characteristic is it in these cases, as to the time of its occurrence, the manner in which it takes place and the matter vomited, that one can often make his diagnosis from this symptom alone. It differs markedly from the usual vomiting seen in young babies, in that it occurs soon after nursing, often while the child is still at the breast. It is forcible and projectile; the food is fairly shot out of the mouth, sometimes for a distance of 4 or 5 feet. It is in large amounts, usually the entire contents of the stomach, and generally it is repeated after each feeding. If the vomiting is infrequent and does not occur after every feeding, the amount ejected at one time is often much larger than the amount taken at the last feeding. The frequent regurgitation of small amounts of food is seldom seen. The vomiting is unaccompanied by fever or pain, and in the beginning and usually for some time there is no impairment of appetite. Immediately after emptying the stomach the child may seem so hungry as to take a full feeding. Finally, the vomiting is persistent. Nearly all the changes of food have a surprising effect in temporarily lessening the vomiting, but in a day or two it returns and is as severe as ever.

The waves of gastric peristalsis have been so often described that a repetition is hardly necessary. Intestinal peristalsis may be mistaken for them, though very rarely indeed. In the great majority of cases they are typical, unmistakable and readily made out, though in some they may not be observed unless the patient can be frequently seen and closely watched under the most favorable conditions, the most important one being that observations are made immediately after filling the stomach. Sometimes in hospital patients, though both the doctors and nurses were on the watch for

waves, it has been a day or even two days before they were observed. I believe visible gastric peristalsis to be the most important symptom for diagnosis and I should hardly be willing to make a diagnosis without it.

While a palpable tumor cannot be considered essential to the diagnosis, it will usually be found by an experienced and careful observer under favorable conditions. But not always: I have seen men, experienced in these cases, unable to feel a tumor when one was afterward shown to be present, and then again, on the other hand, I have known men to be quite sure that they felt a tumor when none could be demonstrated at necropsy or operation. The tumor is more distinct in the most severe cases and where the obstruction is complete. It may persist for weeks or even months in cases in which recovery occurs without operation. In two of my patients who recovered, it was noted as late as the sixth month of the child's life; the patients were seen at 4½ and 5 years, respectively, and both were well. The tumor is usually more evident just before or during the act of vomiting, and it may not be easily felt at other times. It usually hardens during active peristalsis and may be difficult to feel at other times. It may then rise and meet the hand lightly pressed on the abdomen, somewhat as the spleen may do when forced down by full inspiration. It may be displaced from its usual position and so missed. In my opinion, too much has been made of this symptom not only in classifying these cases, but also in deciding the treatment to be followed. The presence of a tumor, because so frequent, is an important symptom in diagnosis, but the decision as to operation should not rest on finding or not finding it, but rather on how much obstruction is present. While the tumor is naturally more prominent when much hypertrophy exists, in the absence of a palpable tumor we are not justified in deciding that only spasm exists, for operation in these cases has often disclosed a typical tumor.

One of the most important means of determining not only the fact of pyloric obstruction, but also its degree, is by measuring the amount of gastric retention. The child is fed a measured quantity and the stomach is emptied by aspiration three hours after this. The ordinary apparatus used for stomach washing will hardly answer the purpose. The little apparatus suggested by Hess for aspirating the duodenum is much better. A food not coagulating in the stomach in large masses must be given, that is, boiled milk diluted at least twice with barley water or condensed milk, or simply by a barley gruel. If, for example, three hours after feeding, the stomach is found to contain nearly as much as the quantity taken or more than this, or if, after no food has been given all night, the following morning 4 or 5 ounces can be removed, as in a case I saw recently, one may be sure that obstruction exists. A determination of the amount of retention is of especial value in the rather rare cases in which vomiting occurs only infrequently. Aspiration is also useful during the progress of the case medically treated to determine just how well a given food is being taken care of.

As a means of deciding the fact of obstruction and its degree, aspiration of the stomach is in my opinion much more valuable than the Roentgen ray, besides being much simpler and always ready at hand. The Roentgen findings may even be quite misleading. Bismuth may pass out of the stomach, as may food,

through an exceedingly narrow opening, and yet the symptoms may be of an aggravated type. It can show at most only the rate of discharge from the stomach, and aspiration can show that quite as well and much easier.

Constipation, as uniformly present, is mechanical and depends only on the absence of food from the intestine. In the severe cases nothing comes through, and the stools resemble meconium. In most cases something does pass and we have simply very small stools which may be fecal. More than once I have been amazed to find at necropsy a pylorus which admitted only a fine probe and yet during life fairly good-sized fecal stools had been present.

Other symptoms are always present in this condition though they are not diagnostic; there is progressive wasting which often amounts to 1 or 2 ounces a day. Its rapidity depends on the completeness of the obstruction. The appetite is often unimpaired until the prostration becomes considerable. Muscular weakness and anemia are proportionate to the loss in weight. There is usually a marked reduction in the quantity of urine, and where there is a complete obstruction there may be anuria for twenty-four hours or more. Under such circumstances I have seen a diagnosis of a renal condition made, the vomiting being regarded as a symptom of uremia.

THE QUESTION OF TREATMENT

Given a fairly definite case of pyloric stenosis in an infant a few weeks old, what treatment shall be advised? At present the profession is by no means in agreement regarding this point. Even among those who have had a large experience with pyloric stenosis a wide divergence of view exists. Physicians have reported quite large series of cases treated by medical measures alone with so low a mortality as to lead to the inference that nearly all these patients recover if properly treated, without resort to surgery. Thus, Robert Hutchison in England reports, in twenty cases treated in private practice, eighteen recoveries. German writers, Heubner, Bendix, Starck and others, also give about the same proportion of recoveries in series of cases treated without operation.

On the other hand, quite an opposite view is taken by surgeons. They consider the disease a surgical one and urge that the patient be turned over to them for operation as soon as the diagnosis is made. They argue that medical treatment in a very large number, probably in most instances, is only a waste of time and that the life of the patient is often jeopardized because the surgeon does not see the case until the general condition has become very grave, while with earlier operation nearly all could be saved. In a recent publication Richter of Chicago reports twenty-two operations with but four deaths.

Pyloric stenosis in infancy is accredited with a general mortality of about 50 per cent. if we accept the reports of those who have written most widely on the subject. Of the 57 cases in my series there were 26 recoveries and 31 deaths, a mortality of 55 per cent. There were operated on 28 patients, with 14 deaths; treated medically 29 patients, with 17 deaths. It should be remembered, however, that three-fourths of these were hospital patients and that every case of pyloric stenosis admitted was included, though a considerable number were in so wretched a condition as to be hopeless, and four were practically moribund.

The very bad cases were treated medically or operated on in about equal numbers.

To what is this difference of opinion due? Does it mean that with proper medical treatment surgery is unnecessary, or does it mean that different conditions have been considered by the different writers? In looking over case-reports one is unable to see that there is any very great difference of opinion in regard to the symptoms essential for diagnosis. These are pretty well established, and there is very general agreement among both physicians and surgeons.

Some writers take the ground that cases of pylorospasm do not require operation, but that it may be necessary in cases of hypertrophic stenosis. If a child recovers without operation it is evident, they say, that the condition was one of pylorospasm only. This argument is not very convincing. I have already stated my belief that no sharp division of the cases into spasmodic and hypertrophic is possible either on pathologic or on clinical grounds, and that a better practical division is into mild and severe types. In the former, improvement frequently begins in a few days when proper treatment is instituted, and recovery may follow in a few weeks. In the latter also there is a strong tendency to recover from the symptoms of obstruction, and I believe from the pathologic condition also; but the course is so protracted that, owing to the tender age and feeble resistance of these patients, not a few succumb, although to use a Hibernianism, they would all get well if they lived long enough.

Against operation are the following considerations: A large number recover without it, and the essential surgical risks of operation, even in the best hands, are considerable.

The crux of the whole question between medical and surgical treatment of pyloric stenosis seems to me to be: Are the symptoms and conditions such as to make it probable that the patient will or will not live long enough for the pathologic condition to subside? There are medical risks and there are surgical risks; in the individual case one must decide which are greater; the two must be carefully weighed one over against the other.

MEDICAL RISKS

The medical risks in an infant with pyloric stenosis are not to be ignored; they are, I think, not sufficiently considered.

First, there may be death from acute inanition; this in the most acute cases occurs quite rapidly. I have seen a number of cases with such prostration and so rapid a loss in weight that delay in operation even of a few days would, I believe, have cost the child its life.

Second, there is the danger of marasmus or slow inanition from the prolonged duration of the symptoms. While this risk is not so great in private practice, it exists, and in hospital practice and also among patients in poor surroundings it is very serious. The problem is one of infant nutrition with a very heavy handicap, and the difficulties are often great, even when all possible resources are at our command. There are considerable risks in waiting day after day and sometimes week after week when a child is barely holding his weight or losing but 1 or 2 ounces a week. The physician frequently does not realize on what thin ice he is skating, and how near the danger-line he is. Especially is this likely to be the case if the vomiting

has become infrequent and fecal stools are present. It is hard to estimate how much resistance these little patients have. To allow the weight to fall gradually from 8 pounds to 7, to 6, or even lower, is to take great chances; and although possibly the majority of the patients may recover, every now and then an unexpected death occurs without warning.

Third, there is the risk of intercurrent disease developing while a child is in a greatly enfeebled condition. This is a very important consideration in a hospital where treatment must usually be continued from six to ten weeks, and it has some weight even in private practice.

Fourth, there is the risk of sudden death, which may come without any assignable cause. It has happened two or three times in my experience that children who seemed to be doing fairly well have collapsed suddenly and died in a few hours, the necropsy giving no explanation. This has occurred when the food taken seemed adequate so far as its caloric value was concerned, when the weight was stationary or showed only an insignificant loss and when the vomiting had practically ceased.

One other question deserves some consideration in this connection, namely, if these patients get well without operation do they recover completely or does a lesion remain which may subsequently give trouble?

During the last few weeks I have either seen personally or had reliable reports from seven patients who were under my observation during infancy with typical pyloric stenosis and who recovered without operation. One, a boy of 9, has had no gastric symptoms since he recovered from his attack, and is the most robust member of a family of four children. A second is now 7 years old; he had to be fed carefully during the first few years, but for two years past he has "eaten everything" and has had no digestive symptoms. A third, whose active symptoms lasted until he was 8 months old, whose weight at 7 months was but $7\frac{1}{4}$ pounds, and whose pyloric tumor was noted as late as the seventh month, was, at $5\frac{1}{4}$ years, a husky boy weighing 60 pounds. There had been no gastric symptoms since he left the hospital at 9 months of age. The same was true of three others seen, whose ages were $4\frac{1}{2}$, $4\frac{1}{4}$ and $3\frac{1}{2}$ years, respectively. None had had gastric symptoms since infancy; all were well developed, and two were robust. A report from another child, 17 months old, tells that his weight was 30 pounds and that he had been absolutely free from symptoms since he left the hospital at the age of $3\frac{1}{2}$ months. These include all the cases of recovery from pyloric stenosis without operation which I have been able to follow. In no instance was there a persistence of symptoms into childhood. After these children recovered from their malnutrition their subsequent progress and development was quite average. The period of malnutrition lasted in most of them until they were nearly a year old and in some it persisted well into the second year.

Is there any evidence that subsequent trouble does occur in later childhood in these patients? We know that hypertrophy disappears slowly, and we have abundant proof that the cessation of symptoms does not mean that hypertrophy no longer exists. Howland found a typical hypertrophic tumor still present in a child who died of acute diarrhea four months after recovery from symptoms of pyloric stenosis. A patient operated on by Downes at the Babies' Hospital, died

of diphtheria six months after gastro-enterostomy; hypertrophy of the pylorus still existed. Morse also has reported a similar case; the child recovered from operation (gastro-enterostomy), but died of acute disease six and one-half months later; the necropsy showed that the pyloric tumor and the obstruction persisted.

Pyloric stenosis in infancy was long overlooked, and possibly, as Graham suggests, we are still overlooking pyloric stenosis of later childhood. He reports a case of pyloric stenosis in a child of 6½ years and cites many others from literature which were proved by necropsy. How often these cases occur, or in what proportion of the patients with pyloric stenosis in infancy these late symptoms follow, we are as yet unable to say. Evidence that they suffered from symptoms of pyloric stenosis in infancy is wanting. I have seen but one case of pyloric stenosis in an older child, a girl of 4½ years; but there was no history of protracted vomiting in infancy, and definite gastric symptoms did not begin until the patient was 3 years old.

A connection between the pyloric stenosis of childhood and that of infancy has been assumed. It is yet to be established that they have the same pathologic basis. The final word on this subject has not yet been spoken, and it may be that further experience may cause us to revise our opinion regarding the ultimate outcome of the cases of pyloric stenosis in which recovery occurs without operation. At present the evidence is that patients who get well without operation recover completely.

SURGICAL RISKS

The surgical risks in operations for pyloric stenosis are partly essential and partly accidental. The essential risks are those of shock, of non-union because of the child's poor nutrition, and the danger of exhaustion owing to the fact that the difficulties of feeding have not been altogether removed by the operation. These dangers exist in every case no matter how experienced the surgeon. Of much greater importance are the accidental risks largely due to faulty technic; these are of course greatly lessened by experience on the part of the operator. Then there are the risks of hemorrhage, of leakage, of obstruction, of infection and other accidents which may follow any abdominal operation. On the whole, it is my belief that the medical risks, particularly in hospital patients, have not been sufficiently considered, and that the surgical risks have been exaggerated. With an operator experienced in these cases and a patient in fair condition, the operative risk is much less than one would anticipate. It is to me a constant surprise to see in these patients how small is the amount of shock of an abdominal operation which rarely lasts less than forty or forty-five minutes. The younger the infants the less the shock appears to be, which perhaps is not to be wondered at when we remember what prolonged operations can be done on a new-born infant with little or no shock.

In private practice, if the best environment, good nursing and proper medical attention can be commanded, I believe that the risks of the medical treatment are small and that very many patients will recover without operation. But there will, I believe, always be a certain number of patients for whom surgical intervention will be required. The favorable

conditions such as I have mentioned in private practice can be obtained for only a small proportion of the patients with pyloric stenosis. For the others, if the symptoms are severe, I think early operation offers more chances of recovery. Even if the surgical risks are considerable they are short, while the medical risks are prolonged and the dangers multiply with the duration of the symptoms.

An early diagnosis adds much to the chances of success by any method of treatment. In some cases the symptoms have lasted so long and the condition is so critical in consequence of the rapid loss in weight that immediate operation should be advised as offering the only chance of recovery. Under other circumstances every child should have the benefit of a fair trial with medical treatment. The duration of this in hospital practice will depend on the conditions present. If the symptoms are severe, a day or two may suffice; if less acute, a delay of a week or ten days may be permitted. Operation should be done not because a case is classed as spasmodic or as hypertrophic, but because mechanical obstruction of a dangerous degree exists, whatever its suspected nature.

The indications for operative interference are (1) no diminution of the vomiting or the gastric peristalsis by stomach washing and diet; (2) a steady loss of weight of from 1 to 2 ounces a day; (3) marked gastric retention, and (4) absence of fecal stools. The presence of a tumor I do not regard as essential.

My early personal experience led me strongly to favor the medical treatment of these cases. I was greatly influenced by two or three very conspicuous successes in patients treated without operation, and also by the results of the first seven cases in which I saw operation done, five of the seven having been fatal.

Increased experience, however, has shown that the average case medically treated, unless it shows improvement almost at once, is likely to run a very prolonged course even though the child may ultimately recover. From six to twelve weeks of continuous treatment has usually been found necessary in the cases I have seen. This is in marked contrast to the rapid improvement which has taken place in all the children who have recovered after operation.

In looking over the histories of the patients observed during the past six years, I find that in a constantly increasing number I have advised early surgical interference. My greatest regret in this review is that operation was delayed in so many and in some not done at all. In this connection it is interesting to note the length of life after admission to the hospital of patients not operated on. In fourteen such cases it was as follows: 69 days; 44 days; 24 days; 22 days; 17 days (two patients); 13 days; 10 days; 9 days; 6 days; 5 days; 3 days, and two moribund patients. I feel sure that with our present experience a very considerable number of these patients might have been saved. No doubt the technical skill which the surgeons have acquired in the operation has contributed much to these later results, but our experience in the management of the patients after operation has also been a factor.

The postoperative treatment is very important. Emphasis should be laid on four points: hypodermoclysis, feeding, castor oil and posture.

Hypodermoclysis is useful immediately before or after operation as a means of introducing water into

the body. It is greatly to be preferred to the Murphy drip. I have employed a normal saline solution with 4 per cent. dextrose; of this from 100 to 200 c.c. are slowly introduced either between the shoulders or into the abdominal walls.

In feeding, breast-milk is indispensable. We begin food as soon as the child has fairly recovered from his anesthetic, or about four hours after operation, giving 2 teaspoonfuls of breast-milk every two hours, alternating this with 2 teaspoonfuls of boiled water. On the following day the interval is made three hours, and the milk and water are each increased to $\frac{1}{2}$ ounce. At the end of forty-eight hours, 1 ounce of breast-milk is given every three hours alternating with 1 ounce of water. By the end of a week the child is usually taking from 2 to 3 ounces of pumped breast-milk every three hours alternating with boiled water. By the tenth or twelfth day in most cases the child is put to the breast, but the amount of milk allowed is limited for the next week or two.

A teaspoonful of castor oil is administered at the end of thirty-six hours and is usually followed by free evacuation from the bowels, which in many cases have not been freely moved up to that time.

The child's bed is inclined at an angle of about 135 degrees or more, the head being raised. This posture facilitates the expulsion of gas from the stomach and greatly diminishes the chances of vomiting. The child is usually kept in this position for four or five days.

CHOICE OF TREATMENT

Whether in a given case we shall decide in favor of operation or medical treatment will then depend largely on the severity of the symptoms and the conditions under which the child is seen. To subject every infant with pyloric stenosis to so serious an operation as laparotomy for a condition in which at a low estimate 50 per cent. recover without it, seems hardly justifiable. I believe it to be a mistake to turn every case over to the surgeon as soon as the diagnosis is made, as some would have us do. On the other hand, the position taken by Hutchison, that "operation is never under any circumstances justified" in these cases is, I believe, untenable. I do not think that the physician realizes how well these patients do surgically, or that the surgeon appreciates how many of them recover when treated medically.

Given an early diagnosis, a patient in private practice under conditions which make the best medical treatment possible, operation may not in most cases be required; but in hospital practice, in cases seen late, in those with the most acute symptoms who are losing rapidly, and when circumstances do not admit of the best medical treatment, there is no question in my mind but that immediate resort to surgery offers a better chance of recovery. Again, to persist with medical treatment week after week when forcible vomiting and marked peristalsis are either continually present or keep recurring, when the weight shows only a slight loss, seems to me to be incurring far greater risks with the child than those of operation.

The medical treatment for patients not operated on consists in careful feeding and stomach-washing. The gastric lavage should be practiced twice a day; it serves the purpose of emptying the stomach thoroughly of mucus and fermented food; the water should be used warmer than usual, that is, up to 112 F. If it can be secured, breast-milk is the preferable food, but

one not rich in fat is essential. The common practice of weaning as soon as symptoms develop is most unwise. In default of breast-milk a modified milk mixture low in fat should be employed.

With respect to quantities and intervals of feeding, cases respond differently. We have usually depended on from 1 to 3 ounces at three- or four-hour intervals, water being given in small quantities between feedings. There are seen, however, some children who seem to do better on much smaller quantities, that is, $\frac{1}{2}$ ounce every hour, especially if the food is breast-milk. In greatly prostrated patients hypodermoclysis may be used twice a day as described in the postoperative treatment. Rectal feeding is little assistance except for a very short time. The bowels are moved readily by an enema, and the rectum does not discriminate between those things which are to be retained and those which are to be expelled. At most, it is of assistance only for a day or two. Drugs I believe to be of little or no value, nor can I say more for local applications of heat over the epigastrium as advised by many.

Every case of pyloric stenosis medically treated must be very closely watched; daily weights should be taken, as these children have a way of slipping away unless the most careful observations are made.

Aspiration of the stomach to determine the degree and rate of emptying is of much assistance in deciding the frequency with which these children should be fed and the amount of food offered at one time. Its value is not appreciated.

14 West Fifty-Fifth Street.

PYLORIC OBSTRUCTION IN INFANTS

A REPORT OF TWENTY-TWO PERSONAL CASES
WITH OPERATION *

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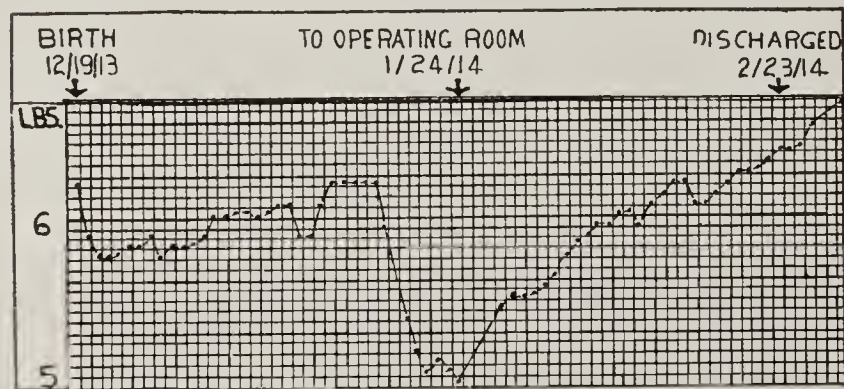
The intention of this paper is to record as accurately as possible the results in the twenty-two cases of pyloric obstruction in infants which have come under my care. In order to make the report complete, it will be necessary to detail the symptoms for which relief was sought, together with the physical signs leading to the correct diagnosis. Furthermore, the findings at operation and necropsy will be mentioned, for a clear understanding of the pathologic condition present is essential in order that those who are not familiar with the disease may draw correct conclusions. Finally, the operative procedure adopted will be discussed and a critical analysis made of the results obtained.

Of the 22 patients, 17 were males and 5 females; 18 were breast-fed entirely; 2 part breast-fed and part bottle-fed, and 2 bottle-fed; in 14 cases the patient was the first baby; in 4, the second; in 2, the third, and in 2, the fourth.

The symptoms appeared from three days to seven weeks after birth, average time three and one-half weeks. In every case vomiting was the first symptom to be noted, though in one or two instances the mothers recalled that a day or so before the vomiting began there was a loss of appetite, and in one case it had been difficult to get the baby to take its feedings

* Read before the Academy of Medicine, April 16, 1914.

properly from birth. The latter observation is unusual, for as a rule these babies have nursed too freely, taking large quantities at a time. This tendency to overdistend the stomach, with its resulting spasmodic contraction, is considered by some observers as of etiologic significance. The vomiting was projectile and usually occurred shortly after each feeding; in a few cases, however, it occurred at intervals of several hours and was probably the accumulation of a number of feedings. The vomitus was frequently examined for bile, but none was found. Constipation was marked in every case. The first colon irrigation, after admission to the hospital, often brought away small amounts of fecal matter, but those given later on returned clear. The urine was scant or absent. A marked loss of weight immediately followed the onset of vomiting, and in one (Case 6), amounted to 2 pounds in one week. Depression varying in degree from moderate apathy to profound shock was present in all the cases. This condition is the danger-signal, and the first suggestion of it should serve as a warning that the time for radical measures has arrived. One of our patients (Case 10) admitted to the hospital at 6 p. m., examined by me, and the diagnosis of true stenosis concurred in, was somewhat apathetic, but seemed in fairly good condition and it was thought that the operation could with safety be postponed



Weight-chart in Case 17, illustrating usual gain in average case after gastro-enterostomy.

until the following morning. At 6 a. m., twelve hours after admission, the child suddenly became markedly depressed. A state of profound shock supervened, and when I saw the baby at 8:15 a. m., the condition was practically hopeless. Hypodermoclysis and stimulation had been resorted to, with little or no improvement. With a full realization of the very slight chance offered by any method of treatment at this time, a rapid posterior gastro-enterostomy was done, but the condition was not improved, even though feeding was begun in two hours, and the child died four hours later.

With four or five exceptions the babies were emaciated, with wrinkled skins and sunken eyes. The lower abdomen was retracted and usually soft, while the epigastric region was full and prominent and all the patients presented at some time, in the region of the stomach, peristaltic waves passing from left to right. While these waves are present in all tumor cases, they may also be present in the so-called spasm cases and should not lead to the diagnosis of true stenosis without other more reliable symptoms and signs. On palpation, to the right of the median line below the costal margin, a firm movable tumor about the size of an olive was felt in each case, with the single exception of the first one, and in this instance the tumor was

made out under the anesthetic before the abdomen was opened.

Beginning with the eighth case, aspiration of the stomach was practiced as a routine measure, and each stomach was found to have from $\frac{1}{2}$ to 4 ounces' retention three hours after feeding, even though vomiting had occurred.

We did not consider it necessary or even desirable to submit the babies to Roentgen-ray examination before operation. On account of the extreme irritability of these stomachs, conclusions based on the emptying-time are liable to be misleading, and even if a small amount of bismuth passed through the pylorus, no information would be given thereby that the story of the stools and weight-chart had not already told. Such an examination might possibly be indicated in an exceptional case, but I feel that the diagnostic points already enumerated are sufficiently conclusive. Aspiration has all the advantages of the Roentgen ray in this condition and is more feasible. The average duration of symptoms before operation was performed was two weeks and one day; the longest period was eight weeks and three days, and shortest period six days.

When the abdomen was opened, a pyloric tumor varying in size from the terminal phalanx of the ring-finger to that of the thumb was found in every case. These tumors were hard, smooth, freely movable and free from adhesions. The pyloric portion of most of the stomachs was thickened and somewhat edematous, and about half of them were dilated. No other pathologic lesions or malformations were found. A typical posterior gastrojejunostomy was done in twenty-one cases, and the Weber operation of partial pyloroplasty as described by Rammstedt in one case.

A passing remark as regards a few points in the technic may not be out of place. Ether should be the anesthetic used. The abdominal incision should be from $\frac{1}{2}$ to $\frac{3}{4}$ inch to the left of the median line. The reasons for this are twofold: In the first place there is so little subcutaneous tissue in these babies that there is difficulty in obtaining union in the median wound, whereas the incision through the rectus muscle heals much more readily. Many postoperative deaths have followed evisceration resulting from non-union in these cases. The second reason for placing the incision to the left of the median line is the avoidance of the round ligament of the liver. At necropsy, in one of our fatal cases, a large hemorrhage was found just where the needle used in closing the abdominal cavity had punctured this ligament.

With the exception of the first two cases, stomach-clamps were not used in doing the gastro-enterostomy. There is practically no leakage from the stomach or intestine, and very little bleeding in these cases. A number of the operations were done in twenty-five minutes—longest time forty-five minutes. The partial pyloroplasty, or "nicking of the circular muscle-fibers," consisted in making an incision 1 inch long through the peritoneum and circular muscle-fiber down to the mucosa. The edges of the wound gaped widely and the mucous membrane immediately protruded. No effort was made to close or cover over the incision. This simple division of the circular muscle at once relieved the obstruction, as shown by the ability to express air freely from the stomach into the duodenum. In making the incision the tumor should be held firmly between the thumb and index-finger in

RECORD OF TWENTY-TWO OPERATIVE CASES OF PYLORIC OBSTRUCTION IN INFANTS

| Case No. | Hospital Record Number | Sex* | Age Weeks | Date of Operation | Remarks | Weight | | Final Result with Note as to When Last Seen |
|----------|---------------------------------|------|-----------|-------------------|--|----------------|--------------------|---|
| | | | | | | At Birth, Lbs. | At Operation, Lbs. | |
| 1 | Babies' M. H. | ♀ | 8 | 4/29/10 | Vomiting began in 6th week, always forcible and in large quantities. At same time infant was constipated. | 8½ | 8 | Died 11 days after operation; necropsy: Wound healed perfectly; no pathologic cause for death found; pylorus tight. |
| 2 | Babies' 3906 D. B. | ♂ | 6 | 7/30/10 | Vomiting began in 4th week; this along with constipation continued till admission. Vomiting always forcible and directly after eating. | 11(?) | 9½ ₁₆ | Discharged Aug. 9, 1910; weight 9 lbs., 5½ oz.; readmitted Aug. 13, 1910; died Aug. 13, 1910; Necropsy: Gastro-enterostomy perfectly healed; no adhesions; cause of death; acute gastro-enteritis; pylorus tight. |
| 3 | Babies' J. S. | ♂ | 23† | 11/27/11 | Vomiting began on 11th day. One week before admission constipated; no stool without injection. | ? | 52½ ₃₂ | Discharged Dec. 19, 1911; weight 6 lbs., 5½ oz.; last seen Oct., 1913; well-developed and well-nourished child. |
| 4 | Babies' 5719 A. F. | ♂ | 7 | 12/ 9/11 | Began to vomit during 5th week; very little relation to feeding, sometimes immediately after, sometimes one or two hours after; usually forcible. | 9 | 75⁄8 | Discharged Jan. 1, 1912; weight 7 lbs., 14 oz.; last seen March, 1914; walking; condition excellent; weight 30 lbs. |
| 5 | Babies' 6627 J. W. | ♂ | 10 | 8/ 9/12 | Vomiting and constipation from 3d week after birth. | ? | 513⁄16 | Died 6 days after operation; necropsy showed no peritonitis; wound in good condition; tumor size of terminal phalanx ring-finger and admits slate-pencil. |
| 6 | St. Luke's Newburg, N. Y. C. T. | ♂ | 7 | 7/ 8/12 | Vomiting and constipation 6th week after birth. Vomiting projectile in character. Lost 2 pounds in one week. | 8 | 9 | Discharged July 16, 1912; weight 9 lbs. 5 oz.; last heard from Jan. 25, 1914; weight 28 pounds. |
| 7 | Babies' G. L. | ♂ | 3‡ | 12/12/12 | Vomiting began suddenly in 7th week; vomited after every feeding; always projectile and large. | 8 | 75⁄8 | Discharged Dec. 21, 1912; last seen March, 1914, walking; weight 26 pounds; 16 teeth. |
| 8 | Babies' 7107 H. L. | ♂ | 7 | 1/ 1/13 | Began to cough and vomit in 5th week. During the 6th week symptoms had become worse, vomited after every feeding. | § | 63⁄8 | Discharged Jan. 28, 1913; weight 6 lbs. 11½ oz.; last seen March 12, 1913; weight 9 lbs. 2½ oz.; excellent condition. |
| 9 | Babies' 7127 T. V. | ♀ | 2‡ | 1/20/13 | Typical symptoms began at 2d week of age. Nursed for 5 weeks and for past 3 weeks was fed patented food under direction trained nurse. Admitted in dying condition. Temperature too low to register by thermometer until mustard bath was given. | 10(?) | 511⁄16 | Died 1½ days after operation. Necropsy: Large hard tumor—admits probe—no repair. |
| 10 | Babies' 7228 P. B. | ♂ | 7 | 2/ 9/13 | In 3d week sudden onset of projectile vomiting, six or seven times daily, soon followed nearly every feeding. Obstinate constipation and loss of weight. | 8 | 61⁄8 | Died 9 hours after operation. Necropsy: Large blood clot in transverse fissure of liver from falciform ligament. |
| 11 | Babies' 7382 M. C. | ♂ | 6½ | 3/27/13 | Vomiting began suddenly in 3d week, sometimes occurred during feeding, but most often few minutes after; always a larger amount. Condition bad; given mustard baths, hypodermoclysis, etc. | 71⁄8¶ | 59⁄32 | Died 10 hours after operation. Necropsy: Anastomosis firm. Pylorus admits small probe. |
| 12 | Babies' 7651 S. G. | ♀ | 8 | 6/13/13 | Spat up once or twice a day and vomited occasionally before 5 weeks old. Vomits at times while nursing, just afterward, or within an hour. Vomiting is projectile. Three weeks constipation. In collapse at time of operation. | \|\| | 65⁄16 | Died 4 hours after operation. Necropsy: Large hard tumor. |
| 13 | Babies' 7809 R. J. | ♂ | 4 | 7/14/13 | Ten days before admission began vomiting after nearly every feeding; continued for two or three days, then vomited after all feedings. Vomiting always forcible. | \|\| | 52½ ₃₂ | Discharged Aug. 10, 1913; weight 7 lbs. 1 oz. Last seen February, 1914, weight 16 pounds. |
| 14 | Babies' D. P. | ♂ | 4 | 7/17/13 | Vomiting began 3d day after birth, and at the end of the first week it occurred during or soon after every feeding; obstinate constipation. | 8½ | 61⁄8 | Discharged July 31, 1913. Cured, weight 7 lbs. 8 oz. Died Nov. 2, 1913, of laryngeal diphtheria. Condition had been splendid; just before death weighed 15 lbs. Necropsy: Tumor persists, rather small and admits slate-pencil. |
| 15 | Babies' 7953 M. G. | ♂ | 6 | 8/10/13 | Vomiting began about one week after birth. Let up during 3d week; recurred and followed every feeding; never projectile. | ? | 53⁄16 | Died 5 days after operation. Necropsy: general peritonitis from leakage; no effort on part of wound to heal. |
| 16 | Babies' R. W. | ♂ | 6 | 12/ 4/13 | Began to vomit in the 5th week; always projectile. | \|\| | 91⁄8 | Discharged Dec. 15, 1913; weight 9 lbs. 7 oz. March, 1914, weighs 13 pounds. |
| 17 | St. Luke's 98286 E. B. | ♀ | 5 | 1/24/14 | Vomiting began in the 4th week. Did not nurse well from birth; reached birth-weight on 12th day, but never went over it. Lost 1 lb. and 4 oz. in 6 days. | 63⁄8 | 5 | Discharged Feb. 23, 1914; weight 6 lbs. 12 oz.; March 27, weight 7 lbs. 11 oz. |
| 18 | Babies' W. M. | ♂ | 4 | 3/30/14 | Vomiting began about 20th day after birth, gradually increasing in frequency and force. Became forcible 5 days before admission. | 8¾ | 75⁄8 | Discharged April 8, 1914; weight 8 lbs. 3 oz. At present the child is in good condition. |
| 19 | Babies' J. W. | ♂ | 4 | 4/10/14 | Began to vomit on the 12th day (while nursing) after birth. Weaned on the 21st day. Improvement slight and only temporary on artificial food. Marked jaundice for 4 days before operation, and vomiting became projectile 4 days before operation. | 7½ | 615⁄16 | Discharged April 18, 1914; Weight 7 lbs. 3 oz.; jaundice disappeared 4 days after operation. May 10, 8 lbs. 8 oz. |
| 20 | Babies' E. H. | ♀ | 5 | 4/15/14 | Up to 2 weeks of age occasional regurgitation. At 2 weeks vomiting started gradually increasing in frequency. Vomiting became projectile 7 days before admission. Nursed up to present time. | ? | 55⁄16 | Discharged April 27, 1914; weight 5 lbs. 15 oz. May 14, 6 lbs. 3 oz. |
| 21 | Babies' T. W. | ♂ | 7 | 4/16/14 | Regurgitation one to three times a day started at 4 weeks old. Real vomiting started at 6 weeks; three to five times a day up to 7 weeks old, and then after practically every feeding. Never projectile though slightly forcible on one occasion. | 77⁄16 | 611⁄16 | Discharged April 29, 1914; gained 11 ounces. |
| 22 | Babies' W. S. | ♂ | 6 | 4/23/14 | Vomiting started at age of 4 weeks and 2 days; once a day for 4 days and then gradually increased in frequency; 3 days before operation vomited after every feeding. Vomiting projectile from the first and usually very large amount. | 6 | 61⁄8 | Discharged May 5, 1914; gained 8 oz. May 14, weight 7 lbs. 9 oz. |

* In this column ♂ means boy and ♀ girl. † Days. ‡ Months. § Small baby at birth. ¶ At onset of symptoms. || Large baby.

such a way that the edges of the wound are gently drawn apart, and as the incision is deepened a definite line of cleavage will be seen to exist between the pyloric muscle and the mucous membrane. If this point is observed, injury to the mucosa is not likely to occur. Gastro-enterostomy should be the operation of choice in all cases in which the condition of the child is even fair, for the reason that it is an established surgical procedure, the results of which are certain, and the partial pyloroplasty reserved for those cases in which haste is the first consideration. The latter operation is not free from the immediate risk of injury to the mucosa, and its future is uncertain. In Case 20 the recovery of the child has been uninterrupted, but its progress has been much slower than in the other cases.

The after-care of the patients is extremely important, and much depends on the judicious use of stimulants in the form of brandy, atropin and caffein, and also the proper use of fluids by hypodermoclysis and the Murphy drip. That it is not necessary to resort to these measures in the cases which come to operation while yet in good condition is shown by the post-operative reaction and convalescence of a number of the babies in this series, the postoperative course of which reminded one much of the after-history of the average gastro-enterostomy in the adult. Feeding should be started just as soon as possible after operation; small quantities of water alternating with diluted breast-milk were given hourly, beginning as early as the second or third hour in several of our cases. The amount should be increased gradually, and if it is well borne, the child may be put back to the breast in forty-eight hours. It is important to elevate the head of the bed just as soon as reaction is well established, as this facilitates the escape of gas and greatly lessens the tendency to vomit.

A colon irrigation should be given in twenty-four hours, or sooner if there is much distention. The first fecal stool usually occurs from twenty-four to forty-eight hours after operation; if not by this time, from 1 to 2 teaspoonfuls of castor oil should be administered.

I am indebted to the Medical Service of the Babies' Hospital for the privilege of operating in twelve of the cases; the others came through various consultants. In no case have I declined to operate on account of the poor risk. I have not operated for so-called pyloric spasm without hypertrophy, nor do I believe that such patients should be operated on. Two of these patients have been seen in consultation and surgical treatment advised against. Both made good recoveries. There were seven deaths in the series, which must stand on the records as representing the operative mortality. Of the seven patients, three (Cases 9, 11 and 12) were in a collapse at the time of operation and the outcome was to be expected. Our judgment in each instance was against operating, but we had had two infants in almost the same condition (Cases 3 and 8), both of whom came through the operation with little or no additional shock and are to-day in perfect health. A note taken from the history of Case 3, made just prior to operation reads as follows:

Weight 5 pounds 10½ ounces; temperature 103.2 at 7 a. m., normal at 9 a. m.; child is becoming more relaxed, shows a decided loss of tone. Strychnin sulphate, ⅓₁₅₀ grain, ordered every four hours and a mustard bath three times a day.

Vomiting forcible and in large amounts persists. General condition since 5 p. m. yesterday has grown gradually but steadily worse. Pulse is not good; child looks sick about the eyes. P. M. Note: Child prostrated, in a dying condition, rallied slightly toward evening. As a last resort the baby was operated on at 10 p. m.

The history of Case 8 has the following note made on the day of operation:

This forenoon the appearance of the baby did not seem quite as promising, although yesterday he took all his food except 2 ounces, and stool contained some fecal matter. To-day had one stool (4 p. m.) a dark green-brown stain. Toward evening he did not seem so lively as in the morning; cry feeble, and on the whole decidedly more asthenic. Aspiration showed 1½ ounces' retention—more than any previous aspiration. In view of the fact that the baby has little food coming through as evidenced by his stools, his progressive asthenia, non-response to feeding and inability to pass the duodenal tubes (Numbers 11, 12, 17 French), operation was decided on to-night.

Not to have operated in the three cases above referred to after such a happy outcome as resulted in Cases 3 and 8, would have been unfair.

Patient 1 died on the eleventh day after operation. This baby was given fourteen days of careful medical treatment, during which time the condition was thought to be due to pyloric spasm, as no tumor could be made out. The child became very weak and operation was decided on. Under anesthesia a large tumor could be felt at the pylorus. There was no shock. Small amounts of water were begun after seven hours. Note day after operation says, "Child looks well." The first movement occurred thirty hours after operation, and there were several movements daily from that time until death. There was no vomiting for several days and the child seemed to be on the road to recovery, but about the fifth day after operation the condition became unsatisfactory. Vomiting recurred and in spite of every possible means of relief the child grew progressively worse and died eleven days after operation. Complete necropsy failed to disclose the cause of death. The wounds had healed perfectly and there were no adhesions.

Patient 5 died six days after operation. The indications for operation seemed clear—projectile vomiting, marked loss of weight, palpable tumor, constipation, and the fact that the duodenal catheter could not be passed. The stomach was found to be intensely dilated, the walls thickened and edematous; the tumor was the size of the terminal phalanx of the middle finger. There was no shock. Three hours after operation, the patient began to vomit small amounts. Feeding was begun in ten hours; the first stool was noted thirty-six hours after operation, and during the second day there were seven stools. The patient vomited three or four times each day, the vomitus gradually becoming larger in quantity and projectile. There was no abdominal distention. The patient died on the sixth day. Necropsy showed no peritonitis, and anastomosis firm. The tumor persisted at the pylorus, but the lumen would easily admit a slate-pencil. Possibly the patency of the pylorus in this case, by allowing food to pass through, had something to do with the continued spasmodic contraction. That food entered the intestine freely was shown by the size and quality of the stools.

Patient 10, weight 6 pounds 2 ounces, although rather feeble, stood the operation very well, with little or no shock. Small quantities of water were begun after three hours. Six hours after operation the patient's condition became critical; four hours later the baby died. Necropsy disclosed a large blood-clot in the transverse fissure of the liver, and the hemorrhage could be traced directly to a catgut suture which had been passed through the round ligament. Cause of death was postoperative hemorrhage.

Patient 15, a small baby, weight 5 pounds 3 ounces; did well for three days, but then began to show signs of peri-

tonitis. It died on the fifth day after operation. Necropsy disclosed general peritonitis from leakage, with no effort at repair.

These two cases illustrate dangers of the operation which cannot be overestimated, and show that even though one has had some experience in this work, fatal errors in technic may and do occur.

Of the seven fatal cases, so far as we know, only one had had careful medical attention and treatment from the beginning of the symptoms; most of the patients had made an occasional visit to the doctor or dispensary and a few had been seen by specialists in consultation, whereas, of the fifteen that recovered, nine were private patients, all of whom had been treated skilfully by competent men from the onset of symptoms, and had been seen in consultation by either Drs. Holt, Kimball, Kerley or La Fetra. These cases came to operation after a reasonable time had been spent in attempting to control the symptoms by medical means; the patients were still in good condition, and as a result made practically uninterrupted recoveries. Two patients died after discharge from the hospital, from causes in no way connected with the operation. Patient 2 was discharged twelve days after operation, having gained 4 ounces and was brought back four days later with an acute gastro-enteritis from which it died. Complete necropsy showed the wound in perfect condition and the cause of death to be acute enteritis. In the other fatal case (No. 14), the patient was discharged July 31, 1913, and died Nov. 2, 1913, of laryngeal diphtheria. The condition had been splendid and just before death the baby weighed 15 pounds. Partial necropsy showed that the tumor, which was rather small, but very hard at operation, persisted.

Careful examination of the stomachs removed at necropsy from the patients dying after operation showed that the pyloric tumors were almost exactly of the same size and consistency as they had been at the operating-table, varying in size from the terminal phalanx of the ring-finger to that of the thumb and having the consistency of cartilage. They were formed entirely by the hypertrophied circular muscle-fibers of the pylorus. The mucous membrane lay in longitudinal folds in the lumen. It was much thickened and arranged in a more or less spiral manner.

In view of the experience gathered from the observation of these cases, I believe I am justified in offering the following conclusions:

1. Hypertrophic pyloric stenosis is congenital to the extent that there is an increase in the thickness of the circular muscle-fibers at the pylorus. The presence of this thickened muscle-fiber reduces the lumen of the pylorus, and therefore the stomach, in order to empty itself, contracts more forcibly than normal. This abnormal contraction soon causes the mucous membrane to become thickened and edematous, and assume a more or less spiral arrangement as it passes through the narrowed pyloric channel of from $\frac{1}{2}$ to $\frac{3}{4}$ inch. The result is a valvular action which gradually produces complete closure of the pylorus. The question is to whether or not the pylorus will admit a probe or catheter at operation or necropsy is of little consequence when weighed against the clinical evidence of complete obstruction.

2. That there is sufficient time between the onset of symptoms and the appearance of the signs of complete obstruction, for careful observation and the carrying

out of any medical measures likely to prove of benefit, there can be no doubt, provided, of course, that the early symptoms have been properly interpreted. The fear, however, that the condition may have existed longer than has been suspected, and that the vitality of the baby is not so good as appearances would lead us to believe, makes me feel that operation is indicated in every case of hypertrophic stenosis as soon as the diagnosis is made. Should depression or early evidence of shock be present, immediate operation is demanded.

3. The babies coming to operation in good condition suffer little or no shock; their convalescence is straightforward, and they are at once restored to normal health. My experience in this respect corresponds with that of other operators.

I cannot close this paper without referring to the wonderful results obtained by Drs. Scudder of Boston and Richter of Chicago in the operative treatment of pyloric stenosis. The former has recently reported a series of seventeen cases with four deaths and the latter has a record of twenty-two cases with three deaths.

37 West Seventy-First Street.

AN INTERNAL ALEXANDER OPERATION *

HENRY T. BYFORD, M.D.

CHICAGO

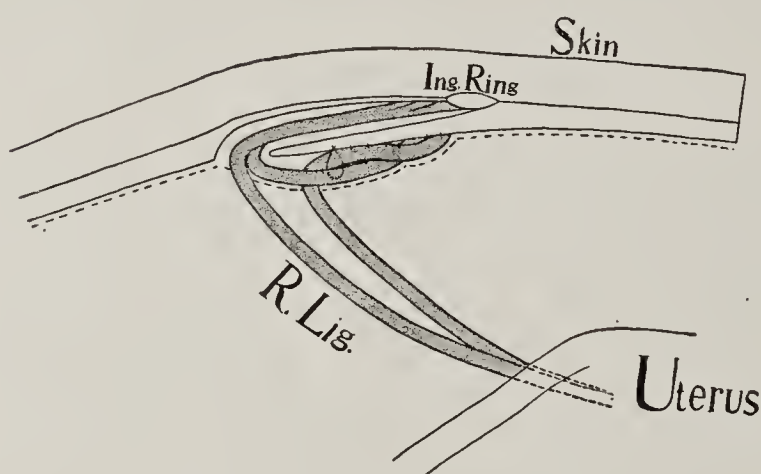
Retroversion of the uterus may be associated with general abdominal and pelvic visceroptosis, or it may be due to impaired function of one or more of the so-called uterine supports. In the latter case there is usually a secondary impairment of function of the remaining supports which are, of course, thrown out of normal action in consequence of the abnormal position of the uterus. An operation to relieve such a deformity does not necessarily have to attack all of the overstretched or relaxed structures, for, when the equilibrium of the uterus is restored and maintained for a certain length of time, those supporting structures which are only slightly deficient or are secondarily disabled may often be depended on to resume function. In limiting myself to the discussion of this class of cases, I am assuming that there is no defect in the pelvic floor, or that such defect has been remedied.

The operation which has proved most satisfactory under these conditions is the Alexander operation. It is one of the simplest of operations, consisting merely of drawing the round ligaments out through their normal channels, the inguinal canals, until the fundus is pulled to its normal position over the empty urinary bladder, and of reattaching them so as to eliminate their apparent excess in length. The part played by these ligaments in connection with retroversion and the Alexander operation is about as follows: The round ligaments are relaxed when the bladder is empty, or nearly so, although they may be supposed to contract more or less irregularly and effectually when stimulated by the shiftings or motions of the uterus accompanying general physical exercise, forced respiration, coughing, defecation, etc. As the bladder fills and pushes the fundus uteri upward, the ligaments are

* Read before the thirty-ninth meeting of the American Gynecological Society, May 19, 1914.

put on the stretch and pull gently downward and forward until the emptying of the bladder enables them to contract and replace the fundus. When we consider the fact that they consist largely of muscular fibers and are apt to be temporarily exhausted by steady prolonged resistance, we can realize how retroversion may occur in a person with relaxed pelvic connective tissue who habitually allows the bladder and rectum to become and remain distended. I can conceive how overstretching of the round ligaments can thus become the chief defect, and the relaxation of the tissues behind the cervix may be of secondary importance, and how a restoration to function of the round ligament may become the rational and effective treatment.

When, however, we shorten them, they are not only restored to action, but also made to compensate, to a certain extent, for the relaxation of the cervical supports. We accomplish this by pulling the ligaments taut so that they will not allow the bladder to push the fundus quite so far back. Now if we did nothing more than this there is no doubt but the displacement would frequently recur as a result of the inefficiency of unaided muscle as a steady support, and the delicacy of the connective-tissue structure of the ligaments.



Showing the direction of the normal ligament into the internal inguinal ring, and the shortened ligament folded and attached to the abdominal wall near the internal ring. The dotted line represents the peritoneum.

Hence to render a recurrence less likely we must warn the patient against holding the urine very long, and provide some means of enabling the overstretched sacro-uterine ligaments to contract and regain some of their lost efficiency. A small pessary—one large enough to keep the cervix from coming too far forward during abdominal pressure, and to help overcome the contraction of the vesicovaginal septum due to the prolonged forward dislocation of the cervix, yet small enough to allow of some play of the cervix and thus of some action of the cervical supports—will usually prove a valuable aid to the Alexander operation, and render unnecessary any operative treatment of the sacro-uterine ligaments. On the removal of this small pessary after several months, the cervix is usually found to remain appreciably farther back in the pelvis than it did right after the operation without a pessary.

When the peritoneal cavity is opened by a low median incision for complications of retroversion or for other conditions, we can usually save time by shortening the ligaments through the incision instead of by the Alexander method. But all of the intraperitoneal methods that have been recommended, as far as I have been able to determine, have either

proved unreliable or have been associated with objectionable features with regard to their conception or to the resulting complications. The simple folding of the round ligaments is unreliable. Suturing of the folds to the uterus usually produces peritoneal exudates which are often followed by pathologic conditions of the organ with disturbance of its functions. Suturing of the folds to other parts either is unreliable or produces rigid exudates. The passing of the severed ligament, or a loop of it, through the abdominal wall, substitutes a fixed displacement for a changeable one. It is more like carpenter-work than surgery, and is admissible only when circumstances do not allow us to do better. I have not the time here for an enumeration of the objections to each of the numerous methods that have been recommended in our current literature, but they may be classified under the headings, unreliability, adhesions, pathologic exudates, abnormal position, restricted mobility, intraperitoneal traumatism, and fundamental errors in conception of objects to be accomplished.

The Alexander operation is freer from these objections than any of the intraperitoneal operative procedures, and in some cases, such as in fat nulliparas, I close the abdominal incision and perform it rather than enlarge the incision and subject the patient to the additional morbidity that so often follows the intraperitoneal methods under unfavorable conditions. The method I now employ, however, avoids intraperitoneal complications and leaves the parts in about the same favorable condition as the Alexander operation. It consists in making a fold near the distal end of the ligament and attaching it intra-abdominally, but extraperitoneally near the internal inguinal ring. Its execution, however, is so simple that a large incision is unnecessary, and it requires much less time, and occasions less trauma than an added Alexander operation. The steps are about as follows:

After the intra-abdominal work for other conditions has been completed, the round ligament is grasped by forceps and pulled out of the inguinal canal until it becomes taut. It is then transfixied by a needle threaded with fine chromic catgut at a point about a centimeter from the internal ring and again about 3 or 4 cm. from the uterine end, and the thread tied so as to make a loop of ligament. The sides of the loop are then sutured with fine chromic or plain catgut forming a sort of double cord. The same is done on the other side and the parts palpated to determine, while there is still time to correct an error in judgment, whether the amount of shortening has been sufficient or excessive.

The peritoneum is next separated freely from the abdominal wall low down on one side of the incision as far laterally as the internal inguinal ring. There is practically no resulting bleeding, and by inserting a short retractor between the peritoneum and rectus muscle one can raise the abdominal wall and do the subsequent work by the aid of sight and touch. With a slender, slightly curved pair of snap-forceps, a puncture from without inward is made in the peritoneal membrane near the internal inguinal ring, and the end of the loop of ligament grasped and pulled through the puncture until the sutured portion of the ligament is all extraperitoneal.

The loop is now given a half twist on itself and, with a curved needle and permanent suture, its base is sutured to the inner surface of the abdominal wall

as near the internal ring as possible without danger of puncturing the epigastric artery. The loop of ligament, which is practically a short double cord, can now be horizontally sutured along the abdominal wall with as many or as few absorbable sutures as may seem advisable for the production of adequate adhesions. As the suture that makes the loop is a centimeter away from the internal ring and also from the permanent attachment suture, there is a little play of the ligament at the internal ring and some elastic traction exerted by the normal attachments in the inguinal canal. This play of the ligament prevents the muscular atrophy that takes place in it when it is drawn through the abdominal walls so as to suspend the uterus rigidly.

After the operation has been finished on both sides, the slight oozing of blood that may have taken place between the separated peritoneum and abdominal walls will have ceased and the intra-abdominal pressure will cause a firm coaptation of the raw surfaces as soon as the incision is closed. If the loop of ligament has been drawn carefully through a small peritoneal puncture, the peritoneal cavity will be completely shut off from the space in which the ligament is sutured and this space can be safely disinfected with an efficient germicide. I usually sponge it out with a 1:2,000 solution of mercuric chlorid in case there has been any chance for infection. I have never seen any bad results from separating the suprapubic peritoneum from the abdominal for this purpose.

Should the permanent suture give way and the ligament separate from its attachment to the abdominal wall, the loop will still be held by its subperitoneal embedded attachment, for it cannot suddenly slip through the peritoneal puncture after having grown into it. Nor are the sides of the loop of round ligament very liable to be torn apart after having grown into the subperitoneal connective tissue. Hence the chances of failure are not so great as they would be if the success depended only on attaching the ligament intraperitoneally to the inner surface of the abdominal parietes.

As the only intraperitoneal part of this method consists in making the small loop of ligament and suturing its sides together, and as this loop is drawn through a puncture until it entirely disappears from the peritoneal cavity, and as the ligament pulls from the neighborhood of the internal inguinal ring, I feel justified in saying that the intraperitoneal conditions after the operation, as far as the shortening of the ligaments is concerned, are the same as after an Alexander operation.

32 North State Street.

Home-Project Agricultural Instruction.—Massachusetts has a law providing for agricultural courses in all state-aided schools. Pupils in the agricultural courses in the schools are required to carry out a certain amount of agricultural work at their homes, under supervision of the schoolteachers during the summer vacation. A number of these schools have been established, and much enthusiasm has been shown by the pupils, and great interest is taken by the parents in these projects. The interest of the pupils in school work is thus kept up beyond the age of 14, when many of them would otherwise leave school. It makes for good citizenship and should have great possibilities for furthering public health and sanitation. A report covering this work has been issued by the United States Bureau of Education as Bulletin, 1914, No. 8.

THE TREATMENT OF TETANUS BY ANTITOXIN

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The efficacy of antitetanic serum in the treatment of developed tetanus has been questioned by many experienced clinicians, who have regarded the recoveries in occasional cases of tetanus under large doses of serum as fortuitous; and if one may judge from the lukewarm advocacy of serum in most text-books, the general impression of the profession is that but little can be accomplished by its use. A study of the mortality statistics of most hospitals shows that this skepticism too often has been well founded. Opposed to this pessimistic view are the reports of a number of small groups of carefully observed cases, such as those of Ashhurst and John, in which the evidence seems strong that antitoxin deserved large credit for the recovery of some of the patients, and that the mode of administration of the remedy is a very important element in its success.

The collection of the 225 reports of cases here analyzed was undertaken with the object of ascertaining, in the first place, what results are being obtained in this country with antitetanic serum in the treatment of tetanus, and, in the second place, whether the failures in some cases may not be ascribed to the faulty and inefficient method of giving the serum. Statistical studies of case-reports collected from the literature are necessarily subject to error, and particularly in tetanus, such tabulations have led to conclusions favorable to serum treatment to a degree unwarranted by the actual facts.

With one or two possible exceptions, none of the cases in this series have been reported, and all were obtained by personal correspondence from hospital or private records, for the years 1907 to 1913.¹

TABLE 1.—MORTALITY OF THE SEVERAL CLASSES OF CASES

| CASES TREATED WITH ANTITETANIC SERUM | | | | |
|--------------------------------------|-------------|------|-----------|----------------------|
| Incubation, Days | Total Cases | Died | Recovered | Mortality, Per Cent. |
| 5 and less | 38 | 27 | 11 | ..... |
| 6 | 18 | 15 | 3 | ..... |
| 7 | 21 | 16 | 5 | ..... |
| 8 | 17 | 14 | 3 | ..... |
| 9 | 24 | 17 | 7 | ..... |
| 10 | 13 | 7 | 6 | ..... |
| | 131 | 96 | 35 | 73.28 |
| From 11 to 15 | 47 | 22 | 25 | ..... |
| 16 and over | 22 | 6 | 16 | ..... |
| | 69 | 28 | 41 | 40.57 |
| Incubation known | 200 | 124 | 76 | 62.00 |
| Incubation unknown | 25 | 15 | 10 | 60.00 |
| Total cases | 225 | 139 | 86 | 61.77 |

| CASES TREATED WITHOUT SERUM | | | | |
|-----------------------------|----|----|---|-------|
| 10 and less | 12 | 11 | 1 | ..... |
| Over 10 | 4 | 2 | 2 | ..... |
| Unknown | 5 | 5 | 0 | ..... |
| Total cases | 21 | 18 | 3 | 85.7 |

Table 1 summarizes the mortality of the several classes of cases. The mortality in all cases receiving

1. All cases reported by any one observer are included, so far as the completeness of the data permit. The data of 80 cases were obtained by me directly from hospital records. About 20 cases occurred in the private practice of physicians. The remainder were hospital cases, treated for the most part in large metropolitan hospitals, including Bellevue, Massachusetts General, Boston City, Buffalo, Philadelphia General, Royal Victoria and Cook County, Wesley, Presbyterian and Michael Reese in Chicago. To those who have so kindly assisted in the collection of cases my best thanks are extended. A fuller acknowledgment will be made in the complete paper in the Journal of Infectious Diseases.

serum is 61.77 per cent.; in 21 cases without serum the mortality is 85.7 per cent. The number of cases in the latter group is, of course, too small to establish a mortality for tetanus, but it agrees with the generally accepted figures of many writers on tetanus, that is, from 78 to 89 per cent. Permin² found a mortality of 78.9 per cent. in 199 cases of tetanus without serum; in 189 cases receiving serum the mortality was 57.7 per cent. It appears, therefore, that the mortality is about 20 per cent. lower in patients receiving serum than in those treated without serum.

A further analysis of these cases with respect to the size of the dose, method of giving the serum and duration of symptoms before the serum was given suggests the reasons for failure in some cases.

TABLE 2.—RESULTS WITH RESPECT TO TIME WHEN SERUM WAS GIVEN AND SIZE OF DOSE IN FIRST TWENTY-FOUR HOURS OF TREATMENT*

| A. Cases receiving first serum within 24 hours of first symptoms: | | | | | | |
|---|-------------|-----------|-------------|-----------|-----------|----------|
| Incubation Days | Large Doses | | Small Doses | | Mortality | |
| | Died | Recovered | Died | Recovered | Large D. | Small D. |
| 10 and less | 41 | 13 | 21 | 3 | 75.9 | 87.5 |
| Over 10 | 11 | 15 | 6 | 3 | 42.3 | 66.6 |
| Totals | 52 | 28 | 27 | 6 | 65.0 | 81.8 |
| B. Cases receiving first serum in second 24 hours after first symptoms: | | | | | | |
| 10 and less | 11 | 9 | 6 | 0 | 55.0 | 100.0 |
| Over 10 | 2 | 8 | 1 | 0 | 20.0 | .... |
| Totals | 13 | 17 | 7 | 0 | 43.3 | 100.0 |
| C. Cases receiving first serum over 48 hours after first symptoms: | | | | | | |
| 10 and less | 10 | 6 | 7 | 4 | 62.5 | 63.6 |
| Over 10 | 7 | 10 | 1 | 5 | 41.1 | 16.6 |
| Totals | 17 | 16 | 8 | 9 | 51.5 | 47.0 |
| Grand Totals: | | | | | | |
| 10 and less | 62 | 28 | 34 | 7 | 68.8 | 82.9 |
| Over 10 | 20 | 33 | 8 | 8 | 37.7 | 50.0 |
| Totals | 82 | 61 | 42 | 15 | 57.3 | 73.7 |

* In this table a small dose = 3,000 units or less subcutaneously; a large dose = over 3,000 subcutaneously or 3,000 or less intraspinally or intravenously.

In the average patient suffering from tetanus in whom symptoms have just appeared, the following conditions are present: Some of the toxin has already reached the central nervous system, and trismus or other evidence of tonic spasm suggests the diagnosis; another portion of toxin is ascending centralward in the nerves supplying the infected extremity; a still larger amount of toxin is present in the blood, and is being taken up and traveling centralward along the other nerves of the body. Some of these patients have already received a fatal dose of toxin in the peripheral and central nervous system when they are first seen, and will die no matter what is done. Patients whose condition is apparently hopeless, however, and in whom convulsions have already begun, may recover, and since, at the present time, there seems to be no criterion by which we may be sure that the fatal dose has already reached the central nervous system, all patients should receive energetic treatment.

The necessity for haste is evident. The toxin still free in the blood must be neutralized as quickly as possible, and for this purpose the intravenous injection of serum is advisable. Next in rapidity of absorption is the intramuscular route, which should be employed if, for any reason, the intravenous method cannot be used. Antitoxin given subcutaneously reaches the maximum concentration in the blood only toward the end of the second twenty-four-hour period after injection. This delay in absorption may entail

a lapse of time sufficient to allow the development of a fatal intoxication. It is true that in some cases the formation of the toxin may proceed slowly, so that the subcutaneous injection of antitoxin may prove life-saving, but in the ordinary acute case a dose of from 1,500 to 3,000 units given subcutaneously can be of little immediate value in neutralizing toxin in the blood and staying the course of the disease.

The importance of intraspinal injection of antitoxin as a means of dealing with toxin that has already reached the central nervous system has been recently emphasized by Park, who has shown that animals in which tetanus has already developed may be saved by antitoxin in adequate doses, and that the results are better and smaller doses required when the antitoxin is given intraspinally than when other routes such as the intravenous are employed. These experimental results, together with a number of favorable results in human tetanus, indicate that the intraspinal injection of antitoxin should be urged in all cases of tetanus.

The intraneural injection of antitoxin serves to neutralize that portion of toxin peripheral to the point of injection in the nerves supplying the infected extremity, but from what we know of the distribution of toxin in the body in human tetanus, the instances in which this method alone is life-saving must be extremely rare.

In Table 2 the cases are divided into groups with respect to (1) the incubation period, (2) the time elapsing from the appearance of symptoms to the beginning of treatment, and (3) the size and efficiency of method of injection of the dose of antitoxin. This classification may be criticized as faulty in a number of particulars, but taking the cases in the aggregate, it offers a basis of comparison as accurate as can be obtained from the data available. A comparison of the mortalities of cases receiving large and small doses of antitoxin shows the importance of adequate dosage and proper method of injection. In acute tetanus a small dose of antitoxin given subcutaneously does very little good. The reduction of aggregate mortality over the mortality of untreated tetanus is evidently due to the favorable results obtained in the cases in which larger doses were employed in an efficient manner.

Some comment is necessary on the relative mortalities of cases receiving large doses in the first and second twenty-four-hour periods. The lower mortality in the second group (B) is obviously due not to the postponement of treatment, but to the fact that a large number of patients with acute tetanus die within from twenty-four to thirty-six hours after the appearance of symptoms. Such cases will necessarily appear for the most part in the first group (A), and the second group (B) accordingly will show a lower mortality through this unavoidable element of selection.

Likewise, the third group (C) necessarily contains cases with slower onset, milder course and correspondingly less grave prognosis, in which the necessity for rapid neutralization of toxin is less urgent, and the difference between the results obtained by large and small doses of antitoxin disappears. It should be remembered, however, that these cases are distinguishable only after the termination of illness, and the fact that they occur should be given no weight in planning the treatment of the individual case. Every case of tetanus is extremely serious.

2. Permin: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1913, xxvii, 1.

A similar tabulation of cases with respect to the total amount of serum used in treatment showed essentially the same relation of efficient dosage to lowered mortality.

Magnesium sulphate was given intraspinally in 18 cases which received also serum; in 4 cases, 2 acute and 2 chronic, the patients recovered, giving a mortality for the group of 77 per cent. In 2 cases death occurred shortly after the injection, with symptoms of respiratory paralysis.

SUMMARY

1. From these statistics it appears that the mortality of tetanus treated by tetanus antitoxin is about 20 per cent. lower than the average mortality of tetanus treated without serum.

2. The mortality of cases treated by efficient methods and adequate dose is considerably lower than that of cases receiving small doses subcutaneously.

SUGGESTIONS FOR THE TREATMENT OF TETANUS

The prophylactic value of tetanus antitoxin is established, and needs no argument for its support. That tetanus antitoxin properly used may save the life of a patient in whom tetanus has already developed should be more generally recognized, and the treatment employed in every case at the earliest possible moment. Every hour lost before the giving of the antitoxin decreases the chance of saving life. By no means will every patient recover, but certainly more can be saved than have been in the past five years, and there is every reason to anticipate that with a proper use of antitoxin a mortality considerably lower than that of the present will be obtained.

It is important that the full effect of the antitoxin be obtained immediately, and this may be accomplished by giving, as outlined by Park, 3,000 units intraspinally, and from 10,000 to 20,000 units intravenously at the earliest possible moment after symptoms of tetanus appear. On the following day the intraspinal injection of 3,000 units may be repeated. The blood remains strongly antitoxic for several days. On the fourth or fifth day 10,000 units should be given subcutaneously to maintain the antitoxin content of the blood.

It is doubtful whether the enormous doses given in some cases over periods of many days are any more effective than the more limited dosage outlined above. If only a small amount of antitoxin (3,000 units) is available it should be given intraspinally. Intraspinal and intravenous injections should be given with all the precautions usually enjoined for these methods.

This use of antitoxin in no respect replaces other recognized non-specific methods of treatment in tetanus. Surgical treatment of the site of infection should be instituted at once. The patient should be placed at rest in bed in a quiet darkened room, and should receive sufficient sedatives to control convulsions, together with adequate supply of fluid nourishment and attention to elimination by kidney and bowel. The necessity for large and continued doses of sedatives such as chloral or chlorbutanol should not blind the physician to the possible danger of giving an overdose. The condition of the patient should be carefully watched, and a revision of the standing orders for sedatives made whenever the symptoms suggest the necessity for decrease or increase of dose.

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VAGINAL DRAINAGE

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The question of how, when and where to drain is still a matter of constant debate, and a general or universal law of how, when and where has not been established. In the modern trend of surgery, with the growing tendency to "close without drainage," there is no auto-interrogation more often propounded by the operator than "Shall I or shall I not?" I doubt whether the leaning to the more common practice of "I shall not" is the wisest, most comfortable and safest plan for our patients. This question, however, cannot be decided affirmatively by answering that the results justify the means, because the general improvement in surgical skill and aseptic technic certainly must be taken into account.

Heretofore, too many patients were drained, but I fear that we are now approaching the danger-point at which drainage is not practiced sufficiently. Successful issues in cases in which drainage has been considered, unfavorably decided against, and therefore discarded, have and will continue to lead operators to try greater hazards until a calamity befalls, when they run to cover in the opposite extreme of more generous and general drainage. While the teaching of Keith, "when in doubt, drain," is not of so grave importance as it was in his time, it is still worth remembering, and its milder application to surgery to-day will, in many cases of doubt, give the surgeon confidence and his patient more comfort and hope for the future.

It is not the object of this paper, however, to discuss in detail the broad subject of drainage, but rather to limit its scope to the consideration of the drainage of the female pelvis. It is hard to conceive why there should be a division of opinion in selecting the route through which the pelvic cavity of women should be drained. The majority of surgeons, I believe, realize the advantages of drainage through the vaginal channel, and practice it more commonly than ever before. A great number of men, however, persistently cling to the abdominal route and are reluctant to discard this system and adopt the plan which Nature has provided in the vaginal canal.

The failure of some men to select the vagina as a drainage channel is due largely to the fact that they are wedded to custom and fail to recognize, by impartial trial, the advantages offered by utilizing the drainage tract provided by Nature. Would not the more general practice of vaginal drainage of pyogenic infections, involving the pelvic organs, be associated with a less number of infected incisions; would not reopening of the abdominal incision be less frequently required; would not this method bring to the surgeon a less amount of worry, and would not the patient suffer less discomfort, would not her convalescence be more expeditious and calm, and could not one give unquestionably greater assurance of a successful issue in doubtful cases? I fail to see the wisdom of draining pyogenic infections of the pelvic cavity through the abdominal incision, as this method positively has many disadvantages which cannot logically apply to drainage established through the vagina. Therefore, when drainage of the female pelvis is contemplated the vaginal route should be the method of choice.

DISADVANTAGES OF ABDOMINAL DRAINAGE

Abdominal drainage, as has been intimated, has many objectionable features, because it is associated with questions both of economic and vital interest to the patient. No claim can be made for it as a safer procedure than vaginal drainage, and it is of extreme economic moment to the patient, because of necessity it means a prolonged convalescence, and therefore, a longer domicile in the hospital with the additional expense entailed thereby, and a longer period of isolation from remunerative occupation. Besides, it is associated with a greater degree of discomfort than vaginal drainage, and is infinitely more painful and distressing because the abdominal wall is constantly soiled and irritated with material drained. (No objection can be made to the statement that there is a greater danger of infection, more or less general, of the abdominal incision, with material of an infected nature passing through an angle of the abdominal wound.)

An infected incision, therefore, means, to a certain degree, faulty union with a strong likelihood of a weakened abdominal wall with the probability of a subsequent ventral hernia. Should the wound escape infection, the angle through which drainage has been placed and removed heals not by primary reunion, but by second intention, and this, therefore, will predispose the patient to the development of rupture. Abdominal drainage certainly cannot offer more freedom to drainage material than the natural channel leading from below.

One who has practiced abdominal drainage is constantly reminded of and realizes, with deep concern, the dangers incident to the removal of an abdominal drain, especially of the possibility of breaking up adhesions and scattering infection or tearing bowel or omentum or delivering one or both of these structures into the abdominal incision, with the subsequent formation of more or less extensive adhesions and the probability of intestinal obstruction. Is it not good surgery to institute methods which will insure speedy recovery and a short convalescence with the least possible discomfort and the avoidance of subsequent harmful, painful or even surgical sequelae? These ideals of surgery will not accrue from the hard-and-fast rule of abdominal drainage. Many of these ideals can be brought about by the practice of utilizing Nature's tube. It is not at all too much to contend, therefore, that many of the disadvantages mentioned above can be materially reduced and, in the majority of cases, entirely obviated by the practice of vaginal drainage.

In a discussion of this subject at a recent meeting the statement was made that one of the principal disadvantages of vaginal drainage was due to the fact that the drain could not be allowed to remain so long as it could in the abdominal incision, for the reason that "it became foul and offensive." Nothing could be more erroneous than this. The foulness of a drain does not depend on the length of the time it is allowed to remain in the field of operation, but rather on the character of the infection present at the time of operation. A necrotic colon infection will cause drainage material to become foul and offensive, it does not matter where it is located, whether in the vagina or in the abdominal incision. Moreover, foulness does not cause harm. It is a good sign that offensive material is being carried away, and surely it is better to have

material of this character without than have it manufactured and pent up within. Indeed, it is not the drain that is foul, but the material the drain is carrying away.

A very important question in this connection is, How long should the drain remain? It is my practice and established rule never to remove, or allow to be removed, a vaginal drain under six days, and I frequently allow it to remain for eight or ten days without any harmful results. It should not be removed too early because the walling-off process by adhesions about the drain is not firmly formed, and therefore, there is a greater danger of breaking up Nature's delicate bands and of disseminating infection. Moreover, if the drain is allowed to remain for several days it is not necessary to repack or redrain.

RULES FOR VAGINAL DRAINAGE

In cases of extensive pyosalpingitis and pelvic peritonitis with dense adhesions and infection limited to the structures below the sacral promontory, I believe that drainage should be instituted and that failure to do this will in many instances cause grave alarm in a stormy convalescence and occasionally result in a fatality. Furthermore, I am convinced that the route to be selected should be through the vagina, with the abdominal incision thoroughly and completely closed. I admit, however, that in a few exceptional cases, it would be good practice to institute both vaginal and abdominal drainage.

In conditions such as mentioned above it has been my custom to begin the operation with a premeditative view of establishing drainage, by making a preliminary free posterior vaginal incision. This procedure has the additional advantage of frequently allowing the escape of unsuspected free exudate, and thus, to a certain degree at least, safeguarding the patient from dissemination. After the posterior vaginal wall is freely incised and accumulated material allowed to escape, the cavity of Douglas is cleansed by gentle dry sponging, after which a tampon of plain gauze is placed in the pelvic cavity. This is allowed to remain until after the abdominal incision is made when it will prove, in a measure, a guide to the operator and in many cases point out to him the lines of cleavage in separating existing adhesions.

CHOICE OF DRAIN

It has long been taught that iodoform gauze does not prove an efficient drainage agent, because it hampers drainage and tends to "dam up." This in a measure is true, but in conditions such as we encounter in pelvic infections it is the ideal drain, for the reason that we need an agent that will afford a certain amount of drainage and at the same time act as a compress to control oozing from the raw surfaces left as a result of separating the dense adhesions. I can see no advantage in the T-shaped rubber tubing. One of the prerequisites of a suitable pelvic drain is the power of the drain to act as a compress and, of course, it goes without saying that rubber tubing will not accomplish this purpose.

METHOD OF DRAINING

After completing the removal of the diseased organs such as the uterus, ovaries and tubes, and other necrotic tissue, the pelvic cavity is thoroughly cleansed by dry sponging, and the tampon, previously introduced from below, is removed. A large tampon of

iodoform gauze 1 yard long and 1 yard wide, rolled loosely (not tightly) on itself, with all selvages turned in, is then carried into the pelvis, one end of which is made to enter the opening previously made through the posterior vaginal fornix. There should be no set rule, however, as to the dimension of the gauze employed, but a quantity sufficient to fill the pelvis and fairly cover all stumps and raw surfaces should be used. This method will prevent to a large degree oozing from raw surfaces left in breaking up adhesions, and by keeping the intestines and omentum out of the pelvis, it will prevent subsequent union between these structures and the pelvic cavity. There can be no objection to the employment of the preliminary posterior vaginal incision, because it is quickly executed and does not endanger any organ if properly performed. Where a preliminary posterior incision has not been made this operation can be done, but with a greater difficulty from above by picking up the vaginal wall with a double tenaculum close to the cervix, and incising freely. It is, however, much easier and much safer to make the preliminary incision from below. The gauze drain should be allowed to remain, as has been stated, from six to eight days and it should then be removed, preferably under short chloroform anesthesia. No repacking should be resorted to and no douches should be given for several days, because of the danger of washing or flushing fluid into the pelvic cavity through the vaginal opening. Douches should not be used for several days and then only if material is present to require douching. If reaccumulation takes place in the pelvic cavity subsequently to the removal of the gauze, spontaneous opening usually occurs through the line of vaginal incision or, if necessary, the cicatrix can be readily broken through by digital pressure.

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HISTORY OF A TYPHOID CARRIER

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In the fall of 1910 Mr. A. moved from Minnesota to the town of G., Wisconsin, bringing with him his wife and three boys. He bought a farm 4 miles northeast of the village. In December, 1909, Mr. A. had been operated on in St. Paul for pyonephrosis, and a tumor mass weighing 5 pounds removed. No bacteriologic examination was made. One of the doctors who assisted at the operation states that six months before he had treated Mr. A. for typhoid fever. About the time of moving to Wisconsin the eldest son had typhoid fever, and soon after the two other sons and their mother came down with the disease.

Mr. B. with his family, consisting of his wife, two boys and a girl, moved from Minnesota to Wisconsin about the same time, having purchased a farm in the immediate neighborhood of Mr. A. While the buildings on this place were being put in order Mr. B.'s family stayed at the home of Mr. A., with the apparent result that first the daughter, and soon after Mr. B. and the two sons came down with typhoid fever.

In the fall of 1911 Miss C., a niece of Mr. A., came from St. Paul to teach in the public schools. She was in the habit of spending the week-end at the house of

Mr. A. After six weeks' residence in the town of G. she became ill with typhoid fever.

At the same time a sister of Mr. A. visited him and soon after returning to her home suffered from typhoid fever also.

About Aug. 15, 1911, Mr. D. visited at the home of Mr. A. and took supper with him. September 20 Mr. D. entered a hospital after having been sick for some days, and a diagnosis of typhoid fever was made. His illness began during the first week of September.

In the spring of 1912 two young men, E. and F., who were working at the home of Mr. A., both contracted typhoid fever.

In the fall of the same year Mrs. G., a sister of Mrs. A., accompanied by her son, spent a few weeks at the home of Mr. A. Soon after returning home both contracted typhoid fever.

In the latter part of 1912 or January, 1913, Mr. H., a brother of E., spent a night at the home of Mr. A., and twelve days afterward came down with typhoid fever.

In June, 1913, Miss I., a niece of Mr. A., living near him, suffered from typhoid fever. There had been frequent visiting between the two families.

On or about Oct. 15, 1913, Mr. J. took the Reverend K., his wife and two children to the home of Mr. A. for a visit. They did not take a meal at the house, but the children became hungry and cookies were handed. October 28, the Reverend K. bought butter from Mr. A. for table use, and on November 2 Mr. A. and family dined at the home of the Reverend K. On November 11 the two children of the Reverend K. became ill with typhoid fever, and on November 30 Mrs. K. and her husband also went down with the disease, Mrs. K. dying.

It thus appears that twenty-one cases of typhoid fever occurred among persons in this community, or those who had visited there, and all of them had been in contact for longer or shorter periods of time with Mr. A.

These facts were called to my attention in June, 1913, and the circumstances were so suspicious that I advised doing Widal tests on the family of Mr. A. Mr. A. himself and one son gave positive reactions. We then shipped tubes of bile to the health officer of the town, asking him to inoculate them with the urine and feces from these two persons. Examination of these tubes showed the presence of typhoid bacilli in the urine of Mr. A., but not in the feces. Subsequent examinations have confirmed this finding. Even after treatment with hexamethylenamin for a considerable period of time the typhoid bacillus can still be isolated from the urine of Mr. A. with a considerable degree of regularity.

In the fall of 1913 Dr. Fred Johnson was appointed deputy state health officer, and since that time the field work on this case has been under his charge, and he has collected a number of specimens for examination.

In considering this run of cases of typhoid fever the question may well be asked, With what degree of certainty can the origin of these cases be traced to Mr. A.? In a few of them, as for example Mr. H., who spent a single night at the home of Mr. A., and of Miss I., who had simply visited, the exposure seems to have been very slight, and it is hard to state with any degree of certainty that the disease was contracted from Mr. A. The period of incubation in the case of Mr. H. was unusually short, although not shorter than

has been noted in a number of cases. In the case of Mr. D. the exposure also seems to have been slight. The exposure of the Reverend K. and his family appears to have been sufficient, especially in view of the purchase of butter prepared at the farm, and the period of incubation was such that it is not going far out of the way to connect these cases directly or indirectly with Mr. A.

It must be noted also that all of these patients with the exception of Miss I. are known to have taken food served at the house, and on account of frequent visits it is almost certain that Miss I. had also had food there.

Every effort has been made to exclude other sources of infection. The water-supply of the town of G. was examined and found to be above suspicion. There was no typhoid fever in this community except among those persons who had been in contact with Mr. A. Admitting that a few of these cases are doubtful, it is nevertheless reasonable to conclude that a great majority of them were infected directly or indirectly from Mr. A.

RATIONALE OF THE USE OF ANTISEPTICS AND GERMICIDES IN INFLAMMATIONS OF THE MUCOUS MEMBRANES *

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This paper concerns itself with the question why antiseptics and germicides influence favorably the infections of the mucous membranes. The simplest answer, the one accepted for several decades almost as gospel, is that antiseptics or germicides gradually kill off the bacteria and so terminate the infection. Of course, one can use or misuse an argument at will so long as the world is with one, but the thinking element of the medical profession has become skeptical. Once the bacteria lie in the depths of the tissues, except as to be noted later, a great mass of honest experimental work has shown that it is impossible to reach them with our antiseptics or germicides as used in practice. This demonstration accounts for the honest skepticism and growing discontent with the old explanation.

The general surgeons are going through a similar evolution. The belief that the use of a moist antiseptic or germicidal dressing over an infected wound has any direct influence on the course of the infection within the tissues is rapidly losing ground. The progressive surgical opinion of to-day is that in infected wounds a moist saline or water dressing will accomplish all that an antiseptic could without the risk of the occasional bad effects of the antiseptic or germicide.

First, I wish to make sure that we are agreed on the use of terms. A germicide is a preparation that kills vegetative bacteria on true contact practically instantaneously. Spores require especially strong germicides to bring about their instant destruction, such as free chlorin, intense heat, etc., and consequently are not considered in this definition. An antiseptic is an agent which hinders the growth of bacteria. After

hours or days antiseptics often kill bacteria, but do not necessarily do so. The German term, *entwicklungs-hemmend* — development checking — is much preferable for a clear understanding of the meaning.

PROPHYLACTIC USES

One most important use of the germicides is a by-product of medical science of the last decade. I refer to the prophylactic use of germicides on a mucous membrane which has been exposed to infection. Under such circumstances the bacteria are on the surface and theoretically should be killed off by the proper use of a germicide. The strength of solution which should be used to make sure of killing the bacteria, and at the same time do a minimum of injury to the tissues, constitutes an open question for individual experience and judgment. From the points of view, however, of both theory and the literature, I would strongly favor the use of an active germicide and condemn the weaker antiseptics, such as argyrol or collargol, as not being efficient in killing off bacteria. Credé's prophylaxis of ophthalmia neonatorum, I take it, is accepted as being efficient in killing off the gonococcus on the surface and thus preventing the infection. The original 2 per cent. solution is now held to be unnecessarily severe, so that 0.5 per cent. or even weaker solutions have justly come into use.

The prophylactic use of a germicidal injection after exposure to venereal infection from a theoretical point of view is reasonable. Of late this procedure has gained greatly in the number of its adherents. The more recent army reports are favorable to its efficiency in practice. The exact strength of solution opens a field for individual views, though here again weak antiseptics should not be depended on.

Another direct use of germicidal power belongs to the ophthalmologist exclusively on account of the anatomic structure of the cornea. Because of the density of structure and consequent comparatively limited possibilities of blood- and serum-supply, the cornea is comparable to bony tissue. In such tissues the infection tends to remain localized and so theoretically could be blotted out by the use of a germicide. Good authority affirms that it works out in practice.

ACTION IN ACUTE INFLAMMATION

Now I venture into the dangerous field of comparison. Let us take up the established surgical principles in dealing with an abscess. Once an abscess has reached such a size that fluctuations can readily be made out, practically always the fluid contents must be discharged before it will heal. When neglected, the pus often works its own way out; more properly the knife hastens its escape. The rational explanation of the healing is that the tissues no longer have to struggle against so great a quantity of toxin and consequently are able to overcome the infection. It has been often directly proved, of course, that a fresh abscess contains toxin in quantity. Many abscesses will heal, no matter in what part they are opened; others refuse to heal until opened at the lowest gravity point; hence the established surgical rule. This, should consider, would rule out the question of tension, for tension is relieved as well by a high as by a lowest-point incision. The pus with its toxin must drain out of the wound entirely in order to promote recovery. But certain abscesses cannot, on account of their anatomic relations, be drained from the lowest point; such, for instance, are deep collections. o

* Read before the St. Louis Medical Society, April 18, 1914.

* My previous papers on similar topics are: Hyg. Rundschau, 1909, No. 12; Fallacies in the Understanding of Antiseptics and Germicides with Special Reference to Mercuric Chlorid, THE JOURNAL A. M. A., July 23, 1910, p. 308; Am. Jour. Ophth., 1912, xxix, 1. ¶

abscesses in certain joint cavities. The accepted surgical procedure there is to insert tubes and continuously wash out the pus with its toxin as soon as formed—some surgeons advocating normal saline solution, others, I believe not improperly, adding weak antiseptics like potassium permanganate or argyrol.

As a basic principle for these well-recognized surgical procedures, we thus find the continuous removal of the toxin. This checks the poisoning, while the antistances of the body bring about the cure. In a nutshell, I should consider the same principles as the basis of the modern treatment of acute inflammation of the mucous membranes. The advantage of the addition of mild antiseptics to the irrigation I accept as established by the clinical experience of many excellent observers. Theoretically these weak antiseptics may well aid in cleansing the membrane, and possibly in preventing further toxin formation in the already excreted serum by their antiseptic powers. Stronger germicides in the acute stages are, according to this argument, not helpful, and inasmuch as they increase the irritation, are distinctly contra-indicated.

ACTION IN CHRONIC CONDITIONS

The great advance in the treatment of chronic mucous membrane inflammations in the past decade is due to an improved recognition of the cause of the chronicity. For example, the cauterization of enlarged turbinates when required, putting an end to a nasal focus, may be all that is necessary to end a chronic conjunctivitis. The massage of the prostate or seminal vesicles may end a most persistent urethral inflammation without other treatment. The gradual dilatation of the lacrimal ducts or urethra may be all that is required to cure otherwise intractable cases. The protection of the eyes against any constant irritation may be the sole help which Nature requires. The dilatation of a ureter, or the removal or drainage of a kidney, may be required to cure a chronic cystitis. The reestablishment of complete bladder drainage in cases of prostatic hypertrophy or of prolapsed bladder in women may be indicated. Further, and greatly to be emphasized, a toning up of the general health will often promote a cure when other measures have failed.

So it is obvious that chronic mucous membrane inflammation can be cured without the use of any antiseptic or germicide. In other words, it is unnecessary to kill off the bacteria within the membrane by germicides in order to obtain a cure. The negative results of the honest experimental work are therefore not so disheartening. The statement that silver nitrate solutions, etc., are good for the treatment of chronic mucous membrane inflammations is therefore only in part true. At times it is surely not a necessity of treatment; at other times the belief in its efficacy causes neglect of other most important measures.

In chronic mucous membrane inflammation, after all is done that can be accomplished along the general lines noted above, some degree of irritative treatment is unquestionably called for in a great percentage of cases, to hasten in some, or in others to bring about a cure. What strength and frequency of irritation, whether the very strong germicides or the weakest of astringents, are questions to be decided on the merits of the individual case. Why do these measures cure? Negatively, I feel strongly that they do *not* act by killing off directly the infecting organism. With this opinion the great majority of progressive specialists, I take it, are in full agreement. The benefit is an

empirical observation, what in medicine we are wont to call an alterative action. It probably has several factors, an increased blood-supply carrying fresh antibodies, improved drainage of small pus-pockets, a local stimulus to the proliferation of cells, etc.

Germicides in this usage are a two-edged sword, and must be used in the various types of chronic inflammations with the mind open to possible bad effects. For instance, in the midst of a very dense scar it would obviously be impossible to increase the blood-supply. Further, to decrease the discharge for a time artificially by an astringent does not necessarily mean improvement of the condition. But with intelligent observation they are capable of accomplishing real good.

CONCLUSION

It is thirty-odd years since the beginning of the modern study of bacteria, and of antiseptics and germicides. In the enthusiasm of so great a discovery—one that revolutionized the whole status of medicine—it is not to be wondered at that the powers of antiseptics and germicides were exaggerated—that their limitations were not recognized. The battle for antiseptics and germicides has long ago been won, but it remains for the present day impartially to determine their limitations. Many of the veterans naturally are loath to give up their former positions, whereas many of the younger men feel that the general truth of these limitations is too patent to be of interest for discussion. I wish to emphasize my belief that the rationale back of the use of antiseptics and germicides is a live question in theory—one whose answer must have an influence in practice.

Wall Building.

"Pylorospasm".—The "pylorospasm" of the roentgenologist is not the well-recognized pylorospasm of the clinician. Most roentgenologists in writing about the bismuth residue which occurs so frequently in pyloric and duodenal ulcer, speak of "pylorospasm" as if it were a fact and not a theory. Case, for example (*Jour. Michigan State Med. Soc.*, November, 1913), says "When the meal is larger, delayed pylorospasm may be set up and a small residue remaining longer than six hours may result." Of course, the converse is the true statement: "When the meal is larger, a small residue may remain longer than six hours, and this we assume to be due to pylorospasm." Roentgenologists habitually diagnose pylorospasm when they find a six-hour residue in a highly acid stomach showing clinically no signs of pylorostenosis. They know, however, that it cannot be true. Firstly, in the great majority of cases they can press this bismuth through the pylorus into the duodenum by effleurage with the hand or with the distinator of Holzkecht. Secondly, a jet of bismuth water will often dash through the pylorus into the duodenum although the residue remains. Most important of all, I have often passed the large Gross duodenal tube through the pylorus in these cases without any difficulty (Lippman, C. W.: Simplification of the Duodenal-Tube Examination, *THE JOURNAL*, March 21, 1914, p. 911). I have even passed the tube while the six-hour residue was in the stomach in a few cases. Certainly a pylorus which allows a large lead ball to pass is not inclined to pylorospasm. It seems to me that the residue is due to the sinking of the bismuth in the excessive fluid secretion which is so often associated with gastric and duodenal ulcer cases. Most of the men believe that the residue is due to pylorospasm plus hypersecretion, but in consideration of the facts mentioned above, I believe that pylorospasm in its pure clinical sense is a negligible factor in the ordinary case with a six-hour residue.—C. W. Lippman, M.D., San Francisco, St. Francis Hospital.

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SATURDAY, JUNE 27, 1914

On account of the large amount of space occupied by the index in this issue of THE JOURNAL, certain departments have been omitted entirely and others abbreviated.

THE INDEX

This issue of THE JOURNAL contains the index to the current, or sixty-second, volume of THE JOURNAL, including the current medical literature which has been listed from week to week. The Index contains references to original articles in over two hundred of the leading medical journals of the world, including those of the principal foreign countries.

The Index consists of two parts — an author and a subject index. Under "Authors" appear the names of all who have contributed articles to THE JOURNAL or to any other medical journal listed in the current literature, as well as the names of those whose papers are abstracted in the medical society reports in THE JOURNAL. Under "Subjects" will be found complete references to all reading-matter in THE JOURNAL and references to the original articles in all domestic and foreign journals listed, arranged under the subject of the article with double entry when necessary and with numerous cross-references to facilitate the use of the Index. The figures in bold-faced type refer to reading-matter in THE JOURNAL.

The "Guide to Current Medical Literature," under which title the Index appears in pamphlet form,¹ contains, in addition, the titles of the articles listed, arranged chronologically and by journals, as in the Current Medical Literature Department. It is issued in separate form for convenience—to make it unnecessary to handle the bound volume of THE JOURNAL.

Just preceding the Index a list of the journals indexed during the past six months is given. Any foreign journal, except those starred, will be lent by THE JOURNAL to subscribers and members in the United States with the understanding that it will not be held over three days. Requests for journals should

be addressed to the Library of the American Medical Association and six cents in stamps should be enclosed. This covers the average expense of mailing a journal. The addresses of the domestic journals are given, and these can be obtained direct from the publishers. No domestic journal will be lent, as these can be obtained direct from the publishers as easily and as quickly as from us.

DISINFECTION AFTER CONTAGIOUS DISEASES

Advances in our knowledge of the way in which disease is spread are continually influencing our methods of combating infection. An instance of this is best seen in the importance which the living carrier of infection is assuming in the minds of public-health officials, as contrasted with the relative unimportance of inanimate objects or fomites. The question has its distinctly practical side. Given a certain sum of money for combating disease, how can it be most profitably expended? The most fruitful sources of infection should plainly be attacked first, while those of lesser significance may be made to wait for more ample resources or until more vital matters have been successfully dealt with. If the neighborhood of a disease-germ carrier is highly dangerous to uninfected persons, while the inanimate objects with which he comes in contact are not likely to convey disease, this fact should be known in order that our efforts may be directed where they are likely to be most effective. We have no wish to expend any energy fighting windmills.

It is not always easy, however, to secure evidence of the relative efficiency of different methods of combating disease. At present some attempts are being made to study the value of terminal disinfection and to determine what our efforts in this direction are actually accomplishing. It is essential that we know just what the facts are.

Large sums of money have been and are being spent by city health departments in disinfecting rooms after cases of infectious diseases. The custom has in its favor the weight of opinion and the sanction of long tradition, but its efficacy in preventing the spread of infection is now being seriously questioned by some experienced health officers. Every one will admit the theoretical possibility that, in a room once occupied by a patient or convalescent, specific disease germs may remain long enough to endanger its subsequent occupants. Whether disease is actually disseminated by this method is another question, and one that can be settled only by experience. Our knowledge of the life-history of pathogenic bacteria outside the body, while far from complete, is at least sufficient to show that differences exist and that conclusions drawn from observations on one disease cannot be indiscriminately applied to others.

1. The Guide to Current Medical Literature may be obtained from the Association office at 50 cents a copy.

One method of determining the value of room disinfection in preventing the development of fresh cases of infection is to compare the number of cases arising in households after room disinfection with that of cases originating in the absence of such disinfection. Such a comparison has been made by Chapin¹ of Providence, R. I., with instructive results. Two diseases are considered, diphtheria and scarlet fever. In Providence, a city of about 235,000 inhabitants, "living for the most part in dwellings with tenements or apartments for two to six families," terminal disinfection after scarlet fever was discontinued after 1908. A comparison is thus permitted between a disinfection and a no-disinfection period. Cases occurring in the immediate family within sixty days after the termination of isolation were considered recurrences. During the years 1904-1909, when room disinfection was practiced, scarlet fever developed in 2,428 families with 36 recurrences, a percentage of 1.48; during 1909-1912 (no-disinfection period), there were 1,704 infected families and 26 recurrences, a percentage of 1.53. A similar comparison for diphtheria gave a percentage of recurrences of 1.71 in 1,457 infected families after disinfection and 1.75 in 3,658 families during the period of no disinfection. The same conditions are shown by a similar comparison of the number of cases developing among susceptible persons, mostly children, who had been sent from home during the progress of the disease and returned at the end of the isolation period.

"Between 1889 and 1904, 1,013 persons, mostly children of school age, returned to their homes following disinfection after diphtheria. Of these, nine, or 0.88 per cent., contracted the disease. Since the beginning of 1905, 836 persons, mostly children, have returned to their homes where there had been no disinfection. Of these, seven, or 0.84 per cent., contracted diphtheria. Of these, five were in 1912. Of 1,659 persons who had never had the disease, thus returning to disinfected houses after scarlet fever, twelve, or 0.72 per cent., developed scarlet fever. Of 284 persons thus returning where there was no disinfection, three, or 1.05 per cent., contracted the disease."

These results, taken as they stand, are thought by some to indicate that the costly and time-consuming practice of house disinfection has little or no influence on the spread of infection in diphtheria and scarlet fever. While this is in accord with recent observations on the importance of carriers and missed cases, further investigation of this important question is plainly to be desired.

The recent action of the Department of Health of the City of New York² in discontinuing fumigation after diphtheria and measles may be noted in this con-

nection. After room disinfection following diphtheria was abandoned, the practice of taking the bedding to a disinfection station for sterilization was continued; but more recently this procedure also has been dispensed with. Fumigation after scarlet fever is still carried out by the New York Health Department, though the statement is made that the number of secondary cases occurring even in the families directly exposed "is surprisingly small."

Many investigators believe that the life of most disease germs outside the body is very brief and that the danger from inanimate objects or fomites is therefore in most cases slight. Each disease, however, must be studied with reference to its own mode of spread. It does not follow that, because room disinfection appears to some observers of little or no value after diphtheria, scarlet fever or measles, it is also to be abandoned after pulmonary tuberculosis and small-pox. At least one definite conclusion seems justified: many public-health measures are still on an experimental basis and, like any other similar procedure, must be judged by their outcome. Analogy and tradition are not safe guides.

ACIDITY, EDEMA AND NEPHRITIS

The controverted theories of edema and nephritis proposed by M. H. Fischer¹ have awakened considerable clinical interest because of the practical recommendations which have been based on them. Broadly speaking, Fischer's view is that increased acidity is the fundamental cause of most forms of edema, and of all forms of nephritis and albuminuria. The conclusion rests primarily on certain simple experiments on the swelling of fibrin, gelatin plates, fragments of tissue, etc., in alkaline and acid solutions. In these experiments Fischer has observed, in all cases except when very dilute acid was employed, an influence of acidity in increasing the colloidal swelling of these protein substances in the solutions in which they were immersed. From this he concludes, in essence, that acidity may be the cause of colloidal swelling in the body.

Various writers have taken issue with this assumption since it was first presented.² The most recent and perhaps most convincing criticism has come from the chemical laboratory of the Massachusetts General Hospital in Boston.³ This points out what has been

1. Fischer, M. H.: *Oedema*, New York, 1910; *Nephritis*, New York, 1912. See also editorial, *A Controverted Theory of Nephritis*, *THE JOURNAL A. M. A.*, June 20, 1914, p. 1971.

2. Compare Gies, W. J.; Rosenbloom, J.; Weinberger, W.; Oltenberg, R., and Mosenthal, H.: *Edema*, *Biochem. Bull.*, 1912, i, 270. Fischer, M.: *A Response to Some Criticism of the Colloid-Chemical Theory of Water Absorption by Protoplasm*, *ibid.*, 1912, i, 444. Gies, W. J.: *Further Comment on Fischer's Theory of Edema*, *ibid.*, 1912, i, 461. Moore, A. R.: *Fischer's Theory of Edema and Nephritis*, *THE JOURNAL A. M. A.*, Aug. 10, 1912, p. 423; *Edema and Nephritis: Further Experiments Proving the Invalidity of the Colloid-Chemical Theory*, *ibid.*, Feb. 1, 1913, p. 345.

3. Henderson, L. J.; Palmer, W. W., and Newburgh, L. H.: *The Swelling of Colloids and Hydrogen Ion Concentration*, *Jour. Exper. Pharmacol.*, 1914, v, 449.

1. Chapin: *The Medical Officer*, 1913, ix, 218.

2. *Bull. Dept. of Health, City of New York*, 1913, iii, 175.

emphasized before, namely, that nowhere in the living body (except in the gastric juice in which the swelling of protein in acid is indeed a factor of importance) has a single instance been detected of such acidity of reaction as occurred in Fischer's fundamental experiments. On the other hand, even in his own trials, no significant swelling — the index of the edematous state — ever occurred with acidities represented by a hydrogen-ion concentration of less than 0.0005 normal. The highest acidity of the urine ever reported, however, expressed in these terms, is less than 0.00003 normal hydrogen-ion concentration, and only very rarely indeed does this value exceed 0.00001 normal, even in severe acidosis. These figures for the urine are, in turn, at least one hundred times larger than those for the blood in extreme acid intoxication.

In a series of new experiments, L. J. Henderson and his colleagues³ have now shown that there never is the slightest measurable influence of variation in hydrogen-ion concentration, within the ranges known to occur in the body or even in the urine, on the colloidal swelling of such substances as Fischer used in his experiments. All instances in which colloidal swelling has been observed as a result of acidity are cases in which the acidity is greater than any concentration of ionized hydrogen known to occur in the body.

Fischer has pointed out, in confirmation of his theory of edema as based on the colloidal swelling of proteins in acid, that edema actually is known to occur in certain conditions attended with an increased production of acid in the body. It is, however, far from true that, as a rule, a tendency to an abnormal accumulation of acid is accompanied by edema. A normal acidity of low degree is a very common pathologic phenomenon.⁴ It is usually quite independent of any known disturbance of the water equilibrium of the organism. Hence the Boston investigators remark that it is utterly fallacious to assume that any causal significance attaches to the frequent tendency in edema toward the occurrence of acidity. The tendency to either high or low acidity may be associated with the presence or the absence of edema.

Again, according to Fischer, albuminuria and nephritis are characterized by colloidal swelling and dissolution of renal tissue through the action of the increased acidity or tendency to acidity which is the alleged essential factor in the disease. From this he concludes and recommends that the entire purpose of our therapy in the relief of the acute nephritides must be "to get alkali into the patient in order to neutralize the acids present; to get salt into him to aid in the reduction of the edema of the kidney (and other organs); and finally, to give him water in large doses at regular intervals in order to have 'free' water avail-

able for urine." For these purposes it is advised to administer either by mouth or by rectum, or even intravenously, properly concentrated solutions of sodium carbonate and sodium chlorid. Against this, Henderson, Palmer and Newburgh have offered a protest, insisting that the medical treatment which is founded on this view is both harmful and productive of human suffering. They point out that although it is true that there is an increase in the hydrogen-ion concentration in the urine in nephritis, it is also true that a similar increase is shown in many other diseases in which neither nephritis nor albuminuria occurs. There is no known connection between the hydrogen-ion concentration of the urine and its protein content. It is possible to make the urine alkaline without effect on the concentration of protein, and albuminuria may even be caused by the ingestion of sodium bicarbonate. Either in the presence or in the absence of edema the administration of this alkali may be followed or not followed by diuresis.

Current Comment

ASSOCIATION PROCEEDINGS

It has been the custom to publish a part of the minutes of the Annual Session of the Association in *THE JOURNAL* the week of the meeting. This year no attempt is made to follow the previous custom, for two reasons: first, this issue being the Index Number, there would be space for only a small part of the minutes; second (and the main reason), this is the last number of the volume, and if part of the minutes were printed here and part in the next issue, they would appear in two different volumes, which would be awkward for future reference. The complete report of the proceedings will appear next week.

RECENT FINDINGS CONCERNING GLANDERS

It is sometimes quite as important to record failures as to proclaim the promise of success when some new procedure is introduced in medicine. For this reason we may refer to the tentative conclusion of the Bureau of Animal Industry¹ that the attempted methods of immunization of horses with glanders vaccine have given unsatisfactory results in the hands of the government pathologists. The dangerous character of glanders and the possibility of its transmission to man render every effort to control and eradicate this disease in horses of interest and importance to the physician as well as to the veterinarian. When artificially infected, the vaccinated animals showed no resistance. For the present, therefore, we are warned by the Washington Bureau that it seems advisable to abstain from immunizing horses by this method, as a practice of this kind may do more harm than good. Owners having horses which are supposedly immun-

4. Palmer, Walter W., and Henderson, Laurence J.: Clinical Studies on Acid Base Equilibria and the Nature of Acidosis, *Arch. Int. Med.*, August, 1913, p. 153.

1. Mohler, J. R., and Eichhorn, A.: Immunization Tests with Glanders Vaccine, *Bull. U. S. Dept. Agric.*, 1914, No. 70.

ized would naturally become careless, thinking their animals were resistant to the disease, and thus even a better opportunity would be offered for the propagation of the disease than if the horses were not vaccinated. Furthermore, the fact that the blood of vaccinated animals cannot be utilized for serum tests for two or three months after the injections is also a great disadvantage in the eradication of the disease. As a result of this preliminary work it appears that the control and eradication of glanders must still depend on the concentration of our efforts to eliminate infected horses and to adopt proper precautions against the introduction of infected animals into stables free from the disease. The results achieved in Germany, Austria and Canada by these methods have proved very encouraging, and no doubt if executed in the same spirit in this country a marked reduction in the number of cases of glanders would result.

PUBLIC EDUCATION BY UNIVERSITIES

A striking illustration of the changing conditions in educational ideas may be found in the growing appreciation on the part of leading universities of their responsibility to the public. In former generations a university was regarded as a thing apart, and a college professor was looked on, not only by the humorous paragraphers of the newspapers, but also by the mass of people, as a man living in a world of ideas, without any connection with practical affairs. To-day our leading universities are recognizing not only the opportunity, but also the duty of making available their knowledge for the benefit of the masses. This tendency is highly commendable, especially in the field of public health and prevention of disease. The Harvard Medical School has a standing committee on public lectures which arranges each year for a course of Sunday afternoon talks by members of the faculty. These talks are open to the general public and are on topics of general interest. For instance, last year the course of twenty lectures included such topics as "Preventive Medicine in Relation to Industrial and International Concord," "The Care and Feeding of Young Children," "What the State Board of Health is Doing to Protect the Health of Its Citizens," "The Dangerous Effects of Patent Medicines" and "The Preservation of the Natural Teeth." This year's course includes talks on "Rational Baby Feeding," "Bodily Effects of Rage and Fear," "Spectacles and Eye-Glasses, Their Use and Abuse," and other subjects of practical interest. The lectures given in the past have proved of value and so popular that they are now being issued in little pocket-sized volumes at popular prices under the title of "Harvard Health Talks." In Minnesota the daily press is cooperating in the same kind of work. A series of articles on disease and its prevention by Dr. E. P. Lyon, dean of the University of Minnesota Medical School, recently appeared in the *Minneapolis Journal*. The University of Missouri is one of the few state universities that has recognized the growing tendency by the organization of a distinct department on public health. A

series of bulletins for public reading and distribution are being issued. The five so far completed are on "Bacteria and Disease," "The Prevention of Typhoid Fever," "The Prevention of Contagious Diseases in Schoolchildren," "Resuscitation" and "The Relation of Sight and Hearing to Early School Life." Each of these universities has apparently worked out its plans in accordance with the needs of its own particular field. In Boston, popular Sunday afternoon lectures; in Minnesota, newspaper articles, and in Missouri, pamphlets on specific subjects seem to meet existing conditions. The significant fact, apparent in each of these cases, however, is that our universities are recognizing their responsibilities to the public and are making serious, intelligent and practical efforts to meet them.

Medical News

ALABAMA

Monthly Health Bulletin.—Dr. H. N. Rosser, Birmingham, health officer of Jefferson County, announces that he will hereafter issue a monthly report, showing the diseases in the county and the death causes.

Aid Needed for Free Clinic.—It is announced that unless financial aid is forthcoming immediately the free clinic at the Hillman Hospital, Birmingham, will be obliged to suspend. A committee of physicians has waited on the commission to request an appropriation.

Personal.—Dr. Gaston J. Greil, Montgomery, has been reelected chairman of the executive committee of the Montgomery Anti-Tuberculosis League.—Dr. Andrew Howard Ryan has been appointed full-time assistant in the department of physiology, and Dr. W. A. Clark, assistant professor of anatomy in the University of Alabama, Mobile.—Drs. Charles M. Rudolph, James S. McLester and Arthur F. Toole, all of Birmingham, have been appointed a committee to investigate the extent of mental defectiveness in the state, and to make a report to the legislature for the purpose of obtaining an appropriation for the establishment of a state institution for the treatment of these unfortunates.

CALIFORNIA

Dedication at Children's Hospital.—The open-air porch erected by the teachers of San Francisco at the Children's Hospital as a tribute to Mary Agnes Deane was dedicated with impressive ceremonies, May 25.

Leprosarium on San Clementi Island.—A bill providing for a national sanatorium for lepers is now pending in the House of Representatives. Dr. Edmund O. Sawyer, Los Angeles, health officer of Los Angeles County, is strongly advocating the selection of San Clementi Island as a site for the institution.

Personal.—Dr. Karl F. Meyer has been made professor of bacteriology and protozoology in the University of California. Dr. Meyer's special field of work is tropical diseases.—Dr. Frank B. Carpentier was assaulted by two men in his office in San Francisco, June 9, who attempted to rob him, but were frightened away before succeeding.—Dr. Walter B. Hill, Long Beach, charged with being responsible for the tragedy in which Mrs. Fred Raab killed herself and two children, was fully and completely exonerated by the coroner's jury, June 5.

CONNECTICUT

Centennial of Yale Medical School.—The one-hundredth anniversary of Yale Medical School was celebrated in New Haven, June 15. Special exercises were held on that day in Woolsey Hall, at which addresses were made by Dr. Walter Ralph Steiner, Hartford, on "The Evolution of Medicine in Connecticut, with the Founding of Yale Medical School as Its Notable Achievement," and by Dr. William Henry Welch, Baltimore, on "Pre-Medical Studies in Relation to General Professional Training." Two commemorative volumes are to be published: "The Life and Letters of Nathan Smith," the founder of Yale Medical School, and a

special number of the *Archives of Internal Medicine* devoted to articles by graduates of that institution.

Alumni Meeting.—At the thirty-fifth annual meeting of the Yale Medical Alumni Association held in New Haven, June 5, Dr. Seymour L. Spier, New Haven, was elected president; Drs. E. Terry Smith, Hartford; William J. Sheehan, New Haven; Frank L. Phillips, New Haven, and Donald Russell, Wallingford, vice-presidents; and Dr. Marvin M. Scarbrough, New Haven, secretary and treasurer. At the alumni banquet it was announced that pledges had been obtained for the new endowment of the New Haven General Hospital, as follows: for the erection and equipment of a laboratory, \$125,000; for the endowment of the hospital, \$500,000, and for the endowment of the medical school, \$1,100,000, making a total of \$1,725,000. Of this amount, \$400,000 was donated by members of the Lauder family of Pittsburgh and Greenwich, Conn., and will be known as the Anna M. R. Lauder fund, in memory of Mrs. George Lauder. It is stipulated that a sufficient amount be set aside for the endowment of a public health department, to be known as the "Anna M. R. Lauder Chair of Public Health."

ILLINOIS

Anti-Tuberculosis Clinic Opened.—An antituberculosis clinic has been established in Jacksonville. It was opened for the first time June 9, and it will receive patients from 10 a. m. until noon each Tuesday and Friday.

Memorial Hospital Opened.—The Huber Memorial Hospital, Pana, erected at a cost of \$100,000, through the beneficence of the late Dr. Jacob Huber, was thrown open June 13 for the reception of patients. It is a four-story brick and stone structure, is well appointed and thoroughly equipped.

Sanitary Survey of Summer Resorts.—The State Board of Health, with the approval of the governor, has begun a sanitary survey of the summer resorts of the state, which are charged with being responsible for a large proportion of the typhoid cases which exist in the late summer months.

To Investigate State Health Conditions.—At the request of the efficiency and economy committee of the Illinois legislature, P. A. Surg. Richard H. Creel, U. S. P. H. S., is to make an investigation of the sanitary condition of the state and laws under which it is carried on. Surgeon Creel's report is to be made the basis of the recommendation of the committee to the legislature at its next session.

Personal.—Drs. Charles B. Voigt, Mattoon; Londus Brannon, Joliet; Dr. and Mrs. James F. Percy and Dr. and Mrs. Edward C. Franing, Galesburg, have sailed for Europe.—Dr. Jay T. Wood has been elected city physician of Springfield, and Dr. Richard D. Guban, Illiopolis, physician of Sangamon County.—Dr. and Mrs. Louis J. Frederick, Joliet, have returned from abroad.—Dr. Edgar Hugh Little has been appointed postmaster of East St. Louis.

Chicago

Memorial to Dr. Quales.—The Scandinavian-American Medical Society of Chicago, at its meeting June 11, adopted resolutions regarding the death of Dr. Niles Theodore Quales, setting forth the sentiments of admiration and respect with which his memory was cherished, and extending sympathy to his bereaved wife and family.

Senn High School Dedicated.—The Nicholas Senn High School at Glenwood and Ardmore Avenues was formally dedicated, June 15. Various phases of the life of the "Master Surgeon" for whom the school is named were spoken of by Drs. William A. Evans, P. J. H. Farrell and Truman W. Brophy. An address was also delivered by Ella Flagg Young. A bronze bust of Dr. Senn, which had been presented to the school, was unveiled by Dr. Farrell and was accepted by C. A. Peterson on behalf of the board of education.

Personal.—Dr. Charles W. Leigh, who was in Rochester, N. Y., for the meeting of the American Association of Milk Commissioners, was seized with appendicitis soon after his arrival, removed to the Rochester General Hospital, and operated on. He is reported to be doing well.—Dr. Stephen R. Pietrowicz, formerly superintendent of the Dunning institutions has been appointed a member of the school board.—Dr. and Mrs. Robert H. Buck, Sara Craig Buckley and daughter, and Dr. George H. Miller and family have sailed for Europe.

INDIANA

Site for Tuberculosis Hospital.—Ninety acres of farm land have been bought by Marion County as a site for its tuber-

culosis hospital, and a committee has been appointed to secure plans for the institution.

Dedication Day Changed.—The dedication day of the St. Francis' Hospital, Beech Grove, which was to have been June 25, has been changed to July 5. It will not be ready to receive patients for several weeks.

Disease Prevention Day.—October 2 has been selected as the date for the observance of disease prevention day throughout the state. The governor is said to have agreed to issue a proclamation regarding the observance of this day.

Colored Physicians Organize.—The Crescent City Medical Society, composed of colored physicians, was organized recently in Evansville, and the following officers were elected: president, Dr. Jeremiah Jackson; secretary-treasurer, Dr. H. R. Thompson.

Donates Site for Colony.—Mrs. George F. Flick has agreed to give the Fort Wayne Anti-Tuberculosis Society a tract of land near the Flick home on which to establish a tent colony for tuberculosis.—On flower day at Fort Wayne, \$2,000 was secured for the antituberculosis work by 100 young girls who sold flowers.

Condemnation of Water-Supply.—The water-supply of Madison and that of Bloomington has been condemned by the State Board of Health. At Bloomington, where the State University is located, the situation is so serious that the governor is said to have stated that he would remove the university unless a better water-supply was assured.

Personal.—Drs. James H. Taylor and Horace R. Allen, Jr., Indianapolis, have been seriously ill with pneumonia.—Members and employees of the Indianapolis Health Department gave a thirty-second-degree masonic watch charm to Dr. Mavity J. Spencer, who retired as president of the board June 1. The presentation speech was delivered by Dr. T. Victor Keene.—Mrs. Eva M. Diven, wife of Dr. Charles E. Diven, Anderson, died from pulmonary tuberculosis, June 15.—Dr. William Venable, Carmel, was thrown against a telephone pole in a runaway accident, recently, and seriously injured.

IOWA

Personal.—Dr. James R. Guthrie, Dubuque, dean of the College of Medicine of the University of Iowa, Iowa City, was presented with a loving-cup by his former students, June 17, on the completion of his twenty-fifth year as a member of the faculty of the College of Medicine.—Dr. M. Nelson Voldeng, superintendent of the Cherokee State Hospital, has been appointed superintendent of the recently erected Iowa Epileptic Colony.—Dr. George Donohue, Knoxville, has been appointed superintendent of the Cherokee State Hospital, in place of Dr. Voldeng.—Drs. Ernest S. Heilman, Idagrove; W. Eugene Walcott, Merrill, and David S. Fairchild, Jr., Clinton, have started for Europe.

KANSAS

Personal.—Dr. Arthur J. Anderson, Lawrence, was elected president of the State Board of Medical Examiners at its meeting at Kansas City, June 10.—Dr. J. Edward Graf, Assaria, who was operated on recently at St. Barnabas' Hospital, Salina, is reported to be convalescent.—In the suit of Walter Duckett in the Wyandotte District Court against Dr. Jefferson A. Davis, Kansas City, in which \$25,000 damages was claimed on account of alleged malpractice, the jury returned a verdict in favor of Dr. Davis, June 10.

MAINE

Personal.—Dr. Wyvern A. Coombs, a member of the staff of the Central Maine General Hospital, Lewiston, as a result of a competitive examination, has received an appointment as a member of the staff of the Boston Floating Hospital.

State Association Meeting.—The sixty-seventh annual meeting of the Maine Medical Association was held in Portland, June 10-12, under the presidency of Dr. William C. Peters, Bangor. The following officers were elected: president, Dr. Herman L. Bartlett, Norway; vice-presidents, Drs. Albert L. Stanwood, Rumford Falls, and Leander A. Dascombe, Scowhegan; secretary, Dr. John B. Thompson, Bangor (reelected); and treasurer, Dr. Edwin W. Gehring, Portland (reelected).

Eye and Ear Specialists Meet.—The annual meeting of the Maine Eye and Ear Association was held in Portland, June 10. The following officers were elected: president, Dr. Elmer E. Brown, Bangor; vice-president, Dr. Frank Y. Gilbert, Portland; and secretary-treasurer, Dr. Erastus E. Holt, Jr., Portland.

MARYLAND

Personal.—Dr. Hugh H. Young, Baltimore, has been elected first vice-president of the Alumni Association of the University of Virginia. At the recent meeting of the American Medico-Psychological Association held in Baltimore, Dr. Young was elected an honorary member of the association.—Dr. William L. Smith, who has been critically ill at his home at Riderwood, is slightly improved.

Reorganization in Health Department.—The reorganization in the Health Department of Baltimore as a result of the investigation made recently by the United States Public Health Service and a similar investigation now under way by the Bureau of Municipal Research is expected to lead to the abolishment of the present system of having twenty-four health wardens, one for each ward in the city. They will be succeeded by a corps of sanitary inspectors, whose duty it will be to keep the city free from nuisances and to keep yards, cellars and alleys clean. It is contended that physicians cannot be expected to give their whole time and attention to the Health Department matters on the salary of \$900 a year now paid them.

MINNESOTA

Health Survey.—Dr. Carroll Fox, U. S. P. H. S., has been detailed to make a survey of health conditions of Minnesota, and to recommend any changes in the system that he may find advantageous.

Promotions in Faculty.—At the commencement exercises of the University of Minnesota, June 11, associate professors Harold E. Robertson and Richard E. Scammon were made professors, and assistant professor Fred W. Schultz was made an associate professor in the medical school.

Tuberculosis Items.—Cottonwood and Noble counties, through their commissioners, have joined the group of counties which purpose to erect a tuberculosis sanatorium for southwestern Minnesota. Worthington and Slayton have been suggested as locations for the sanatorium.—Work on the service building of the State Sanatorium, Walker, is new well under way. The building will contain dining-room, kitchen, laundry, etc. Excavation has been commenced on the general assembly hall and children's pavilion.—The new tuberculosis building of the St. Paul City and County Hospital was turned over to the board of control by the contractors, May 23.

Personal.—Dr. Edward S. Judd, Rochester, sustained painful burns on the face and hands from carbolic acid, June 15.—Dr. Arthur F. Kilbourne, superintendent of the Rochester State Hospital, was the guest of honor at a reception tendered him by the staff and employees of the hospital, June 11, on the occasion of the twenty-fifth anniversary of his connection with the institution as its superintendent. Dr. Kilbourne was presented with a gold watch, chain and masonic charm.—Dr. Justus Ohage assumed his duties as health officer of St. Paul, June 8.—Dr. Gustav A. Renz has been appointed assistant health officer of St. Paul.—Dr. Thomas Gratzek, St. Paul, has been appointed deputy coroner of Ramsay County.—Dr. Howard Lankester, retiring health officer of St. Paul, was presented with a gold-headed cane, and Assistant Health Officer Paul E. Cook with a leather traveling-bag by employees of the health department, June 1.—Dr. Carl J. Ringnell, wife and daughter, Minneapolis, and Dr. James W. Andrist, Owatonna, have started for Europe.

MISSOURI

County Helps in Tuberculosis Fight.—Buchanan County has authorized the appropriation of \$2,500 to be expended by the Buchanan County Society for the Prevention of Tuberculosis for the purpose of carrying on its fight against this disease in the rural districts.

Personal.—Dr. George P. Pipkin, at present superintendent of the City Hospital, Kansas City, will assume charge of the Kansas City General Hospital, July 15, on the retirement of Dr. Rush E. Castelow.—Dr. James B. Wright, Trenton, has started for Europe.

State Takes Over Sanatorium.—The recently completed infirmary building of the Missouri State Sanatorium for the Treatment of Incipient Tuberculosis, Mount Vernon, recently erected at a cost of \$35,000, was formally turned over to the state by the contractors, June 6.

St. Louis

Invalid Home Opened.—The Jewish Home for Chronic Invalids and Consumptives of St. Louis, Fee-Fee Street,

Anglum, Mo., was opened to receive patients, June 15. Mr. Louis Renard is president of the institution.

Personal.—Dr. Milton Schaie, formerly superintendent of the Montefiore Home and Sanatorium, Bedford Hills, N. Y., has been appointed medical director of the Jewish Home for Chronic Invalids and Consumptives, Anglum.

NEBRASKA

Personal.—Dr. Clarence B. Foltz, Omaha, who has been ill with scarlet fever, has recovered and resumed practice.—Dr. Fred A. Nelson, Omaha, was painfully injured in a collision between his automobile and a trolley-car, June 10.—Dr. and Mrs. August F. Jonas and Dr. Ernest W. Powell, Omaha, have started for Europe.

Medical Library Moves.—The directors of the Public Library of Omaha have been forced for lack of space to request the Douglas County Medical Society to remove their books, now housed in the Public Library. It is expected that arrangements will be made to provide a place near the business center of Omaha, where the books and publications may be available for reference.

NEW YORK

New Officers.—Jamestown Medical Society, June 10: president, Dr. Louis H. Snow; secretary-treasurer, Dr. William M. Sill, Bemus Point.—Medico-Chirurgical Society of Central New York, thirty-seventh annual meeting at Syracuse, June 4: president, Dr. Otis M. Wiley, Syracuse; secretary-treasurer, Dr. Earle A. Gayde, Utica (reelected).

Syracuse Alumni Meet.—At the annual meeting of the Medical Alumni of Syracuse University, held June 9, the annual address was delivered by Surgeon John F. Anderson, U. S. P. H. S., director of the hygienic laboratories, on "The United States Public Health Service; Its Origin; Its Work, and Its Accomplishments." Dr. Michael M. Lucid, Cortland, was elected president.

Personal.—Dr. Oliver W. H. Mitchell has received the permanent appointment as city bacteriologist of Syracuse.—Dr. Charles S. Allen, Rensselaer, gave a reception, June 8, in honor of his ninetieth birthday, which occurred two days before.—Dr. Otto Glogau, Syracuse, has sailed for Europe.—Dr. Wardner D. Ayer, Rensselaer, has succeeded Dr. J. W. Cox as pathologist of the Crouse-Irving Hospital, Syracuse.

State Hospital News.—Governor Glynn has vetoed the bill providing for the abandonment of the State Hospital at Mohansic and a companion bill appropriating \$200,000 to begin a new state hospital at another point. This hospital, which is located within forty miles of New York City, on the city watershed, had considerable difficulty with the health authorities of New York City, but finally arranged to dispose of its sewage in a manner satisfactory to the city authorities. It is now hoped that the constructive work of this institution, which has thus been held back, will be permitted to continue.—The New York State Hospital Commission is now considering the purchase of a site comprising 162 acres at Oakside, L. I., for another state hospital. It is feared that opposition to the plan will be encountered on the part of wealthy residents of the neighborhood.

New York City

Cornell Commencement.—The annual commencement exercises of the Cornell University Medical College were held in the Dispensary Hall of the college building, June 11, at 4 p. m.

Hospital to Move.—The Volunteer Hospital, Gold Street, will move about July 1 into its new building on the corner of Water and Beekman Streets. The new building, four stories in height, will be able to accommodate fifty-five patients and has been erected at a cost of about \$130,000.

Personal.—Dr. and Mrs. Henry L. Shively and Dr. and Mrs. Archibald M. Campbell have sailed for Europe.—Dr. L. Emmett Holt had conferred on him the degree of D.Sc. by Brown University, Providence, R. I., at its annual commencement, June 17.—Drs. Charles Wuest and George W. Long have been appointed coroner's physicians, vice Drs. Lester D. Volk and Gerard Kasper, resigned.

"Better Baby" Week.—From June 20 to 26 was Better Baby Week in Greater New York, the purpose of which was to plan for the greatest summer campaign yet waged in New York for the reduction of the death-rate among infants and young children. There were special meetings

at all the infant welfare centers and 2,000,000 pieces of educational literature were distributed. The mayor has appointed commissions to supervise the work, among them being the Chamber of Commerce, the Merchants' Association, the Advertising Men's League, the Advisory Council of the Board of Health, the New York Board of Jewish Ministers, the Federation of Women's Clubs and the New York Conference on Charities. Mayor Mitchell has been appointed honorary president of the baby week. He has appointed Seth Low as president and eleven honorary vice-presidents have been appointed, together with a committee of fifty well-known citizens on whom will devolve the bulk of the work. In connection with the work of this week Mayor Mitchell has sent a letter to be read before all school-children asking their cooperation in the baby-saving campaign and general instructions as to the care of the baby will be circulated among the schoolchildren.

PENNSYLVANIA

Commencement Week Clinic and Demonstrations.—From June 15 to 17 clinics were held at various hospitals of Pittsburgh by members of the faculty of the University of Pittsburgh School of Medicine and the various hospital staffs, for the benefit of the alumni of the institution, who had returned for commencement week.

Personal.—Dr. William K. Evans has been made chief of the new Health Department of Chester.—Dr. David S. Hollenbeck, the oldest practitioner in Shamokin, on the occasion of his seventy-first birthday, was presented with a gold-headed cane by the Medical Association of Shamokin.—Dr. James T. Macdonald, Bloomsburg, has gone abroad.

Philadelphia

Personal.—Dr. John L. Bower has sailed for Europe.—Dr. Edward A. Spitzkar has resigned as professor of anatomy in Jefferson Medical College.—Dr. John J. Gilbride has been elected assistant professor of surgery in the Medico-Chirurgical College.

Open-Air Clinics Begin.—The fifth season of the open-air clinics on the Chestnut Street pier began June 15. Dr. S. W. Newmayer has charge of the clinic, which is open between 8 a. m. and 5 p. m., the pier remaining open until 10 p. m.

Alumni Picnic.—The Alumni Society of the University of Pennsylvania held its annual celebration at Glenloch Park, N. J., June 4. The society also gave a smoker at the Alamac Hotel, Atlantic City, June 23.

Work of Alumnae.—At the thirty-ninth annual meeting of the Alumnae Association of the Women's Medical College of Pennsylvania, it was announced that a fellowship fund of \$500 had been raised and awarded to Dr. Sarah L. Myers, Philadelphia, of the class of 1905; that the Hannah T. Croasdale fellowship now amounts to \$1,800; that the Emma E. Musson Scholarship in otology amounts to nearly \$700; and that the general endowment fund has almost reached \$45,000.

Public Health Sunday.—Fifty-two pulpits of Philadelphia were occupied by members of the American Medical Association, June 21. Among the subjects discussed were the housing problem, milk supervision, segregation of consumptives, the social evil, elimination of occupational diseases, child labor, play grounds, the enactment of more stringent laws governing public health, the relation between morality and health, the prevention of sickness and the prolongation of life.

Medical Club Entertains.—A reception was given by the Medical Club of Philadelphia at the Bellevue-Stratford Hotel in honor of Dr. Victor C. Vaughan, Ann Arbor, President of the American Medical Association; Dr. Edward B. Heckel, Pittsburgh, president of the Medical Society of the State of Pennsylvania; Dr. Enoch Hollingshead, Pemberton, N. J., president of the Medical Society of New Jersey, and Dr. William P. Orr, Jr., Lewes, president of the Delaware State Medical Society. At the conclusion of the reception, Dr. James C. Wilson read a memoir of Dr. S. Weir Mitchell.

RHODE ISLAND

District Society Meeting.—The second annual meeting of the Woonsocket District Medical Society was held in Woonsocket, June 11. The following officers were elected: president, Dr. Joseph T. Roswell; vice-presidents, Drs. J. Edward Tanguay and Allen A. Weeden; secretary, Dr. Edward L. Myers, and treasurer, Dr. Robert G. Reed, all of Woonsocket.

State Society Meeting.—At the one hundred and second annual meeting of the Rhode Island Medical Society held in

the Medical Library, Providence, June 4, the following officers were elected: president, Dr. Stephen A. Welch; vice-presidents, Drs. Frank L. Day and Edmund D. Cheesebro; secretary, Dr. Jay Perkins; treasurer, Dr. Winthrop A. Risk, all of Providence. The topic of the president's address was "Surgery of the Gall-Bladder and Biliary Tract." The next meeting of the society will be held in the State Tuberculosis Sanatorium at Wallum Lake, September 6.

SOUTH CAROLINA

New Sanitarium.—A permit has been issued to Drs. James W. Babcock and Eleanor B. Saunders to erect the Waverly Sanitarium, Columbia, to accommodate about 100 patients.

Tuberculosis Hospital to be Erected.—It has been decided to erect a tuberculosis hospital for which an appropriation of \$10,000 was made by the last general assembly, on a site of about 70 acres in the State Park, provided the State Board of Health can obtain the consent of the Board of Regents of the State Hospitals for the Insane.

State Board Re-elected.—At the meeting of the State Board of Health the following officers were unanimously re-elected: president, Dr. Robert Wilson, Jr., Charleston; secretary and state health officer, Dr. James A. Hayne, Columbia; director of the laboratories, Dr. Francis A. Coward, Columbia, and director of rural sanitation, Dr. J. La Bruce Ward, Columbia.

State Red Cross Organized.—The South Carolina Red Cross Nursing Service Commission has been organized and is ready to receive applications for Red Cross nursing service. Applications may be made to Miss M. E. McKenna, the chairman, St. Francis Xavier Infirmary, Charleston, or to the secretary, Miss Agnes Watt, 2001 Assembly Street, Columbia.

Hospital Annex Opens.—The A. Markley Lee Memorial Annex to the Hospital and Training-School for Nurses, Charleston, the cornerstone of which was laid with appropriate ceremonies, December 15 last, has been opened to receive patients. The building is 18 by 60 feet, and two stories in height. The institution is in charge of the Charleston County Medical Association.

Personal.—Dr. Frank M. Durham, Columbia, is now in the Columbia Hospital suffering from knife and razor wounds of the side, cheek and thigh, received from a group of men who assaulted him, presumably with robbery as a motive.—Dr. Margaret L. E. Whiteside has been appointed second assistant physician at the State Hospital for the Insane, Columbia.—Dr. Angus B. Patterson, Barnwell, has been made physician in charge of the branch of the State Hospital, soon to be erected in the State Park.

WISCONSIN

Eye, Ear, Nose and Throat Specialists to Meet.—The first annual meeting of the Wisconsin Eye, Ear, Nose and Throat Specialists will be held at Oshkosh, October 8.

New Sanatorium.—Dr. Samuel B. Ackley, for several years a member of the staff of the Caples Sanatorium, Waukesha, has leased the Rosencranz property on Lac La Belle, Oconomowoc, for a sanatorium.

Personal.—Dr. W. Weber Kelly, Green Bay, Drs. Niel Andrews, Jr., Clarendon Coombs and F. Gregory Connell, Oshkosh, have started for Europe.—Dr. C. C. Crawley, Grand Rapids, has been appointed assistant physician to the Oshkosh State Hospital.

Leper to Remain at Soldiers' Home.—Bernard D. Bennett, who was found to be suffering from leprosy while an inmate of the National Soldiers' Home, near Milwaukee, has been isolated, and is being cared for by another inmate of the home in a house on the grounds of the home.

GENERAL

Travel Tour Abandoned.—The American Association for Physicians' Study Travels has abandoned its tour for this year on account of the magnitude of the proposed trip for 1915. At the meeting of the society in Atlantic City, June 25, the itinerary for next year was discussed.

Millions for Medical School.—By the will of James Campbell of St. Louis, the entire estate, valued at \$40,000,000, is eventually devised to the St. Louis University for the establishment and endowment of a medical school and hospital. During the life of his wife and only daughter they will share equally the income of the state. Twenty-one years after the death of the legatees, the entire estate is to go to the university.

Orthopedists Hold Annual Meeting.—The twenty-eighth annual meeting of the American Orthopedic Association was held June 18-20, under the presidency of Dr. Gwilyn C. Davis; clinics being held on the seventeenth. The following officers were elected: president, Dr. George B. Packard, Denver; vice-presidents, Drs. Jefferson D. Griffith, Kansas City, Mo., and William S. Baer, Baltimore; secretary, Dr. Ralph R. Fitch, Rochester, N. Y., and treasurer, Dr. John L. Porter, Chicago.

Personal.—The degree of LL.D. was conferred by Yale University at its two hundred and fourteenth annual commencement exercises on Surg.-Gen. William Crawford Gorgas. The honorary degree of Ph.D. was conferred on Surgeon-General Gorgas by Princeton University at its one hundred and sixty-seventh annual commencement exercises, June 16.—Dr. John S. B. Pratt, president of the Territorial Board of Health, Honolulu, has reached San Francisco on his way to Washington to protest against the sending of John Early, the leper who recently escaped and was found in Washington, to the Molokai Leprosarium.

Error in Statement Regarding Death of Goldberger.—In THE JOURNAL last week in an editorial "The Transmission of Typhus Fever," page 1966, the statement is made "that most of the recent advances in our knowledge of this once dreaded disease have been due to the work of American investigators, although the toll through the loss of life of two of the investigators—Ricketts and Goldberger—has been severe." Dr. Goldberger is still active in the United States Public Health Service. The investigator who died was a coworker, James Francis Conneffe, who succumbed at the age of 33 from typhus fever contracted while investigating the disease.

Climatologists Meet.—The thirty-first annual meeting of the American Climatological Association was held in Atlantic City, June 20, under the presidency of Dr. James M. Anders, Philadelphia. The following officers were elected: president, Dr. Henry Sewall, Denver; vice-presidents, Drs. Arthur K. Stone, Boston, and J. Alexander Miller, New York City; and secretary-treasurer, Dr. Guy Hinsdale, Hot Springs, Va. (re-elected). Dr. James M. Anders, Philadelphia, was elected a member of the council, and Dr. Thomas Darlington, New York City, a representative on the executive committee of the Congress of American Physicians and Surgeons. The association will hold its next meeting at San Francisco in 1915.

Bequests and Donations.—The following bequests and donations have recently been announced:

Deaconess Hospital, Peoria, Ill., one-third of an estate of \$38,000, by the will of Dr. George McPherson, Tonica, Ill.

New York Skin and Cancer Hospital, \$25,000; Society for the Relief of Wives and Children of Medical Men; Children's Aid Society, and Association for Improving the Condition of the Poor, each \$10,000, by the will of Dr. Everett Herrick.

Presbyterian Hospital, St. Luke's Hospital, and New York Post-Graduate Medical School and Hospital, each \$100,000 by the will of Harris C. Fahnestock.

Johns Hopkins Medical School, a donation of \$1,500,000 from the Rockefeller General Education Board, to establish the William H. Welch endowment for clinical education and research.

New York University, a trust fund of \$10,000 by the will of Dr. Joseph D. Bryant which is to be "devoted to the instilling in the minds of the senior classes the principles of ethics of the American Medical Association. This bequest is made in the belief that early admonition and planting of preventive means against seductive inclinations and dangers is the surest method of insuring ethical practice in human affairs."

Norwich, New York, Hospital; New York Academy of Medicine, and New York University, each one-seventh of the residuary estate of Dr. Joseph D. Bryant, after the death or remarriage of Mrs. Bryant.

St. Vincent's Hospital, New York City; American Medical Association; Bellevue Hospital Alumni Association Medical Society of New York, and other institutions, equal parts of the daughter's share of the residuary estate of Dr. Bryant, provided the daughter dies before Mrs. Bryant.

A contingent bequest of \$10,000 by the will of Dr. Bryant to oppose the antivivisectionists of the State.

Presbyterian Hospital and Philadelphia Home for Incurables, portions of the residuary estate of Mary Ford, valued at \$18,000.

St. Joseph's Hospital, Philadelphia, a donation of \$5,000 by George W. Nevil, for the endowment of a free bed in memory of Joseph and Amelia Nevil.

Presbyterian Hospital, Philadelphia, \$1,000, by the will of Annie E. Claghorne.

To a hospital in Philadelphia, a contingent bequest of \$5,000 under the will of Elizabeth Collins. The residue of the estate is devised to the Home of the Merciful Saviour for Crippled Children, on condition that the institution use two buildings at Sea Isle City for the inmates of the Home. If this request is denied, the money is to be divided between the Presbyterian Hospital and the Episcopal Hospital for free beds.

FOREIGN

Not Plague but Pneumonia.—The mysterious and suspicious disease which appeared at Colombian ports, near the Isthmus of Panama, and which it was feared was bubonic plague, has been investigated by Dr. Samuel T. Darling, chief of the Ancon Hospital, and found to be pneumonia.

Prize Awarded to Julliard.—Prof. C. Julliard of Geneva, Switzerland, was awarded the prize founded by the International Congress for Industrial Accidents at Rome in 1909. His subject was "The Functional Adaptability of Limbs Injured in Industrial Accidents and Means to Increase It."

Wellcome Historical Museum Opened.—The historical medical museum of Henry S. Wellcome, on the occasion of the seventeenth International Congress of Medicine, was reopened May 28 as a permanent institution, now known as the Wellcome Historical Medical Museum, and will be open daily from 10 a. m. to 6 p. m. at 54a Wigmore Street, Cavendish, London, England. Members of the medical and kindred professions are admitted on the presentation of their professional cards.

LONDON LETTER

LONDON, June 5, 1914.

The New Edition of the British Pharmacopeia

The last edition of the British Pharmacopeia was published in 1898, and 46,081 copies and 4,525 copies of the Indian and Colonial Addendum have been sold. The work of preparing a new edition has now been completed. One of the chief features will be that limits of impurity in drugs and medicinal chemicals—especially dangerous impurity—will be carefully defined. For instance, at present potassium carbonate containing arsenic will pass the test of the Pharmacopeia of 1898, but it will not pass the 1914 edition, which will limit the quantity to two parts per million. Again, in regard to lead contamination in tartaric acid—the importance of which has been recognized both by the government and by the local authorities—the limit of admixture is prescribed as ten parts per million as compared with a very indefinite limitation before. Another feature of the book is an extension of chemical standardization to drugs not at present standardized, but there is no recognition of physiologic standardization. Notwithstanding the advances that have been made in physiologic methods of testing the strength of drugs—especially of those drugs which do not admit of chemical standardization—it has been felt that the time is not yet ripe and knowledge not sufficiently perfect to adopt animal tests in this edition. The international unification of the quality of preparations of potent drugs, notably those of henbane, belladonna, aconite, nux vomica, etc., has received the endorsement of various nations through a Hague conference, and has due recognition in the forthcoming book, so that a person having the same prescription made up in, say, London, Brussels and Paris, will obtain a preparation of uniform strength.

Penal Cases before the General Medical Council: Physicians' Certificates

The General Medical Council is a body consisting of physicians appointed to supervise medical education and to investigate and adjudicate on charges made against physicians in their professional capacity. It is, in fact, a professional court of law. The penal cases which come before it are often of a painful nature and result in the severest sentence it can pronounce—the removal of a physician's name from the register. This does not prevent the physician from practicing, for in this country it is not illegal for even an unqualified person to practice, though he does so with the liability to be tried for manslaughter in case of the death of a patient. Removal from the register deprives a physician of all his professional privileges. He cannot sign a death certificate, and should a patient attended by him die an inquest will therefore become necessary. Further, he cannot sue for the recovery of fees. In the giving of medical certificates, cases of laxity occur from time to time. The council has recently issued a warning to physicians on the subject. The following cases have just come before it:

A physician was convicted of making a false declaration on a death certificate at a police court. A young woman died in a nursing home and he gave a certificate in which the primary cause of death was stated to be appendicitis and the secondary peritonitis. He was aware that while in the

home she had a miscarriage. He had been asked by the patient not to inform her sister of her condition. The accused physician said that the certificate had been filled in with the omission of the word "miscarriage" without any improper motive or intention to deceive. He did so to save the girl's honor, having promised not to divulge. The council took the gravest view of the case, but having regard to the punishment which the physician had previously received (the payment of a fine and damages to the amount of \$100), decided to suspend judgment until November, when the physician would be required to produce evidence that his conduct had been without reproach in the interval.

The following case terminated more seriously for the accused: A physician at the request of an insurance agent filled in and signed death certificates for seven persons, none of whom he had attended and all of whom were present at his trial. The insurance agent was thus able fraudulently to obtain the sums for which they were insured. In defense the physician said that he had been induced to sign the certificates by the insurance agent in whom every one in the town had confidence. When he asked as to the legality of the procedure he was told that it was a matter of form with the insurance company and that another physician had been doing it for years. The council directed that the physician's name should be removed from the register.

BERLIN LETTER

BERLIN, May 29, 1914.

Personal

A few days ago Prof. Max Wolff of Berlin celebrated his seventieth birthday. For some years he has been the head of the University clinic for pulmonary diseases, and in this capacity has repeatedly published the results of his experiences with new remedies which have been recommended for pulmonary tuberculosis.

Tuczek, professor of psychiatry at Marburg, and G. Schwalbe, the anthropologist of the University of Strassburg, retire at the end of the summer semester in consequence of their advanced age.

Dr. Schlossberger has been appointed as head of a department in the Institute for Hygiene and Experimental Therapy at Marburg in place of Römer, who has been transferred to Greifswald as professor of hygiene.

G. Klemperer has resigned his position as chief of the cancer institute of the Charité in Berlin. No notable results have been achieved by the institute during his term of office, although he has had the private advice of the chemist of our university, Prof. Emil Fischer.

TRENDELENBURG'S SEVENTIETH BIRTHDAY

Friedrich Trendelenburg, the former director of the surgical clinic of Leipsic, celebrated his seventieth birthday, May 24. A former pupil of Langenbeck, Trendelenburg stands in the front rank of those surgeons who were pioneers at the beginning of the antiseptic era of surgery, and to whom German surgery owes its acknowledged position. Among the numerous important articles of Trendelenburg we can notice only his studies in the field of joint and bone surgery, gastrotomy for stricture of the esophagus, tracheotomy, the practice of raising the pelvis for operations—first recommended by him—and his articles on operations on the bladder and on the treatment of varicose veins. Trendelenburg was an excellent teacher and so far the worthy successor of Thiersch. Moreover with reference to his personal qualities, Trendelenburg, who resigned his position some years ago, still enjoys the greatest respect and general affection.

Friedmann's Remedy

The unfavorable publications which have appeared in the *Deutsche medizinische Wochenschrift* have been followed in the last few weeks by other articles of the same tenor. The Berlin surgeon Karewski reported his results at a meeting of the Berlin Medical Society, stating that he had obtained no improvement worth mentioning, but had to report various undesired side-actions. The discussion, in which a number of specialists took part, followed in general the same lines. In the last number of the *Münchener medizinische Wochenschrift*, Schittenhelm, director of the university medical clinic at Königsberg, has an article in which he comes to the conclusion that the objectionable accompanying actions of the remedy compel him to abandon further trials of it. (Summaries have appeared in the Current Literature Department.)

New Institute for Tropical Diseases

A new institute for ship and tropical diseases was dedicated at Hamburg, May 28. The new building consists of three parts, an administration building, a hospital and an animal house.

The Death-Rate of Prussia for 1912

The great mortality of 1911 (17.2 per thousand) in Prussia, which was occasioned by the high infant death-rate of the hot summer, fortunately was reduced in 1912 by 60,511 persons, and is more favorable than that of the year 1910 by 1,679. If the mortality-rate is calculated without including the still-births, the figure for 1,000 persons living July 1, 1912, is 15.5, the lowest ever recorded. Going back to 1875, we find the highest death-rate, 26.3.

Marriages

JOSEPH HENRY SHUFFLETON, M.D., Kings Park, N. Y., to Miss Elsie Nelson Henschel of Northport, L. I., N. Y., June 24.

JOHN HENRY NOONAN, M.D., Belgrade, Mont., to Miss Edith Harper of Salt Lake City, at Bozeman, Mont., June 1.

CLARKE CAMPBELL PATTON, M.D., Vermilion, S. Dak., to Miss Anna Marie Kellogg of Ashland, Ohio, May 28.

RAYMOND FOX ROLLER, M.D., Galcsburg, Kan., to Miss Fern Mae Green of North Manchester, Ind., May 26.

EDWARD C. SPITZE, M.D., East St. Louis, Ill., to Miss Esther Louise Niedermeyer of Decatur, Ill., June 17.

ARTHUR NARCISSE CHATEL, M.D., Laurium, Mich., to Miss Marie Elinor McDermott of Kewanee, Ill., June 2.

ORVAL JAMES CUNNINGHAM, M.D., Kansas City, Mo., to Miss Grace Margaret Quinlan of Chicago, June 7.

ALFRED THOMAS SHEFFIELD, M.D., Holland, Va., to Miss Stella Eloise Smith of Portsmouth, Va., June 25.

ROY BERTRAND HARRISON, M.D., New Orleans, to Miss Maccie Martha Haas of Alexandria, La., June 3.

THOMAS LYNCH COOKSEY, M.D., Crawfordsville, Ind., to Miss Minnie Beattey of Hico, Tex., February 24.

WENCESLAUS JAMES KAVAN, M.D., Bee, Neb., to Miss Olie Kolarik of Crete, Neb., at Wilbur, Neb., June 1.

ROBERT KENDIG REWALT, M.D., Middletown, Pa., to Miss Mary H. Cochran of Williamsport Pa., June 3.

JOHN AUGUSTINE DALY, M.D., Andover, Mass., to Miss Mary Agnes O'Brien of Lowell, Mass., June 10.

GEORGE LEON BASTIAN, M.D., to Miss Katherine Smith Winegar, both of Manchester, N. H., June 11.

FRANCIS JAMES CONROY, M.D., Sterling, Ill., to Miss Blanche Murrin of Rock Island, Ill., June 2.

STEPHEN D. LARGE, M.D., Hopkins, Mo., to Miss Susan Lawrence of St. Joseph, Mo., June 10.

ADRIAN BENTON PERKEY, M.D., Los Angeles, Cal., to Miss Susie B. Ford of Chicago, June 4.

HARLAN LLOYD PAINE, M.D., Hathorne, Mass., to Miss Amy Yeo of Salem, Mass., June 10.

LOUIS FEID, JR., M.D., Cincinnati, Ohio, to Miss Elizabeth Knight of Madcira, Ohio, June 10.

JOHN MATHEW LILLY, M.D., to Miss Mary Charlotte Seitsinger, both of Chicago, June 16.

SIMEON BURT WOLBACH, M.D., to Miss Anna Wellington, both of Boston, Mass., June 10.

HAROLD COLTON HERRICK, M.D., to Miss Daisy Johnson, both of St. Louis, June 9.

CLEAVER HENRY BRINKERHOFF, M.D., to Miss Clara Wagner, both of Chicago, June 10.

J. EARL MCINTYRE, M.D., to Miss Sadie Barclay of Menominee, Mich., June 17.

JOHN FULTON ROE, M.D., to Miss Lee Howard, both of Denver, Colo., June 10.

HOWARD R. WEIRICK, M.D., to Miss Marilla Beaty, both of Hibbing, Minn., June 5.

GEORGE DOHRMANN, M.D., to Miss Kaethe Heinsohn, both of Chicago, June 12.

Deaths

George Frederick Reinhardt, M.D. University of California, San Francisco, 1900; aged 45; a Fellow of the American Medical Association; and formerly president of the State Board of Medical Examiners of California; professor of hygiene in the University of California since 1904; and founder of the self-supporting college infirmary system; died in the infirmary of the University of California, Berkeley, June 7, from an infection of the lungs, resulting from a carbuncle.

George Perley Bradley, M.D. College of Physicians and Surgeons in the City of New York, 1870; a Fellow of the American Medical Association and a member of the Association of Military Surgeons of the United States; who entered the United States Navy in 1870, and was retired for incapacity resulting from an incident of service in 1907 as medical director, with the rank of captain; died at his home in South Lancaster, Mass., June 14, aged 65.

Otto Gustaf Ramsey, M.D. University of Virginia, Charlottesville, 1890; of New Haven; a Fellow of the American Medical Association; and professor of obstetrics and gynecology in Yale University Medical School for fifteen years; who was given the honorary degree of M.A. by Yale University in 1901; died in a hospital in New Haven, June 12, from pneumonia, aged 44.

Sidney H. Gardiner, M.D. Queen's University, Kingston, Ont., 1889; a Fellow of the American Medical Association; and a surgeon of great initiative and skill, who devised the aluminum splint, which is at present in use in the U. S. Navy; died in his private surgical sanatorium in Brooklyn, June 10, eighteen days after an operation for appendicitis, aged 51.

Benjamin Franklin Oswald, M.D. Western Reserve University, Cleveland, Ohio, 1894; a member of the Ohio State Medical Association; of Lakewood, Ohio; stepped from a car in Cleveland, June 10, and was struck by an automobile, sustaining injuries from which he died at St. Alexis' Hospital an hour later, aged 50.

Joseph W. Shellfish, M.D. Michigan College of Medicine and Surgery, Detroit, 1895; a Fellow of the American Medical Association; lecturer on materia medica and anesthesia, and clinical assistant to the chair of practice in his Alma Mater; died at his home in Detroit, June 8, from valvular heart disease, aged 40.

Henry A. Dinges, M.D. Missouri Medical College, St. Louis, 1886; a Fellow of the American Medical Association; thrice mayor of Red Bud, Ill.; and local surgeon of the Mobile and Ohio Railroad; Supreme Physician of the Catholic Knights of America; died at his home in Ruma, Ill., May 30, aged 59.

William Jasper Wilhite, M.D. College of Physicians and Surgeons, Keokuk, Ia.; a surgeon in the Confederate service during the Civil War; and one of the board of insanity commissioners for Stanislaus County, Cal.; died at his home in Modesto, Cal., May 31, from senile debility, aged 77.

Frank Albert Shaver, M.D. University of Michigan, Ann Arbor, 1903; a Fellow of the American Medical Association; and for a year thereafter assistant physician in the Kalamazoo State Hospital; died at his home in Grindstone City, Mich., May 29, from nephritis, aged 40.

William Charles Bunce, M.D. Wooster University, Cleveland, Ohio, 1878; a Fellow of the American Medical Association; chief surgeon of the Cleveland, Southwestern and Columbus Railway; died at his home in Oberlin, June 9, from valvular heart disease, aged 56.

Charles Jenks Simons, M.D. Albany (N. Y.) Medical College, 1867; a member of the Illinois State Medical Society, and a veteran of the Civil War; a practitioner of Chicago since 1868; died at his home in Chicago, June 18, from arteriosclerosis, aged 71.

Jacob J. Fulkerson, M.D. Washington University, St. Louis, 1875; a member of the Missouri State Medical Association; a Confederate and Spanish-American War veteran; died at his home in Lexington, Mo., June 6, from cerebral hemorrhage, aged 65.

Samuel Casper Ermentrout, M.D. University of Pennsylvania, Philadelphia, 1866; a member of the Medical Society of the State of Pennsylvania, and the Pennsylvania Pharmaceutical Society; died at his home in Reading, Pa., April 20, aged 70.

D. W. Patton, M.D. Dearborn Medical College, Chicago, 1905; inspector of meats in the federal service; for several years a resident of North Dakota; while on his way to Omaha to resume his official position, was killed in an automobile accident at St. Joseph, Mo., June 3, aged 45.

Emil Gamson, M.D. Medico-Chirurgical College of Philadelphia, 1898; a Fellow of the American Medical Association; and for fifteen years a practitioner of Bayonne, N.J.; died in Brooklyn, N.Y., May 30, from lymphosarcoma of the neck and thorax, aged 42.

Alexander B. Duncan, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1868; formerly Representative of Lee County, Ga., in the State Legislature and a practitioner of Leesburg; later a resident of Atlanta; died in Leesburg, May 29, aged 76.

William Jefferson Walker, M.D. University of Pennsylvania, Philadelphia, 1887; a member of the Medical Society of the State of Pennsylvania; and for many years a resident of Homestead, Pa.; died in Springfield, Ohio, recently.

Elliott E. Furney, M.D. Missouri Medical College, St. Louis, 1875; a Fellow of the American Medical Association, and for many years a practitioner of St. Louis; died recently at his home in St. Petersburg, Fla., aged 66.

Stephen D. Hughes, M.D. College of Physicians and Surgeons, Memphis, Tenn., 1908; of Wilmar, Ark.; formerly a member of the Arkansas State Board of Health; died in a hospital in Little Rock, June 1, aged 43.

O. B. Webster, M.D. University of Buffalo, N. Y., about 1848; for fifty years a practitioner of Lansing, Mich.; died at the home of his grandson in Vassar, Mich., April 30, from senile debility, aged 87.

Israel Goodrich Sims, M.D. Miami Medical College, Cincinnati, 1874; a member of the Indiana State Medical Association; died at his home in Portland, Ind., April 20, from cerebral hemorrhage, aged 69.

Adrian B. Coulter, M.D. Hahnemann Medical College, Chicago, 1867; surgeon of U. S. Volunteers during the Civil War; for many years an optician of Chicago; died at his home, June 10, aged 74.

William H. Searles, M.D. Chicago Medical College, 1865; of Oshkosh, Wis.; a specialist on diseases of the eye, ear, nose and throat; died at his home in Oshkosh, June 4, from heart disease, aged 74.

Royal Lacey Higgins, M.D. Bellevue Hospital Medical College, 1867; of Norwalk, Conn.; a member of the Connecticut State Medical Society; died in Bridgeport, Conn., April 16, aged 72.

Claude A. Stonecipher, M.D. Baltimore Medical College, 1904; formerly demonstrator of anatomy in his Alma Mater; died in the House of Correction, Baltimore, May 30, from nephritis, aged 33.

Willard C. Dickens, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1890; a member of the Wisconsin State Medical Society; died at his home in Wausau, Wis., May 31, aged 57.

Thaddeus Joseph Dean (license, Washington, 1905) Surgeon of U. S. Volunteers during the Civil War; a practitioner for fifty-five years; died at his home in Seattle, May 23, aged 77.

Ezra New, M.D. Medical College of Georgia, Augusta, 1887; a member of the Medical Association of Georgia; died at his home in Dublin, Ga., June 4, from angina pectoris, aged 54.

Thomas R. Bruce, M.D. University of Michigan, Ann Arbor, 1856; for more than thirty-two years a resident of Festus, Mo.; died at his home, May 28, aged 90.

Ezmon W. Earle, M.D. Pulte Medical College, Cincinnati, 1877; of Rochester, N. Y.; died in the Hahnemann Hospital in that city, June 4.

Simeon David Bateman, M.D. New Orleans, about 1855; died at his home in Newport, Ark., March 29, from senile debility, aged 87.

Jesse Blackburn Mickle, M.D. Eclectic Medical Institute, Cincinnati, 1891; died at his home in Erie, Pa., about June 2, aged 54.

Emil Knese, M.D. University of Wurzburg, Germany, 1873; died at his home in Cincinnati, June 2, from nephritis, aged 67.

Nathaniel Brown Rice, M.D. Albany, N.Y., Medical College, 1854; died at his home in Chicago, June 10, aged 84.

Miscellany

Prophylactic Use of Quinin in Malaria

Surgeon H. R. Carter, in a recent issue of *Public Health Reports*, thus summarizes the results of his study of this question:

The use of quinin in small doses is an efficient method for preventing malarial fever.

This method is especially adapted for use in a farming community where it is not practicable economically to get rid of malarial mosquitoes or to properly screen against them.

In malarious states quinin should be taken in doses of from 5 to 7 grains per day by grown persons, 2 to 3 grains by children—less if small—during the malarial season, say, June to November. Somewhat smaller doses will be efficient in places where the malaria is not bad. If begun in March or April, it would prevent a certain number of relapses.

In these doses it does no injury and does not produce blackwater fever or cause malaria to be more difficult to cure by quinin.

It can be taken in these doses by almost all persons without discomfort, or with discomfort for only the first seven or eight days. In cases in which it does produce discomfort a smaller dose should be tried and, if possible, increased later.

The insoluble salts of quinin are better borne—that is, cause less discomfort—than the soluble. The tannate is the most insoluble and is said to be the best borne. Made up with chocolate and sugar into tabloids it is best suited for administration to children. As the tannate contains a smaller proportion of quinin than the sulphate, from two to two-and-a-half times as much must be taken to get the same effect.

In addition to the use of quinin, whenever it is practicable to do so, the house should be screened, brush and high weeds near it cut away and pools and wet places drained or filled. If the last is not practicable, wet places and pools should be oiled.

In a community using quinin prophylaxis there will still be a certain number of cases of malarial fever. Some of these will be failures of the method, but others, and the majority if it be used properly, will be relapses of previous malarial infections from the last season. In the Italian army in 1911 there were 304 relapses and 186 new cases to 10,000 men. A certain number of relapses are prevented by quinin prophylaxis, but not all.

The Surgery of the Ancients

A set of thirty-seven remarkable ancient Greek surgical instruments, discovered near the site of Kolophon, in Ionia, after being a considerable time in the possession of the late Mr. Alfred O. Van Lannep, Dutch vice-consul at Smyrna, has been brought to England. The instruments show a type of workmanship unequalled in any other extant specimens, and generally reveal the great progress in surgery which the ancients achieved. The date is probably the first or second century, A. D. With two exceptions, all the instruments are of bronze. The blades of the knives were originally of steel, but this metal has been almost completely destroyed by oxidation. Among the five pairs of forceps in the find is a large and beautifully made instrument, the handles of which are shaped to represent two dolphins. This is probably a pair of polypus forceps used for removing growths. The bite of the teeth is strong and close. Another interesting pair of forceps is that used for extracting arrow- and lance-heads from wounds. This pair somewhat closely resembles modern bone-forceps, and has artistically modeled handles and blades which possess strong teeth for gripping. An elevator for raising depressed bone is another interesting exhibit. The collection would seem to prove that after battle, efforts must have been made to treat surgically even the most serious wounds of the skull. Another brain instrument is the "drill-bow" for operating a skull trephine. This instrument proved a great puzzle at first, and was supposed to represent some sort of measuring appliance. Research, however, has shown that it is a bow which, when fitted in a string, was used to rotate a bone-drill or skull trephine.

The British Museum possesses the only other specimen of the drill-bow extant, and until the discovery at Kolophon was made the nature of that instrument was not known. The collection includes tenacula similar to those now in use, a number of catheters of beautiful workmanship, shaped like modern instruments of the same type, a scoop or curet for gynecologic and other work (Hippocrates speaks of such an instrument), a cautery for burning wounds, a couple of probes exactly like the modern ones, a couple of spatulas or spoons, a needle-holder, and a bronze box intended evidently as an instrument case. In addition, there is a slab of Egyptian porphyry for mixing ointment on, and a well-constructed pair of scales, still in excellent equipoise. Some cupping-vessels were also discovered. This interesting collection of instruments has been given to the Johns Hopkins University and will shortly be taken to America. Models, however, are being made and will be on view in London.

Correspondence

Minnesota Regulations on Embalming-Fluid

To the Editor:—I am surprised that Dr. Jacob Rosenbloom should not have more fully informed himself on embalming-fluids now used throughout the country before writing his communication which was published in *THE JOURNAL*, June 13, 1914, p. 1912, and am rather surprised that in the comment on this communication, more attention was not given to the condition in Minnesota, the regulations of which state, as I understand it, have been used as a basis for the regulations in several other states.

There have been regulations governing the use of certain chemicals in embalming-fluids in the state of Minnesota for some time. The present regulation (No. 33), amending some of these older ones, reads as follows:

After Sept. 1, 1909, every embalming-fluid sold or used in Minnesota must contain formaldehyd gas in the proportion of 5 per cent. by weight of the gas in every 100 parts by volume of the fluid, and must not contain any ingredient that interferes with the germicidal action of formaldehyd.

Such embalming-fluids must not contain chloral, nor shall they contain arsenic, mercury, zinc or other mineral poison.

Regulation 34 reads as follows:

After Sept. 1, 1909, a list of ingredients in every embalming-fluid sold or used in Minnesota must be on file in the office of the Minnesota State Board of Health.

These regulations have the force of law.

H. M. BRACKEN, M.D., St. Paul.

Executive Officer, Minnesota State Board of Health.

A Simple Method of Vaccination

To the Editor:—In *THE JOURNAL*, June 6, 1914, p. 1829, Dr. Shalet suggests that vaccination can be performed by dipping a sterile toothpick in glycerinated virus and abrading the arm by a rotary scarification. I have tried this method, with a sharp, chisel-shaped, hardwood toothpick, and have found it entirely satisfactory.

My serious objection to the original technic of Pirquet is the vaccination through the drop of lymph (or tuberculin). The whole point of our method is to make a circular scarification with a dry instrument on a dry skin. Then the toothpick is used to rub the virus (or tuberculin) into the abraded area. As skins are very different in thickness I find it much easier to judge the amount of pressure necessary to produce scarification if the skin and chisel are both dry. If lymph is dropped directly from a capillary tube on the scarified spots the chisel can be used for rubbing in the virus, thus eliminating the toothpick entirely. We use the toothpick because our virus comes to us in bulk and we wish to use the minimum quantity for each vaccination.

J. N. FORCE, M.D., Berkeley, Cal.

Assistant Professor of Epidemiology, University of California, Department of Hygiene.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

LIQUID PETROLATUM, LIQUID PARAFFIN, PARAFFIN OIL AND LIQUID ALBOLENE

To the Editor:—Kindly explain to me the exact difference between liquid albolene, liquid paraffin, paraffin oil and liquid petrolatum.
B. F. NEWLON, M.D., Ponca City, Okla.

ANSWER.—In a general way the four products mentioned in your inquiry are alike. All of them could be included under the title "liquid petrolatum" as this title is used in the United States Pharmacopeia.

Liquid paraffin is the name used in the British Pharmacopeia for a liquid petrolatum, the specific gravity, however, being limited to a range of from 0.885 to 0.890; while the United States Pharmacopeia states that liquid petrolatum may have a specific gravity varying from 0.87 to 0.94 at 25 C. (77 F.).

Paraffin oil is not recognized as a title in either the British or the United States Pharmacopeia. It is used, as we understand, in about the same sense as liquid petrolatum.

Liquid Albolene is a light variety of liquid petrolatum marketed as a proprietary medicine exploited in an objectionable manner and with more or less misleading claims. Both liquid paraffin and Liquid Albolene are varieties of liquid petrolatum which are said to come from Russia, and differ from American products by being entirely non-fluorescent—an immaterial difference. See full discussion of this subject in THE JOURNAL, May 30, 1914, p. 1740.

REFERENCES TO POISONING BY METALLIC COOKING-UTENSILS

To the Editor:—Please tell me where I may obtain information concerning poisoning from copper and tin cooking-utensils.

E. H. S., Mt. Morris, Ill.

ANSWER.—The following is a list of references to articles on this subject:

- Behavior of Tin in the Body, editorial, THE JOURNAL, April 25, 1914, p. 1333.
Salant, Rieger and Trenthardt: Absorption and Fate of Tin in the Body, *Jour. Biol. Chem.*, March, 1914.
Wiley, H. W.: Tin in Canned Goods, *Lancet*, London, 1909, i, 1007.
Schryver, S. B.: Some Investigations on the Toxicology of Tin, with Special Reference to the Metallic Contamination of Canned Goods, *Jour. Hyg.*, 1909, ix, 253.
Garnier, L.: Etude sur les ustensiles de cuisine en bronze de nickel, *Ann. d'hyg.*, 1890, series 3, xxiv, 35.
Ponchet, G.: Présence de l'arsenic dans l'étamage des ustensiles destinés à l'usage alimentaire, *Ann. d'hyg.*, 1890, series 3, xxiv, 113.
Wiggs, L. B.: Ptomain Poisoning Complicated by Metallic Elements, *Old Dominion Jour. Med. and Surg.*, June, 1910.

CORPUS LUTEUM FROM PREGNANT COWS

To the Editor:—From what firms can one obtain corpus luteum extracted from the ovaries of pregnant cows?

J. Z. MRAZ, M.D., Prague, Okla.

ANSWER.—We are unaware that any firms make a distinction in the character of ovaries from which they remove the corpora lutea. As, however, the investigations of McCord (THE JOURNAL, April 18, 1914, p. 1250) show that a very large majority of the cows from which corpora lutea could be readily removed were pregnant, the probability is that a high percentage of the corpus luteum offered for sale is derived from pregnant cows. The only firm offering corpus luteum from cows as far as we know is Armour. See New and Nonofficial Remedies, 1914, page 183.

HYPOPHOSPHITES IN TUBERCULOSIS

To the Editor:—Kindly advise me whether or not Winchester's Hypophosphites, which is prescribed by some doctors in the treatment of tuberculosis, is of any real value.

C. W. MILLER, Denver.

ANSWER.—No. It is now agreed that the hypophosphites pass through the system unchanged; they certainly have no specific influence when used in the treatment of tuberculosis.

TREATMENT IN TYPHOID

To the Editor:—Please answer the following questions:

1. Is it good practice to keep an ice-bag on the abdomen of a typhoid patient from the beginning of the sickness until the very last? Is it good practice to put an ice-bag on the abdomen of a typhoid patient at any time of the sickness, when neither hemorrhage nor perforation is threatened?

2. Is it good practice to give a typhoid patient crackers, toast, and a certain amount of sweets? Would such a diet elevate the temperature of the patient and could it produce serious results?

LEON J. MENVILLE, M.D., Houma, La.

ANSWER.—1. An ice-bag should not be employed unless some positive indications for its use exist, such as hemorrhage, orchitis or other inflammatory complication.

2. A diet containing crackers, toast and sweets is approved by many clinicians. There is no likelihood that it would do harm.

ARTICLES ON RECTAL ETHERIZATION

To the Editor:—Please give me the details of rectal ether anesthesia or refer me to recent works on the subject.

HOWARD M. CLUTE, M.D., Hanover, N. H.

ANSWER.—The following are references to recent studies on this subject:

- Coburn, R. C.: Increase in Toxication of Ether by New Methods of Administration, *THE JOURNAL*, Jan. 31, 1914, p. 364.
Gwathmey, J. T.: Oil-Ether Anesthesia, *New York Med. Jour.*, Dec. 6, 1913, and Jan. 31, 1914; abstr., *THE JOURNAL*, Dec. 20, 1913, p. 2274.
Pate, J. C.: Oil-Ether Anesthesia, *Georgia Med. Assn. Jour.*, February, 1914.
Cunningham, J. H.: Rectal Etherization, *Berl. klin. Wchnschr.*, Oct. 20, 1913.
Federici, N.: Disadvantages of Ether Anesthesia by Way of the Rectum, *Gazz. d. osp.*, Aug. 1, 1912.
Gwathmey, J. T.: Technic of Oil-Ether Colonic Anesthesia, *New York Med. Jour.*, March 28, 1914.
Luke, H. C.: Ether-Oil Rectal Anesthesia, *Med. Rec.*, New York, May 9, 1914; abstr., *THE JOURNAL*, May 23, 1914, p. 1691.
Rectal Anesthesia, Therapeutics, *THE JOURNAL*, Dec. 16, 1911, p. 1997.
Arnd, K.: General Ether Anesthesia by the Rectum, *Arch. f. klin. Chir.*, xcv, No. 1.

ENLARGEMENT ON LIP IN SYPHILIS

To the Editor:—1. On the septum of the upper lip of a large proportion of syphilitic patients there is a small enlargement varying in size from a pin-head to a small pea. Is this a syphilitic glandular enlargement, or what is its significance?

2. Can you refer me to any literature on the subject? O. D. P.

ANSWER.—1. We know of no such symptom as a regular occurrence in syphilis. A small lymphatic node in this location may become enlarged and palpable, but cases have not been common.

2. We have been unable to find any literature on this specific subject.

INSTITUTION FOR BACKWARD CHILDREN

To the Editor:—I am very desirous of placing my boy in a good school for backward children in some part of the South, and ask if you can give me the address of such a school. The boy is now in a school of that kind near Philadelphia, but I prefer to have him nearer home, and in a milder climate. I do not know that first-class schools for that class of children really exist in the South, but if they do, I shall be glad for you to furnish me the address of two or three of the best.

X. Y. Z.

ANSWER.—We shall be glad to receive addresses of such institutions in the South to forward.

McClintic's Work on Rocky Mountain Spotted Fever.—In *Public Health Reports*, April 24, 1914, Surgeon L. B. Fricks reviews the work of Dr. T. B. McClintic on Rocky Mountain spotted fever in Montana. Dr. McClintic carried on his second series of investigations of Rocky Mountain spotted fever in the Bitter Root Valley during the summer of 1912. Just at the close of a successful season's work, he contracted the disease and died. Because of the importance of the work his notes have been carefully arranged, tabulated and amplified by explanations of the methods of procedure. There is a summary of the results obtained. The report covers the portion of the work relating to the collection of ticks, the determination of those infected by animal experimentation, and the examination of ground-squirrels, woodchucks and other small animals.

Medical Education and State Boards of
Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 14. Chairman, Dr. W. H. Sanders, Montgomery.
ALASKA: Juneau, July 7. Sec., Dr. Henry C. De Vigne, Juneau.
ARIZONA: Phoenix, July 7-8. Sec., Dr. John Wix Thomas, Phoenix.
COLORADO: Denver, July 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
CONNECTICUT: New Haven, July 14-15. Sec., Dr. Chas. A. Tuttle, New Haven. Homeopathic: New Haven, July 14. Sec., Dr. Edwin C. M. Hall, New Haven. Eclectic: New Haven, July 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.
INDIANA: Indianapolis, July 14-16. Sec., Dr. W. T. Gott, State House, Indianapolis.
MAINE: Augusta, July 7-8. Sec., Dr. Frank W. Scarle, 776 Congress St., Portland.
MASSACHUSETTS: Boston, July 14-16. Sec., Dr. Walter P. Bowers, Room 159 State House, Boston.
MONTANA: Helena, June 30-July 2. Sec., Dr. Wm. C. Riddell, Helena.
NEW HAMPSHIRE: Concord, July 1-2. Regent, Mr. H. C. Morrison, Concord.
NEW MEXICO: Santa Fe, July 13. Sec., Dr. W. E. Kaser, East Las Vegas.
NORTH DAKOTA: Grand Forks, July 7. Sec., Dr. G. M. Williamson, Grand Forks.
OKLAHOMA: Oklahoma City, July 14. Sec., Dr. John W. Duke, Guthrie.
OREGON: Portland, July 7-9. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.
RHODE ISLAND: Providence, July 2-3. Sec., Dr. Gardner T. Swarts, State House, Providence.
SOUTH DAKOTA: Deadwood, July 14. Sec., Dr. Park B. Jenkins, Waubay.
UTAH: Salt Lake City, July 6-7. Sec., G. F. Harding, 405 Templeton Bldg., Salt Lake City.
VERMONT: Burlington, July 14-17. Sec., Dr. W. Scott Nay, Underhill.
WASHINGTON: Seattle, July 7. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.
WEST VIRGINIA: Elkins, July 1. Sec., Dr. S. L. Jopson, Wheeling.
WISCONSIN: Milwaukee, June 29. Sec., Dr. John M. Bffel, 3200 Clybourn St., Milwaukee.
WYOMING: Laramie, July 9-11. Sec., Dr. H. E. McCollum, Laramie.

Oregon January Report

Dr. L. H. Hamilton, secretary of the Oregon State Board of Medical Examiners, reports the written examination held at Portland, Jan. 6-8, 1914. The number of subjects examined in was 15; total number of questions asked, 108; percentage required to pass, 75. The total number of candidates examined was 75, including 1 osteopath and 31 non-graduates, of whom 42 passed, including 1 osteopath and 13 non-graduates, and 33 failed, including 18 non-graduates. The following colleges were represented:

| College | PASSED | Year Grad. | Total No. Examined |
|---|--------|------------|--------------------|
| University of Alabama | | (1912) | 1 |
| Chicago College of Medicine and Surgery | | (1913) | 2 |
| Northwestern University Med. School (1894) | (1905) | (1911) | 4 |
| Rush Medical College | | (1910) | 1 |
| State Univ. of Iowa Coll. of Homeo. Med. | | (1891) | 1 |
| Kentucky School of Medicine | | (1908) | 1 |
| Grand Rapids Medical College | | (1900) | 1 |
| University of Michigan, Dept. of Medicine and Surg. | (1884) | (1897) | 1 |
| Hamline University | | (1897) | 1 |
| Columbia Univ., Coll. of Phys. and Surg., N. Y. | | (1910) | 1 |
| Syracuse University | | (1912) | 1 |
| University of Oregon | | (1913) | 2 |
| Willamette University | | (1912,2) | 3 |
| Jefferson Medical College | | (1911) | 2 |
| Woman's Medical College of Pennsylvania | (1891) | (1912) | 2 |
| Baylor University | | (1913) | 1 |
| University of Texas | | (1897) | 1 |
| University of Helsingfors, Finland | | (1911) | 1 |
| Non-graduates | | | 13 |

| College | FAILED | Year Grad. | Total No. Examined |
|--|--------|------------|--------------------|
| College of Phys. and Surgs., San Francisco | | (1910) | 1 |
| American College of Medicine & Surgery | | (1904) | 1 |
| Chicago College of Med. and Surg. | | (1908) | 1 |
| Iowa College of Physicians and Surgeons | | (1896) | 1 |
| Keokuk Med. Coll., Coll. of Phys. and Surgs. | | (1902) | 1 |
| Tulane University | | (1908) | 1 |
| St. Louis University | | (1908) | 1 |
| University Medical College, Kansas City | | (1913) | 1 |
| University of Oregon | | (1910) | 2 |
| Willamette University | | (1905) | 4 |
| Woman's Med. Coll. of Pennsylvania | | (1901) | 1 |
| Non-graduates | | | 18 |

The following questions were asked:

PHYSIOLOGY

1. Mention three forms of contractile tissue found in the body. 2. Define central nervous system, sense organ, reflex action and inhibition. 3. Trace the afferent and efferent nerve impulses in colic of the colon. 4. Mention five functions of the blood. What is the source of the red blood-corpuscles? 5. Mention two structures of the body in which glycogen is stored. Into what is it changed for solution in the blood? 6. Mention the different gases found in arterial blood. Give the per-

centages of each. 7. State the percentage of water in the human body. In blood. In muscle. In bone. 8. Describe the digestion and absorption of fats.

NERVOUS DISEASES

1. Describe the symptoms, general and local, of a tumor occupying the lower half of the convolution in front of the fissure of Rolando on the left side. 2. Describe and locate the principal lesion in locomotor ataxia. Differentiate locomotor ataxia symptomatically from primary lateral sclerosis. 3. Name four cases of multiple neuritis. Describe the development and symptoms of postdiphtheritic multiple neuritis. 4. Give the etiology and symptomatology of chorea.

MATERIA-MEDICA AND THERAPEUTICS

1. What is apomorphin? Give its dose and physiologic action. 2. Name the most important preparations of bismuth. Give therapeutic uses. What dangers are connected with its use? How avoided? 3. Give indications for the use of arsenic compounds. Name the most important preparations with doses. 4. Give the strength of solution of nitrate of silver for use in eye, bladder and throat. What effect is produced by long continued use in the eye? 5. Compare action of atropia with adrenalin. 6. Name one drug each to be used against tape-worm, roundworm and hookworm. Give preparation, dose and danger of each. 7. Discuss indications for the local use of carbolic acid. What precautions are to be observed? 8. What is the active substance in thyroid gland? Give physiologic action, indications and contra-indications.

GYNECOLOGY

1. Give technic of bimanual examination. What do you find in the fornices of the vagina? 2. With what conditions may vaginal hernia be confused? 3. Give causes and pathologic changes in senile endometritis. 4. Define subinvolution of the uterus and give symptoms. 5. Name four varieties of ovarian cyst and describe the glandular variety. 6. What are the causes of ectopic gestation? Give symptoms before, during and after rupture. 7. Give general effects of double salpingo-oophorectomy. 8. Describe a tuberculous infection of any one of the female organs.

DIAGNOSIS

1. Differentiate bronchiectasis from pulmonary tuberculosis. 2. Differentiate spasmodic asthma from renal, cardiac and aneurysmal asthma. 3. Diagnose a case of centralized pneumonia in a child of 3. 4. What are the normal findings (microscopic and macroscopic) in feces? (b) What pathologic conditions are diagnosed by microscopic findings in feces? 5. What are the physical signs of incompetency of the pulmonary valve? 6. Give physical signs of aortic obstruction; aortic regurgitation. 7. Differentiate pancreatic cancer from carcinoma of the stomach. 8. Name diseases that may produce hemoglobinuria. Give chemical test for hemoglobinuria.

LEGAL MEDICINE

1. Describe the death-scene in a case in which death is caused from concealed hemorrhage. 2. What are the histologic changes, and in what organs are they most marked, when death is caused from chronic arsenical poisoning? 3. A person claims that his arm is paralyzed as a result following a railroad accident, without external marks. Tell how you would demonstrate before a court the truth or falsity of the claim. 4. As an expert witness, you are required to inform a court whether a will that is in litigation was made by an insane or by a sane person. What facts would you require to enable you to make a decision, and tell what is meant by the term "disposing mind"?

SURGERY

1. In Colles' fracture (a) state usual displacement; (b) name the muscles causing same; (c) give the method of reduction; (d) the permanent dressing you would apply; (e) give the position in which you would place the part in relation to fixed points of the body. 2. In fracture of the neck of the femur: (a) state the usual deformity and the anatomic reason for the same; (b) give an external test-line used in diagnosing lesions in that part; (c) outline two methods of permanent dressings that you would apply in cases of fracture at this point, with the reason for the use of each. 3. Give the normal relations of the bony landmarks of the elbow-joint. State the alterations that occur in (a) anterior luxation; (b) posterior luxation; (c) fracture of the olecranon. 4. Name three forms of intestinal obstruction. Outline the surgical operation that may be required for the relief of each. 5. Give the morbid anatomy of a rectal abscess. Describe the symptoms. Outline the treatment. What sequela may be expected, and why? 6. What is the morbid anatomy, what are the symptoms and what is the surgical treatment of gastric ulcer? 7. Define erysipelas. What are its symptoms and what is a usual treatment? 8. Describe the furniture that is necessary in a well-equipped surgical operating-room.

CHEMISTRY

1. A physician has a patient whose temperature by a Fahrenheit thermometer is 104 degrees, for whom he prescribes as follows: quinin sulphate, 15 grains; sulphuric acid aromatic, 16 minims, and aqua pura, 2 ounces. What is the temperature of the patient by a Centigrade thermometer, and write the prescription by metric terms? 2. If a certain x-ray machine requires 50 milliamperes of current, and the resistance in the machine is equal to 500 ohms, what voltage will be required to run the machine? 3. Define clearly the difference between the terms element and atom; a salt and a compound; an acid and an alkali; organic and inorganic; solution and mixture. 4. What is iodine; what is its atomic weight; what is its specific gravity; what is its symbol, and what is a test for its presence? 5. What is blue vitriol; white vitriol; green vitriol? 6. What is indican? What abnormal condition does its presence indicate? Give the test for indican. 7. How would you test the specific gravity of blood, when only one drop of it is available? 8. What are the solutions, and how would you use them, when testing the urine for suspected sugar?

OBSTETRICS

1. Give signs of fetal death during latter months of pregnancy, and treatment when it occurs. 2. What are the symptoms, and treatment of threatened eclampsia? 3. What are the causes of hemorrhage (a) before labor, (b) during labor, (c) after labor? 4. Give diagnosis, prognosis and treatment of face presentations. 5. When is podalic version indicated? How would you perform the operation? Mention the dangers in its performance. 6. What are the causes of prolonged labor? State the dangers, (a) to the mother, (b) to the child. 7. What are the symptoms of puerperal sepsis? Give your treatment of a case. 8. What are the causes of false labor pains? Diagnose true from false labor pains.

PRACTICE OF MEDICINE

1. Differentiate neuritis from inflammatory rheumatism. Give treatment of neuritis. 2. In what valvular diseases of the heart is dyspnea most marked? Explain the cause of the dyspnea, and treatment you would institute. 3. Give the symptoms, medical and dietetic treatment, and signs of threatening coma in diabetes mellitus. 4. Differentiate chlorosis, pernicious anemia and secondary anemia, and give treatment of chlorosis. 5. What is the significance of dropsy? State how you would recognize by what disease ascites is produced. 6. Called in great haste to a department store during the rush of a Xmas shopping, and find a girl 17 years of age, who was suddenly seized with a severe pain in the right iliac region, upon my arrival I find her with a pulse of 160 per minute, skin and extremities cold, vomiting, with attack of syncope, soon becoming unconscious. Her sister, who is with her, tells me that she has recently complained of pain in the lower abdomen, and more particularly on the right side, and for the last few days with a troublesome diarrhea. Give a probable diagnosis, and tell how you would handle the case. 7. Differentiate acute gastritis, pancreatitis and biliary colic, and give treatment of acute gastritis. 8. Give etiology, symptoms and treatment of acute cystitis.

HISTOLOGY

1. Describe the different elements of which the blood is composed. 2. Describe the structure of an artery. 3. Give the histologic appearance of a cross-section of a long bone. 4. Describe structure of heart-muscle.

EYE, EAR, NOSE AND THROAT

1. Give causes and sequelae of suppurative otitis media. 2. How would you treat a case of acute otitis media before perforation? After perforation? 3. How would you differentiate acute iritis from acute conjunctivitis? 4. Outline the treatment of acute follicular tonsillitis.

DISEASES OF CHILDREN

1. Discuss ophthalmia neonatorum with reference to etiology, pathology, prognosis, treatment and prophylaxis. 2. What would your course be, if called to see a child, aged 6, one of a family of four children, if it presented a suspicious looking membrane in the throat? 3. At what age should a baby be weaned from the breast? Give definite directions for weaning it at that age. 4. Give complete differential diagnosis between measles and scarlet fever. 5. Give symptoms and treatment of bronchopneumonia in a baby of 8 months. 6. Differentiate spasmodic croup from laryngeal diphtheria. 7. Outline treatment of spasmodic croup. 8. What would you advise a nursing mother, with reference to the care of her sore nipples?

PATHOLOGY

1. Describe pathologic characteristics of gastric ulcer. 2. What is the pathology of aneurysm? 3. Describe changes occurring in cartilage in arthritis deformans. 4. What is metastasis? What are the most frequent channels of metastasis?

ANATOMY

1. Describe the heart. Be brief yet comprehensive. 2. What arteries, muscles and nerves would be severed in a cross-section at the middle of the humerus? 3. Describe the thyroid gland. Give nerve-supply, arteries and veins. 4. Name cranial nerves and foramina of exit from the skull. 5. Origin, course and distribution of great sciatic nerve. 6. Name the orbital muscles. 7. Differentiate synarthrosis, amphiarthrosis and diarthrosis. Example of each. 8. Describe the thoracic duct and state the parts of body it drains.

North Dakota January Report

Dr. George M. Williamson, secretary of the North Dakota State Board of Medical Examiners, reports the practical, oral and written examination held at Grand Forks, Jan. 6-9, 1914. The number of subjects examined in was 13; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 10, of whom 9 passed and 1 failed. Seven candidates were licensed through reciprocity. The following colleges were represented:

| College | PASSED | | Year Grad. | Per Cent. |
|---|-------------------|------------------|------------|-----------|
| | | | | |
| Chicago College of Medicine and Surgery..... | (1913) | 79 | | |
| Keokuk Medical College..... | (1903) | 78 | | |
| State University of Iowa, Coll. of Homeo. Med..... | (1903) | 75 | | |
| University of Minnesota | (1913) | 77 | | |
| New York Homeopathic Medical College and Hospital.. | (1912) | 79.5 | | |
| Marquette University | (1910) 76; (1912) | 77.5 | | |
| Laval University | (1911) | 75 | | |
| University of Christiania, Norway..... | (1912) | 80 | | |
| FAILED | | | | |
| University of Louisville | (1910) | 56 | | |
| LICENSED THROUGH RECIPROCITY | | | | |
| College | Year Grad. | Reciprocity with | | |
| Chicago College of Medicine and Surgery..... | (1909) | Illinois | | |
| Northwestern University..... | (1910) | Minnesota | | |
| Rush Medical College | (1910) | Illinois | | |
| Hamline University | (1909) | Minnesota | | |
| University of Minnesota | (1910) | Minnesota | | |
| Jefferson Medical College..... | (1912) | Missouri | | |
| Marquette University | (1911) | Wisconsin | | |

Relatives.—Science and literature are not two things, but two sides of one thing.—Huxley.

Book Notices

TUBERCULIN IN DIAGNOSIS AND TREATMENT. A Text-Book of the Specific Diagnosis and Therapy of Tuberculosis, for Practitioners and Students. By Dr. Bandelier, Medical Director of Sanatorium "Schwarzwaldheim" at Schömberg, and Dr. Roepke, Medical Director of the Railway Sanatorium "Stadtwald" at Melsungen. Second English Edition, Translated from the Seventh German Edition by Wilfred B. Christopherson. Cloth. Price, \$4.50 net. Pp. 307, with illustrations. New York: William Wood & Co., 1913.

The fact that this book has passed through many editions in the original language speaks for its popularity and for the importance of the subject which it treats. The questions which center around the use of tuberculin are by no means settled, although tuberculin has been before the medical profession for two decades. Whatever may have been presented previously, the views of such men as Bandelier and Roepke cannot fail to be of interest regarding a subject on which they have earned the right to speak with authority. The book deals first with the theoretical considerations affecting the action of tuberculin. The multiplicity of views as to the action of tuberculin and the uncertainty of many of the results of observation and experiment by which such views must be tested render a clear account of these matters extremely difficult. The authors have in general accepted the views of Wassermann and regard the occurrence of hypersusceptibility as a stage or phase in the action of tuberculin which, with the progress of immunity, results in insusceptibility or toxi-immunity. They do not believe, however that it is desirable to prolong the initial stage of hypersusceptibility. The value of hyperemia and of phagocytosis as curative agents is admitted, although the value of opsonins as practical indicators of immunity is regarded as inferior to clinical signs. The authors emphasize "the inferior value of exclusively small doses of tuberculin as expressly demanded by Wright's opsonic theory and by several authors."

The second section deals with the diagnostic use of tuberculin. The method of von Pirquet and the old subcutaneous method receive the approval of the authors, although their limitations are clearly stated. The conclusion which the reader must draw is that none of the tuberculin tests distinguish between latent and active tuberculosis, so that their value is insignificant except in a very limited number of cases. In considering special forms of the disease, however, the value of the tuberculin test in conjunction with the clinical course is accorded a higher position. The local methods of reaction, such as the cutaneous, percutaneous, etc., are to be employed alone in all cases in which the subcutaneous method is contra-indicated. The uncertainty and unreliability of these tests in adults are again distinctly emphasized. The authors' estimate of the subcutaneous test is expressed in the following: "The subcutaneous tuberculin reaction by itself and apart from all clinical methods of examination indicates, as a rule, only that tuberculosis is present, but in conjunction with clinical history, inspection, percussion, and auscultation (focal reaction), it is still to-day the supreme aid to the diagnosis of the active initial stage of pulmonary tuberculosis in adults."

In other forms of tuberculosis in adults the superiority of the subcutaneous test is maintained with few exceptions, especially when focal reactions can be elicited. In surgical conditions the readiness with which the cutaneous test develops gives it a certain advantage. In the tuberculosis of children its great value is acknowledged.

Under treatment the important questions of the method of administration and the dosage are considered. The authors advocate the use of old tuberculin for diagnostic purposes and to secure severe focal reactions, and the bacillen emulsion for general therapeutic purposes. They begin with small doses but advance cautiously, avoiding reactions, but aiming to achieve a toxi-immunity as soon as possible. Other plans of treatment are described and criticized.

The different forms of tuberculin and other specific remedies for tuberculosis are enumerated and an impartial esti-

mate of their value given. In some cases the evidence is regarded as insufficient to permit a judgment to be rendered. In others the opinion is decidedly adverse. Spengler's I K is unqualifiedly condemned as valueless. Marmorek's serum is regarded as still on trial. "In many cases of fresh and purely local tuberculosis it is of value; outside this, its activity seems to be limited, especially owing to the mixed infection so often present in tuberculosis."

The remaining portion of the book is occupied with the specific treatment of tuberculosis in its various forms. The authors are convinced of the value of the treatment; they regard it as applicable to every uncomplicated case of pulmonary tuberculosis, aside from severe incurable forms. In their opinion it can be used in many cases to relieve symptoms when ultimate recovery is not to be expected. Even the pure toxic fever, due to absorption of toxic products from the tubercle bacilli, they say, is by no means unsuited to tuberculin treatment. The contra-indications to the use of tuberculin are thoroughly discussed.

In their conclusions the authors discuss the objections that have been raised to this form of diagnosis and therapy. Especially they oppose the argument that tuberculin has never been proved of value by adequate animal experimentation. They point out that the animals used in such experiments are so susceptible to tuberculosis that a comparison with the phthisis of man is not justified. They believe that tuberculin must become the common property of all practitioners. In order that this may be brought about, a conservative but not too pessimistic work is needed, a need that is well supplied in the volume under consideration.

THE AMERICAN YEAR-BOOK. A Record of Events and Progress, 1913. Edited by Francis G. Wickware, B.A., B.Sc., under the Direction of a Supervisory Board Representing National Learned Societies. Cloth. Price, \$3.50. Pp. 892. New York: D. Appleton & Co., 1914.

This year-book summarizes the annual progress in history, law, government and administration, economic and social conditions, industries, medical science and the humanities. It contains the statistical matter that is found in all year-books, and in addition there are many excellent articles written by men who are experts in their special fields: The division devoted to medical science includes Anatomy, by C. Carl Huber; Physiology and Pharmacology, by S. J. Meltzer; Pathology and Bacteriology, by Martha Wollstein; Medicine, by Alexander Lambert and Harlow Brooks; Surgery, by Joseph C. Bloodgood, and Public Health and Hygiene, by Selskar M. Gunn. These give a brief review of the progress and the happenings of the various subdivisions during the past year. The book as a whole will be found to contain a vast amount of information in practically every branch of social, professional, manufacturing and commercial life. This information is made readily accessible through the arrangement of the subjects, and especially by an excellent index.

MODERN SURGERY, GENERAL AND OPERATIVE. By John Chalmers Da Costa, M.D., LL.D., and Samuel S. Gross, Professor of Surgery, Jefferson Medical College, Philadelphia. Seventh Edition. Cloth. Price, \$6 net. Pp. 1515, with 1,085 illustrations. Philadelphia: W. B. Saunders Co., 1914.

As this edition is revised, entirely reset and reprinted, it may be regarded, to a large extent, as a new book. The authors suggest, by a poetical quotation, the necessity in such a book of adopting opinions derived from various sources, and in order to present those opinions in their best form, he has frequently quoted exactly from the original sources and has but given his authority for every statement. Much of the value of the book depends on the dogmatic and explicit manner in which most of the instructions are given. The descriptions of surgical procedures even of the minor sort, such as the opening of an abscess, are explicit and detailed. These descriptions omit no opportunity to warn the incautious practitioner of dangers which ought to be avoided. The references to the literature are frequently quite recent. The book is abundantly illustrated, and in every way deserves the confidence of the medical profession.

Medicolegal

Trial by Medical Society of Member Acquitted by Court

(*Miller vs. Hennepin County Medical Society et al.* (Minn.), 144 N. W. R. 1091)

The Supreme Court of Minnesota holds that the Hennepin County Medical Society, a voluntary association of physicians and surgeons, the by-laws of which provide for the trial of a member for a criminal offense or for misconduct, and provide a penalty by discipline or expulsion, may try a member for acts which were necessarily involved in a criminal charge, which were tried in the district court and of which the member was acquitted. The court says that the plaintiff was acquitted in the district court of the crime of manslaughter in the first degree. The indictment was based on an alleged criminal operation. Charges were preferred by the defendant society against him concerning the matters involved in the criminal charges. The court, on the application of the plaintiff, granted an injunction restraining the society from trying him for the crime of which he had been acquitted, but refused to restrain it from proceeding under its constitution and by-laws to an inquiry and investigation into his conduct relative to the alleged criminal operation. Without determining the precise scope of the injunction, it is clear that it permitted the society to consider acts involved in the criminal charge in disciplining or expelling the plaintiff. His claim was that the facts charged in the indictment could not be made the basis for disciplining or expelling him. But the court knows of no case which holds that a member of a voluntary association, the by-laws of which provide for the discipline or expulsion of a member for crime or misconduct inimical to its being, may interpose as a bar a former acquittal of a criminal charge involving the same acts. Sound reasoning does not support such a claim. The authorities are to the effect that a license to practice medicine may be revoked by the duly constituted authority, and that an attorney may be disbarred by a special judicial proceeding, though the acts relied on for the revocation or disbarment are the same acts on which a criminal charge, resulting in an acquittal, was based. There is less justification for holding that an acquittal is a bar in the trial of a member of an unincorporated association in accordance with its by-laws to which he has assented, when the result of sustaining the charge is no more than a severance of the relations between the association and himself. There is no reason why the plaintiff should not submit to a trial in accordance with the by-laws of the society. The order of the district court is affirmed.

Validity of Quarantine Established by Telephone

(*Plymouth Township vs. Klug* (N. D.), 145 N. W. R. 130)

The Supreme Court of North Dakota says that some of the defendant's children and a hired man became sick. The physician called pronounced the disease scarlet fever and immediately notified the clerk of the township board thereof. The clerk, on receiving the notice, telephoned to the chairman of the township board, who in turn called up the other members of the board individually on the telephone and discussed the situation. After such discussion, the chairman called up the clerk and directed him to post a quarantine notice on the defendant's farm, which was immediately done. The court considers that the quarantine was regular. While it is true that, under the North Dakota statute, the meetings of the township board must be on three days' notice, yet the court does not believe the statute contemplated the delay of a regular meeting when such an emergency as a contagious disease is presented. To require the board to act in that deliberate manner would defeat the very object of a quarantine law. Besides, the law says that the board shall "immediately" examine, etc. It was the duty of the clerk to establish the quarantine in this case without waiting for the formality of a three days' notice meeting.

Society Proceedings

COMING MEETINGS

Montana State Medical Association, Lewistown, July 8-9.
New Jersey Medical Society, Spring Lake, June 29.

AMERICAN GYNECOLOGICAL SOCIETY

Thirty-Ninth Annual Meeting, held at Boston, May 19-21, 1914

(Concluded from page 1988)

Nerve-Blocking

DR. M. L. HARRIS, Chicago: The amount of novocain that can be injected without producing toxic symptoms varies and depends largely on the rapidity of absorption. If a plain watery solution is used and injected in a region where absorption is rapid, from 0.3 to 0.4 gm. may produce toxic symptoms; but if the solution be one which absorbs slowly, from 0.5 to 1 gm. may be used without danger. The more rapid the absorption the less marked the anesthesia. The addition of epinephrin to the solution materially increases the degree and duration of the anesthesia. I have found that by the addition of calcium chlorid in varying strengths, the anesthesia may be prolonged for two or three hours without difficulty, and that a weaker solution may be used than without the calcium chlorid. The formula which has given me the best results is, novocain, from 0.25 to 1 per cent.; calcium chlorid, from 0.25 to 0.5 per cent.; chlorbutanol, 0.8 per cent. in distilled water, to which are added 4 or 5 drops of 1:1,000 epinephrin solution to 30 c.c. of the mixture. It is very essential that the mixture be properly prepared, and the method which I use is as follows: The distilled water is sterilized by boiling. The novocain is then added and the boiling continued not to exceed two or three minutes, as prolonged boiling spoils novocain. When this has cooled down to below 150 F., 1 grain of chlorbutanol is added to every 100 c.c. of the novocain solution. Water dissolves only about 0.8 per cent. of chlorbutanol, but 1 per cent. is added merely as an easy way of insuring a saturated solution. The undissolved part simply settles at the bottom. A 2 to 4 per cent. solution of calcium chlorid in distilled water is sterilized, and then the chlorbutanol is added the same as to the novocain solution. The solutions are kept separately and mixed just before using. In this way the percentage of the ingredients may be varied to suit the particular case. The epinephrin should never be added until just before using, as it is very unstable and soon spoils if left standing in the solution, which is indicated by the solution gradually turning a reddish color. The chlorbutanol is added because it has distinct anesthetizing properties of its own, and being soluble in lipoids increases the anesthetizing effect of the novocain. The method is devoid of dangerous and unpleasant complications which so frequently follow the use of general anesthetics. I have done 234 operations on 217 patients under nerve-blocking with six failures and seven deaths.

Spinal Anesthesia in Gynecology

DR. GEORGE GELLHORN, St. Louis: The mortality-rate from spinal anesthesia cannot be determined by statistics. The anesthetic itself seems to have nothing to do with the mortality. The safety of spinal anesthesia depends on its accurate technic. I have done 127 abdominal and 42 vaginal operations without a death. The postoperative care of "spinal cases" is strikingly easy. The usual postoperative symptoms appear in greatly mitigated form, or are altogether absent. Spinal anesthesia enables us to operate with safety on patients in whom ether would be contra-indicated. Minor operations should be reserved for ether narcosis. Spinal anesthesia is contra-indicated in kyphoscoliosis and other marked anomalies of the spinal column, diseases of the central nervous system, profound shock, or marked hypotension from other causes, sepsis, and fevers of unknown origin, and in neuropathic persons. Suppurations and eruptions near the desired site of injection forbid the use of spinal anesthesia until aseptic conditions can be established.

DISCUSSION

DR. FREEMAN ALLEN, Boston: I am not an ardent advocate of spinal anesthesia. A great deal of the condemnation that ether has been receiving lately is due to the fact that surgeons are much too apt to put up with administrations of ether by persons who are comparatively unskilful. If I lived in a community where the services of a skilled anesthetist were not obtainable, I should use spinal anesthesia very largely, if not exclusively.

DR. JOHN O. POLAK, Brooklyn: During the last two years we have used spinal anesthesia in a number of cardiac cases, cases of tuberculosis, diabetes, and in those in which we have had to do obstetric or gynecologic operations. In those extremely severe cardiac cases that complicate pregnancy the use of spinal anesthesia has brought us to a new era of obstetric surgery.

DR. SETH C. GORDON, Portland, Me.: I have given ether and chloroform for over fifty years, and have seen but one death from chloroform and one from ether. The main trouble has been in the administration of these two anesthetics.

DR. M. L. HARRIS, Chicago: Under nerve-blocking there have been no deaths, so it is perfectly safe from that point of view. I have had occasion to operate on a number of patients who had undergone previous operations under general anesthesia, and without a single exception the patients have expressed themselves as infinitely preferring nerve-blocking and would never think of taking a general anesthetic again. Until we find some way of limiting spinal anesthesia to a distinct level or to a certain part of the cord, I think peripheral anesthesia or nerve-blocking must have certain advantages over intraspinal anesthesia.

DR. GEORGE GELLHORN, St. Louis: I have never done anything but gynecologic operations under spinal anesthesia, but I am certain that in operations on the extremities, nerve-blocking will be the method of anesthesia of the future.

Ultimate Results from Surgical Intervention in Cholelithiasis

DR. JOHN G. CLARK, Philadelphia: In all cases in which there is nausea after twenty-four hours, I attach a saline reservoir to the drainage-tube and under 1 foot of hydraulic pressure permit the fluid to drop slowly into the gall-bladder. Great care is observed to avoid the slightest excess of pressure which might induce a rupture about the point of insertion of the tube into the gall-bladder. The drainage has usually been maintained for ten days. Within the last two years I have turned toward cholecystectomy in a greater proportion of cases. If the wall of the gall-bladder is thick and indurated, or if it is dilated and very thin, or if, on inspection of the interior of the organ, the mucosa is eroded or shows a strawberry mottling, I perform cholecystectomy. Occasionally I have closed the gall-bladder without drainage in uncomplicated cholelithiasis, but I prefer to use a simple drain for fear of the rupture of the gall-bladder and escape of bile into the peritoneal cavity. In gynecologic cases with coincident symptoms in the upper abdomen, the gall-bladder is far more frequently the seat of disease than any other organ. Of six fatalities in my series of 160 cases, four of the patients died from destructive results of advanced cholelithiasis. In only two could death be attributed to any defect in operative technic. In one there was a leakage with the formation of a subphrenic abscess; in the other, a peritonitis. These two deaths might have been avoidable. In none of the combined operations in which there were no symptoms attributable to gall-stones was there a fatality.

DISCUSSION

DR. REUBEN PETERSON, Ann Arbor, Mich.: I find that in about one thousand abdominal sections, gall-stones are present in about 12 or 14 per cent. I have adopted the operation of simply removing the gall-stones and draining. I have not removed the gall-bladder in any case. I have found quite a percentage of cases in which I did not think it was advisable to perform any operation on the gall-bladder. I have found an unusually large proportion of cases of cancer with gall-stones. In the pus cases I have refrained from operating on the gall-bladder.

DR. PHILANDER A. HARRIS, Paterson, N. J.: I have not removed gall-stones from patients when operating on them for gynecologic troubles in more than half a dozen times. I have removed the gall-bladder in at least 70 per cent. of the cases in which I have operated, something less than 200. Removal of the gall-bladder is good practice.

A Further Development of an Original Technic for Lacerations of the Pelvic Floor

DR. BARTON COOKE HIRST, Philadelphia: For a number of years in my clinic in the University Hospital of Philadelphia, I have had the recently delivered women placed on an operating-table in the dorsal gynecologic position and anesthetized. As a result of this study it is possible to state the following facts in regard to lacerations of the pelvic floor: The pelvic fascia over the levator ani muscle shows a split running parallel with the descending ramus of the pubis: the levator ani is torn loose from its attachment to the pubis and ischium, the injury beginning close to the bone and running downward and inward toward the midline of the posterior vaginal sulcus. The fascia between the levator and the deep transversus perinei shows a triangular split with the apex above. This deep transversus perinei is torn apart in the middle line and the two halves are retracted so that there is a gap of an inch or more between the ends. The junctions of the two halves of the superficial transversus perinei and of the bulbocavernosus muscles are torn apart if the perineal body is injured, as is commonly the case in laceration of the perineum. Expose the component anatomic parts, and unite them separately at the site of the injury to restore their original condition. The levator ani must be exposed by cutting through the pelvic fascia under which it lies. There the belly of this muscle is reattached to the portion arising from the pelvic bones; the deep transversus is brought out of its cavity in which it has retracted and is united in the middle line; the pelvic fascia between the levator and the deep transversus is united, and finally the perineal body is repaired.

Has the American Gynecological Society Done Its Part in the Advancement of Obstetrical Knowledge?

The presidential address by DR. J. WHITRIDGE WILLIAMS, Baltimore, was published in full in *THE JOURNAL*, June 6, 1914, p. 1767.

Iodin as a Sterilizing Agent in Supravaginal Hysterectomy

DR. I. S. STONE, Washington, D. C.: The application of iodine and alcohol to the vagina and uterine mucosa have been productive of results which appear to approach the ideal. The patient is brought to the operating-table after the proper examination has been made. She is placed in the lithotomy position and a 25 per cent. (1.75 iodine) diluted alcohol tincture of iodine is applied over the genitals and introitus vaginae. The catheter is used immediately after this, and a perineal retractor introduced into the vagina and a volsellum used with which to grasp the cervix. The cervix is dilated to admit the conical nozzle of a 2-ounce glass syringe. An ounce of the same 25 per cent. alcohol solution is then slowly injected into the cavity of the uterus. The fluid is not allowed to remain long nor is great force used. After the injection the cervical canal should again be dilated gently to make sure of the discharge of the excess of the solution. Every part of the vagina is exposed. The operation is preceded by a second application of iodine to the skin over the abdomen, the first having been made before the anesthetic was given. After this the operation is proceeded with as usual and a final application of the iodine alcohol is made to the stump before closing the flaps if there is the slightest intimation that infectious matter has been handled, such as in an appendix, pus-tube, etc. Finally, the iodine solution is applied over the closed abdominal incision before the usual gauze dressings are applied.

Complete Sterilization of the Skin by Iodin

DR. J. WESLEY BOVÉE, Washington, D. C.: In ten instances, four scrapings were made from skin prepared by the alcoholic solution of iodine (31.2 per cent.) and then subjected

to thorough scrubbing with a strong solution of sodium thio-sulphate until the iodine color was gone. At the end of five days' incubation, forty specimens from the ten patients showed absolutely no growth.

The Abdominal Cutaneous Reflexes in Acute Conditions Within the Abdomen and Pelvis

DR. RICHARD R. SMITH, Grand Rapids, Mich.: The behavior of this reflex has been noted in 175 cases in which diseased processes existed within the abdomen. The greater part of them were acute. The reflex is obtained by stroking the skin of the abdomen, which normally produces an almost simultaneous contraction of the rectus and oblique muscles on the corresponding side. The reflex is very constant in healthy young persons, though uncertain in very young infants and in old persons or those with very relaxed or very obese abdominal walls—exceptions which must be definitely borne in mind. In the acute inflammatory diseases within the abdomen it is common to find this reflex involved to a greater or less extent, and the test may be made use of in the diagnosis and in estimating the extent of this lesion. In seventy-five cases of acute appendicitis the reflexes were more or less involved in sixty-five. It is sometimes involved when rigidity is absent. The reflex was commonly impaired over the seat of the lesion when circumscribed, and in more extensive processes the other reflexes were also impaired. It is commonly, though not uniformly, involved in ectopic pregnancy cases. Its normal presence in cases of bowel obstruction would help to eliminate any acute infectious condition, and in the subacute infections of the pelvis I found the lower reflex almost uniformly absent. I believe that, although the test has a certain limited view, it may be of distinct advantage to the surgeon, and it is well worth his careful study.

AMERICAN PEDIATRIC SOCIETY

*Twenty-Sixth Annual Meeting, held in Stockbridge, Mass.,
May 26-28, 1914*

(Continued from page 1990)

The Use of Dahlia

DR. JOHN RUHRÄH, Baltimore: Two years ago, in searching for an efficient local application for streptococcus infections of the throat, Dr. Charles Simon suggested dahlia. I started with this as a local application, beginning at first with very weak solutions and soon found that the saturated solution (about a 4 per cent. solution) could be applied to the mucous membrane of the throat or any other part of the body without producing pain or subsequent irritation. The drug seems to penetrate only a short distance and for the deeper affections has no value, but for superficial involvements of the mucous membrane, whether due to the streptococcus or other organisms, the effect was quite striking. In some cases very little effect was noted, but in others there was a marked lessening of the intensity of the inflammation and coincidentally a marked lessening of the constitutional symptoms. It has the advantage over other applications in that it is not painful, does not produce irritation and is markedly antiseptic. Its only disadvantage is its color. For ulcerations about the mouth it may be used by applying a saturated solution or a mouth wash varying in strength from 1 to 1,000 or 1 to 10,000. Dahlia not only kills the offending organism but has a marked effect on the healing. I have used it with remarkable effect on vaccinations that were slow in healing, and on other abraded surfaces, particularly those which were infected. It may be used with reasonable hope of success in skin lesions caused by or accompanied with pus organisms.

Food Intoxications; Sibilant Bronchitis

DR. B. K. RACHFORD, Cincinnati: The symptom-groups commonly described in the literature under the titles migraine, recurrent vomiting, recurrent sibilant bronchitis, recurrent coryza, asthma and urticaria, as they occur in children, are,

as a rule, closely related food intoxications which can be treated successfully by very much the same dietetic and medicinal treatment. During the attacks sweets, fats, eggs and raw fruits are to be especially avoided. Strawberries, rhubarb, tomatoes, salads, shellfish, tea, coffee, pastry, gravies, cream, cod-liver oil and alcohol are excluded from the diet. If it be necessary to sweeten the cereals and cooked fruits which the child eats, saccharin is to be used instead of sugar. The patient is to have no butter, but skimmed milk is allowed. Eggs in every form, even in cooked foods, are to be eliminated from the diet, and among the raw fruits oranges are to be avoided especially. Beef, mutton, fowl, fish in moderation, cereals, bread and all vegetables not above prescribed, cooked fruits, skimmed milk and thick soups may be taken. About two months after the patient has recovered from the attack, the above diet may be modified by adding one egg a day, then perhaps two weeks later milk containing 4 per cent. fat. Some few weeks later small quantities of sugar may be added for sweetening cereals and cooked fruits. After five or six months the child may return to his original diet, with the exception that he must eat sparingly of sweets and must eat nothing between meals. If the symptom-group returns on the addition of any article of diet, that particular food is to be excluded from the diet.

During the attack the patient is to have all the outdoor air he can get with as little exercise as possible. Constipation should be relieved, milk of magnesia or calcined magnesia being suitable for this purpose. Sulphate of magnesium may be used in small doses in older children. Alkalies in the form of bicarbonate of soda, bicarbonate of potash or citrate of potash should be given in fair-sized doses three or four times a day. In younger children I direct the mother to distribute through the infant's food a teaspoonful of citrate of potash each day. Tincture of belladonna should be given for a short time in two to four minim doses, three times a day. In the intervals the belladonna is discontinued, but an alkali of some form should be given for six or eight weeks. Bicarbonate is best for this purpose.

DISCUSSION

DR. FRITZ B. TALBOT, Boston: Dr. Schloss has given an answer as to the cause of this condition in his article on "Egg Anaphylaxis." In a case of anaphylaxis to egg which came under my observation, when immunity to eggs was effected the associated asthma disappeared. I feel sure that this condition is one of anaphylaxis. There may be anaphylaxis to other foods besides eggs. In one patient I started with doses of one sixty-fourth of a grain of egg in capsule, and even this small dose produced a reaction every time it was administered.

DR. GODFREY R. PISEK, New York: It is not sufficient to stop egg alone, one must stop all foods containing egg. Certain foods such as acid foods bring out an intolerance for certain other foods.

DR. HENRY L. COIT, Newark, N. J.: Many cases with anaphylaxis for eggs have also an anaphylaxis for macaroni. In one case in which I found it necessary to transfer a baby from a milk diet to one in which the carbohydrates would be in the form of cereal, a teaspoonful of wheat jelly was given and caused a rise in temperature, vomiting and prostration. The experiment was repeated with the same result. At the end of two weeks it was tried again and there was a recurrence of the vomiting and prostration. I then vaccinated the child with a minute quantity of wheat jelly. The child now takes cereal jelly and vegetables.

DR. WALTER LESTER CARR, New York: Many of these children are susceptible to infection, especially influenza. They belong to the so-called lithemic type, and one frequently finds them with deviated septum, enlarged tonsils, etc. The children having this instability do better if they are starved as in enteritis. They may be given either skimmed milk or lactic acid skimmed milk, and should have general dietetic management.

DR. I. A. ABT, Chicago: This paper reminds me of "exudative diathesis," a condition in which there is a pre-

disposing constitutional state associated with certain definite symptoms. Under this term Czerny includes exudative inflammatory conditions which may manifest themselves as eczema, scrofula, bronchitis, asthma, urticaria, etc. The symptoms may become more pronounced after eating eggs or milk, or after mild infection. One must not consider this condition a simple anaphylaxis. The class of children who do not tolerate eggs or milk may detoxicate after having taken too much of these foods on starches.

DR. CHARLES GILMORE KERLEY, New York: These conditions are different from infectious colds. They are nearly always associated with a lithemic, rheumatic or gouty history. In these children the carbohydrates are at fault and the children gain in weight by the elimination of carbohydrate in the form of sugar from the diet. Cream should be eliminated and not more than one pint of skimmed milk daily allowed. Sugar is not at all necessary, children can get the necessary carbohydrates out of ordinary starches and vegetables. In addition to the dietetic management give citrate of soda and keep the bowels open by a suitable laxative.

DR. SAMUEL S. ADAMS, Washington, D. C.: It seems to me the question is one of idiosyncrasy and the problem consists in finding out the article of food for which the idiosyncrasy exists and eliminating it from the diet.

DR. D. J. MILTON MILLER, Atlantic City, N. J.: There seems to be some factor other than the food which causes external irritation. I have seen children who could not live at the seashore because of something that caused this internal irritation. As soon as they would go to the mountains they would be all right.

DR. JOHN RUHRÄH, Baltimore: It seems to me we have confused anaphylaxis and acid intoxication.

DR. PERCIVAL EATON, Pittsburgh: I have had under my observation children who could not take egg and wherever a drop of egg struck the hand or face it caused a red spot.

Infantile Scorbatus and the Pasteurization of Milk

DR. JOHN LOVETT MORSE, Boston: In a recent article I called attention to the rapid and progressive increase in the number of cases of scurvy and the coincident increase in the amount of pasteurized milk used. The figures I gave do not prove that the increase is due to pasteurized milk, neither do they prove that the heating of the milk, whether to a temperature of pasteurization or of boiling has anything to do with the etiology of scurvy. They do suggest, however, that there may be some connection and further study along these lines seems to be justified.

DISCUSSION

DR. HENRY J. GERSTENBERGER, Cleveland, O.: I have had one case of scurvy in a baby fed on casein milk and by simply adding orange juice the child improved rapidly.

DR. D. J. MILTON MILLER, Atlantic City, N. J.: I, too, have been finding scurvy on the increase. I have seen twelve cases in private practice during the past two years. In five of these there was a history of bipasteurization of milk.

DR. A. F. BLACKADER, Montreal: I have found scurvy on the increase especially during the past winter. I did not alter the food in my cases but simply added orange juice.

DR. ISAAC A. ABT, Chicago: I would like to speak of some animal experiments in this connection. Pigeons when fed on cereals develop polyneuritis, and guinea-pigs fed on cereals are peculiarly susceptible to scurvy. A simple susceptibility has been shown in other animals. Guinea-pigs fed on raw milk develop extra brittle bones. Some fed on milk heated at a temperature of from 60 to 112 C. got scurvy and those fed on oatmeal and raw milk did not show the disease. Milk heated to 90 C. to which oatmeal was added showed antiscorbutic properties. These facts bring up the question as to whether cereal can be considered a factor in the production of scurvy.

DR. ROWLAND G. FREEMAN, New York: Almost all the milk sold in New York City is pasteurized and yet I have not seen a case of scurvy all winter.

DR. GODFREY R. PISEK, New York: I wonder if it is possible that the laboratory method of pasteurization has anything to do with the production of scurvy.

DR. HENRY HEIMAN, New York: Scurvy is not due so much to pasteurized milk as to artificial foods. I have seen equally as much scurvy follow other forms of feeding as I have from pasteurized milk.

DR. J. CROZER GRIFFITH, Philadelphia: Some children get scurvy on raw milk and do well when put on modified milk. We are not in a position to blame pasteurized milk, sterilized milk or any other food. The constant factor seems to be the commercial pasteurized milk, not milk pasteurized at home.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

June 4, CLXX, No. 23, pp. 861-896

- 1 *Cancer of Uterus. (To be continued.) F. Cobb, Boston.
- 2 Use of Concentrated Neosalvarsan from Clinical and Serologic Standpoint. J. H. Blaisdell, Boston.
- 3 *Use of Iodoform Oil in Joints. E. G. Brackett, Boston.

1. **Cancer of Uterus.**—In the fourteen years from 1900 to 1913 inclusive, 367 cases of cancer of the uterus were admitted to the hospital, including cases of cancer of the cervix and cancer of the body of the uterus. Seventy of these were Cobb's personal cases. There were 17 vaginal hysterectomies, 13 for cancer of the cervix and 4 for cancer of the fundus. The immediate mortality was zero. Fourteen operations were done over five years ago, and of these 8 were traced. Two cases were cured, both of them cancer of the cervix, 25 per cent. of cures in the vaginal operation for cancer of the cervix. Since 1910 there were 3 cases, all of which are free from recurrence from one to three years, 2 cancer of the cervix and 1 cancer of the fundus.

There were 27 cases of abdominal hysterectomy for cancer of the fundus. The immediate mortality was 4, or 14.8 per cent. Of the surviving 23 cases Cobb has traced 22, of which 14 were operated on over five years before. Six of these cases are cured, or 42.8 per cent. In addition, one case is free from recurrence 4½ years and one 3¼ years. Abdominal hysterectomy for cancer of the cervix, 89; squamous cell 87 and adenocarcinoma 2. Of 49 simple hysterectomies there was the excessive immediate mortality of 17, or 34.6 per cent. Of the surviving 32 cases Cobb has been able to trace 29. Of these 26 were operated on over five years ago, cured only 5, or 19+ per cent. In addition, 2 cases are free from recurrence from three to four and a half years. Of 40 radical hysterectomies there was an immediate mortality of 9, or 22.5 per cent. Of the surviving 31 cases Cobb has traced all the 31; of these 14 were operated on over five years ago and 7, or 50 per cent., are cured.

3. **Use of Iodoform Oil in Joints.**—Olive oil has been used by Brackett in all of his cases. This method is said to be applicable to cases of old infectious arthritis, with adhesions and with partial obliteration of the capsular cavity, but with no true ankylosis, and without destruction of cartilage; cases of infectious arthritis, in the acute stage, particularly those of Neisserian origin, and more especially the type in which there is one remaining persistent joint, which usually results in ankylosis; cases of primary synovial tuberculosis before involvement of cartilage or bone; cases of osteo-arthritis, with marked thickening of capsule and with pannus, in the sensitive stage, but before there has been loss of cartilage. In other words, the method may be used in the affections of the synovial membrane, either when it is desired to keep the surfaces apart, or when it is desired to apply a remedial agent to the joint surfaces.

Several points in the procedure are emphasized: (a) The injection is always made by open incision, and not by punc-

ture. (b) Sufficient fluid is always left in the joint to keep the capsule under tension, therefore some form of stitch is necessary by which the tension can be maintained at the time of the withdrawal of the syringe. (c) The adhesions, in old cases, are broken up before the joint is filled with oil and the capsule closed; other than this no violence is done to the cavity of the joint, and no handling is permitted, particularly of the tuberculous joints. (d) Fixation by plaster or splints is seldom used.

The procedure is in no way a substitute for arthroplasty; is not applicable to cases of disease of any origin, in which the Roentgen ray shows involvement of the articular surfaces; but is essentially for those cases, only, in which the abnormal condition is confined to the synovial membrane. In tuberculous cases, the early ones naturally show the most marked definite improvement, and in these cases repeated injections are advocated, preferably at intervals of eight to twelve weeks. This procedure should be considered as an incident in the treatment of the tuberculous synovitis, not a substitute for the fixation and rest. Neither is permanent fixation desirable. The absolute immobilization is, perhaps, quite as disastrous as the other extreme. A daily gentle passive motion, without forcing the arc of motion allowed, is decidedly a benefit, does not increase the activity of the disease, and does prevent the contraction of the capsule and formation of adhesions.

Medical Record, New York

June 6, LXXXV, No. 23, pp. 1013-1058

- 4 Certain Aspects of Midwife Problem in Relation to Medical Profession and Community. G. W. Kosmak, New York.
- 5 *Deficiency of Chlorid of Sodium in Etiology of Neurasthenia. A. Haig, London.
- 6 Can Tuberculosis be Cured? H. C. Clapp, Boston.
- 7 An Economic and Social Study of Feeble-Minded Women. M. G. Schlapp and L. S. Hollingworth, New York.
- 8 Two Fatal Cases of Angioneurotic Edema. C. E. Munger, New York.
- 9 Two Neurologic Cases in Pediatric Practice. M. A. Rabinowitz, Brooklyn.

5. **Chlorid of Sodium in Etiology of Neurasthenia.**—In Haig's opinion salt should be increased in every case of debility, marasmus, wasting disease, rheumatoid arthritis and chronic catarrh (intestinal and bronchial) and the effects on nutrition and the excretion of urea watched. He believes that those who do not make a habit of eating salt get a crave for it when the body is running short of chlorid, and that such crave should on no account be neglected. The same occurs to those who do not take enough salt or who sweep out with alkalies or potatoes more than they put in. People who make a habit of reading or working during meals, thus overlooking the taste of their food, are liable to neglect this crave and then serious results may follow. Whenever there are signs of a crave, Haig insists that salt should be taken and continued till chloridism is produced, and the time taken to do this should be noted.

It follows that not only will vegetables, potatoes and alkali sweep chlorid out of the body, but any condition that increases the alkalinity of the blood will do the same. Nearly all wasting diseases, such as chronic dyspepsia, vomiting, diarrhea, chronic pulmonary disease and chronic enteritis of all kinds will do this, hence the marasmus in children which follows so frequently on diarrhea, vomiting or any catarrhal trouble of the intestines or bronchi, may be due in part to sweeping of chlorid out of the body; and Haig has found, as a matter of fact, that very many of these cases have weak hearts due to defective muscular nutrition, and this still further interferes with nutrition and hinders recovery, producing in children conditions very closely parallel to neurasthenia in adults.

In his experience such marasmic children do very well and show a most gratifying increase in weight and strength if from 3ss to 3i or more of chlorid of sodium is added to their food with a small dose of a heart tonic such as strophanthus. It is now his practice to administer chlorid of sodium to all children who are suffering from such troubles, and to use it as a routine treatment in convalescence from summer diarrhea and vomiting.

New York Medical Journal

June 6, XCIX, No. 23, pp. 1113-1164

- 10 Neurotic, Psychasthenic and Hysterical Children. J. P. C. Griffith, Philadelphia.
- 11 Abortive Treatment of Syphilis. B. Lapowski, New York.
- 12 Tuberculous Peritonitis. A. Judd, New York.
- 13 Decapsulation of Kidney. D. J. Lynch, Chicago.
- 14 Surgery in Modern Warfare. A. K. Yoosuf, Worcester, Mass.
- 15 Fracture of Lower End of Humerus. J. D. Whitall, Philadelphia.
- 16 Avulsion of Scalp. W. J. Gillette, Toledo, O.
- 17 Ulceration of Stomach and Duodenum from Medical Standpoint. A. F. Chace, New York.
- 18 Fatal Accidents Following Injection of Antimeningitis Serum. S. P. Kramer, Cincinnati.
- 19 *Predetermination of Sex. I. Bram, Philadelphia.

19. **Predetermination of Sex.**—Bram suggests that sex in offspring is the outcome of a contest between the spermatozoon and the ovum. If the spermatozoon is successful, the outcome is a male; if the ovum, the offspring is a female. This contest varies in one direction or the other by the influence of food. An excess of nourishment in the mother may decide in favor of a female, and a deficiency in the production of a male. Consequently, generous quantities of food with an excess of albuminous nitrogenous substances may decide at conception in favor of a baby girl, and a scanty diet with a very low proteid allowance in favor of a baby boy. Further sex is determined by the activity of the adrenal glands of the prospective mother. According to these theories if a boy is desired, treatment given by Bram is essentially dietary and medicinal, and is persisted in until the fourth or fifth month of pregnancy, when it may be discontinued. Albuminous, nitrogenous substances, such as eggs, meat, fish, cheese, etc., are forbidden; the diet consists essentially of such substances as cereals, fruits, potatoes, milk, buttermilk and butter. Plenty of water is insisted on to keep the kidneys active. In addition the patient is given after each meal a capsule consisting of two grains of the extract of suprarenal gland, combined with four grains of lecithin. Bram cites records of 30 patients in support of his claims.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Medical Chronicle, London

May, XXVII, No. 2, pp. 85-144

- 1 Leontiasis Ossea. E. D. Telford.
- 2 *Case of Circumscribed Ulceration of Thoracic Aorta, with Fatal Perforation into Left Lung and Pleura. P. R. Cooper.

2. **Ulceration of Thoracic Aorta.**—The history of Cooper's case is as follows: The patient was a muscular man, aged 45. Up to a few months previously he had always enjoyed good health. About that time he had an attack of "influenza." Since then he had been more or less ailing, complaining chiefly of pain in the left side, which is attributed to "indigestion." He continued at work despite the pain, which at times was very severe. He tried various remedies without benefit. When he consulted Cooper the pain in the left hypochondrium and epigastrium was severe and almost constant, although subject to exacerbation; it was also felt in the back—the upper dorsal region. The pain interfered with sleep, but did not seem to be affected by food. There was a general feeling of languor, and the patient was very easily tired. There was no definite evidence of indigestion. There was no complaint of any cardiac distress. There was no clinical evidence of syphilis or lead poisoning and no addiction to alcohol. Injury was denied, and there was no evidence of the lodgment of any foreign body in the esophagus. The only infectious disease traceable was an alleged attack of influenza shortly before the commencement of the symptoms. The question of diagnosis was difficult. Practically the only symptom was pain, and yet the appearance of suffering and extreme pallor pointed to some organic trouble.

The man was advised to give up work and keep under observation. Powders of codein and phenacetin were given to relieve the pain, and with these he was able to obtain

sleep, take more food, and improved so much that of his own accord he went back to work within the week. While on his way to work one morning he collapsed in the street and brought up a large quantity of blood. He died almost immediately. Cooper made a post-mortem the next day. The whole of the left pleural cavity was filled with blood-clot, and at the upper and inner part the pleura and lung were adherent to each other, and to the side of the bodies of the fifth and sixth thoracic vertebra. It was through an aperture in this adherent part that the blood had evidently escaped directly from the aorta into the pleura. The aorta and esophagus were involved in the adhesion and a perforation existed in the aorta about 1 inch in diameter. This hole in the aorta was circular and had a well defined border. The rest of the lining of the aorta was fairly normal except for some superficial patches of atheroma. The sides of the bodies of the fifth and sixth dorsal vertebra were eroded opposite the perforation.

Sei-I-Kwai Medical Journal, Tokyo

May 10, XXXIII, No. 5, pp. 27-31

- 3 *Immediate Results of One Hundred and Sixteen Cases of Excised Carcinoma of Stomach. S. Miyake.
- 4 Value of Early Diagnosis in Treatment of Ileus. S. Asahara.
- 5 *Tuberculous Disease of Genito-Urinary Organs as Seen on Post-Mortem Examination. M. Uchimura.

3. **Results of Excised Carcinoma of Stomach.**—Of 116 of Miyake's cases 82 patients were cured and 34 died (29.2 per cent.). Complete excision was done in 2 cases; a wide excision (over 20 cm.) in 18 cases; excision of pancreas in 24 cases (head or part of body); excision of abdominal wall in 3 cases; excision of transverse colon in 5 cases. Of the two complete excisions, one was attended with complete success. The deaths were generally caused by acute peritonitis due to infection from degenerated ulcer of stomach.

5. **Tuberculosis of Genito-Urinary Organs.**—Uchimura examined 1,830 post-mortem descriptions and obtained 629 tuberculous cases. Of these 210 were suffering from either urinary or genital tuberculosis. The frequency of tuberculosis in the urinary organs was found to be in the following order: kidney, bladder, ureter, pelvis of kidney, urethra. Renal tuberculosis was found in 181 cases. Of these 39 were chronic. The pelvis was attacked in 31 cases and chiefly secondary to renal tuberculosis. Among 35 cases of ureteral tuberculosis the kidney escaped only in 1 case; therefore, Uchimura says, the enlargement of the ureter on palpation has diagnostic value in renal tuberculosis. There were 43 cases of bladder tuberculosis and only 4 escaped renal complication. The urethral tuberculosis numbered 6 cases. The frequency of disease in the male genital organs was in the following order—prostate, epididymis, spermatic cord, testicle. The penis was not affected even once. In the female genital organs, fallopian tube, body of uterus, ovary, cervix and vagina were affected in the order named. The external pubic region was never invaded.

Journal de Médecine de Bordeaux

May 17, LXXXV, No. 20, pp. 323-354

- 6 Pathogenesis and Treatment of Bubo Following Soft Chancre. (Bubon chancreux de l'aîne.) W. Dubreuilh.
- 7 *Orthopedic Treatment of Infantile Paralysis. J. Gourdon.
- 8 Cancer of Intestine Simulating Appendicitis. L. Verdet.

7. **Orthopedic Treatment of Infantile Paralysis.**—Gourdon gives an illustrated description of a number of cases of severe crippling from epidemic poliomyelitis in which great improvement followed the use of an orthopedic appliance. The functional improvement realized from exercising, when the orthopedic apparatus got the children up on their feet, was most striking. Surgical and physical measures are usually required also. Even when the crippling is so severe and of such long standing that there is little chance of the child's ever being able to walk freely, yet getting it on its feet by means of orthopedic appliances improves the circulation and spirits, and some control of muscles is regained when they are not already entirely degenerated.

When treatment is begun early and systematically much can be accomplished.

Presse Médicale, Paris

May 20, XXII, No. 40, pp. 381-388

- 9 *Comparison of Action of Arsenic and Iron in Anemia. C. Aubertin.

May 23, No. 41, pp. 389-400

- 10 *Liver Disease Revealed by Single Symptom. (Les insuffisances hépatiques monosymptomatiques.) P. Le Damany.
11 Freezing Point of the Gastric Contents. (La cryoscopie du contenu gastrique.) L. Meunier.

9. **Comparison of Action of Arsenic and Iron in Anemia.**—Aubertin gives curves from a number of cases of anemia of various types, all apparently showing that arsenic induces the production of new red blood-corpuscles while iron induces production of hemoglobin and favors its being taken up by the corpuscles. In some cases arsenic alone or iron alone may restore the blood to normal, but as a rule both are needed. He advises not to give them together, but successively, commencing with the one which seems to be most needed at the moment.

10. **Monosymptomatic Liver Disease.**—Le Damany reports a number of cases in which persons apparently quite healthy developed some single symptom, such as epistaxis, headache, delirium or convulsions, or a tendency to dropsy developed with practically intact cardiovascular system and kidneys, or the patient ran into a decline which there was nothing to explain except the previously unsuspected liver disease. The importance of recognizing that an otherwise latent liver affection may cause convulsions is evident as treatment for epilepsy is not appropriate in such cases; the liver should be attacked. Purpura is often the first manifestation of liver disease. The true diagnosis may be learned from palpation of the liver and estimation of the urea and urobilin in the urine, by alimentary glycosuria or elimination of methylene blue, excluding all other causes that might cause the symptom under consideration. Sometimes the above single symptoms may alternate or follow each other in turn; more often two or more are associated and then differentiation is easy.

Semaine Médicale, Paris

XXXIV, Nos. 20-21, pp. 229-252

- 12 *Abscess in the Uterus. (Pyométrie et abcès de l'utérus.) F. Lejars.
13 Tumors in the Central Abdomen. (Variété de tumeurs centro-abdominales.) F. Lejars.

12. **Abscess in the Uterus.**—Lejars classifies these abscesses as intracavitary and intraparietal. In two recent cases of genital prolapse requiring operative treatment the cervix orifice was obliterated, and when he made an opening in it a large quantity of pus escaped, an actual pyometra. Atrophy and retraction of the cervix may lead to this in elderly women, and the distention of the uterus by pus may suggest a tumor, until the pus may be spontaneously evacuated some day. The pus and a tumor may exist together. The pus from a pyometra may make its way into the peritoneum; Krull has reported a death from this cause. When the pus forms, with acute symptoms, after a childbirth or abortion the abscess is generally in the wall of the uterus. Mercadé in 1906 compiled forty-one cases of uterine abscesses, mostly post partum or post abortum but in some cases gonorrhea, traumatism or tuberculosis were the principal factors.

Berliner klinische Wochenschrift

May 25, LI, No. 21, pp. 965-1012

- 14 Position of Paresis and Tabes in Respect to Syphilis. (Stellung der progressiven Paralyse und Tabes zur Syphilis und die Frage ihrer Behandlung.) E. Meyer.
15 Forensic Medicine in the Curriculum. (Unterricht in der gerichtlichen Medizin.) F. Strassmann.
16 *Kidney Typhoid and Paratyphoid. (Nephroparatyphus und Nephrotyphus.) C. Klieneberger.
17 Influence of Food on the Growth. (Untersuchungen über die Beeinflussung des Wachstums durch die Ernährung.) H. Aron.
18 Functioning of the Internal Ear. (Ueber die Art der Labyrinthtätigkeit.) O. Goebel. Commenced in No. 20.

16. **Kidney Typhoid and Paratyphoid.**—Klieneberger states that in his two cases the urethra had probably become infected first with the paratyphoid bacilli and they had ascended and settled in the kidneys. The symptoms on the part of the urinary passages were so severe that one of the men was being treated on the assumption of gonorrhea until the paratyphoid bacilli were discovered. The patients came from rural districts and the bacilli cultivated from the urine resembled most closely the bacilli of hog cholera. The symptoms in the first case were those of an acute febrile affection with severe general symptoms suggesting typhoid and symptoms of nephritis, but not much enlargement of the spleen, and signs of slight catarrhal trouble in the lungs. The fever relapsed several times and there were repeated hemorrhages from skin, muscles and gums. In the second case a paratyphoid B infection of the urinary passages set in with fever but the general health was not much impaired at first and the clinical picture did not suggest typhoid. The nephritis persisted for months in both cases but finally seemed to heal completely. The bacilli could be cultivated from the urine for months but never from the blood or intestines. The fever was of an irregular, septic type and the patients did not regain complete health for several months. The bacilli in both were of the hog cholera group with certain adaptations to their hosts. The agglutination titer ran up to 1:327,680 and the blood picture was quite different from that with ordinary typhoid.

Deutsche medizinische Wochenschrift, Berlin

May 21, XL, No. 21, pp. 1041-1096

- 19 *Vomiting in Children. (Erbrechen im Kindesalter.) Tobler.
20 *Syphilitic Myocarditis. F. Rosenfeld.
21 *Pulmonary Embolism. Ulrichs.
22 Delivery without Memory of Labor Pains. (Schmerzlose Entbindungen im Dämmer Schlaf unter Verwendung einer Vereinfachten Methode.) P. W. Siegel.
23 Treatment of Paralysis of the Arm. (Lähmungstherapie an der oberen Extremität.) O. Vulpius.
24 Walking Appliances with Painful Affections of the Legs. (Zur ambulanten Behandlung schmerzhafter Beinerkkrankungen.) A. Schanz.
25 Differential Importance of Variation between the Temperature in Axilla and Pelvis. (Fieber und rektale Hyperthermie.) M. Engländer.
26 Combined Treatment of Cancer without the Knife. (Die unblutige Karzinombehandlung.) J. Allmann.
27 Metal Inlay Work and Lead Poisoning. (Tulaarbeit und Bleivergiftung.) D. Holtzmann and E. v. Skramlik.
28 Relations between Anaphylaxis, Urticaria and Parenteral Digestion of Protein. H. Mühsam and J. Jacobsohn.

19. **Vomiting in Children.**—Tobler remarks that the special excitability of the reflex system in children and the lack of inhibiting influences explain the ease with which vomiting is induced and point the way for treatment. Habitual and periodical vomiting are most frequently encountered in the children of the well-to-do. It is generally found that the child takes little but milk, and is constipated. The diet should be changed to leave out all fluid foods, and all efforts to coax the child to eat should be strictly interdicted. This generally succeeds unless the child is abnormally nervous. In this case, the psychology of the individual child must be studied, and his confidence won. The child must be given the impression that the vomiting is a harmless and trivial matter, not to be taken seriously by anyone in the family. Something special must be ordered to reinforce the therapeutic suggestion, and a glass of mineral water before meals is advisable for this purpose. If the family cannot be relied on, a change of environment may be necessary, best of all to a pediatric clinic.

The habitual morning vomiting of nervous schoolchildren has been best combated in his experience by having the child take breakfast in bed, and eat a little heartier lunch than usual. He advises for the periodical vomiting of neuropathic children to isolate the child at once and ensure absolute quiet and repose, possibly giving chloral or morphin to make the child sleep. The tormenting thirst is relieved by giving an alkaline mineral water ice-cold, a drop at a time, with a pipet. The odor of acetone in the breath at these times suggests that there may have been inadequate intake

of carbohydrate in the food, so the diet should be regulated accordingly. If the stomach will not permit eating, the carbohydrate can be given by the rectum—several times a day a nutrient enema of 50 or 150 c.c. of gruel with 5 per cent. grape sugar and a few drops of tincture of opium. If the child can eat, the carbohydrates can be given by the mouth in as compact form as possible, lumps of sugar dipped in black coffee, dry chocolate, crackers, etc., thus tiding the child along until the ordinary food can be resumed. The fact that habitual vomiting is so much more frequent among breast than bottle babies, suggests that the fat in the milk is responsible for it. Tobler emphasizes, however, that the inadequate nourishment and cessation of growth in consequence of the repeated vomiting are less harmful for the infant—even when kept up for weeks—than severe derangement from an unfortunate change to bottle feeding or an unsuitable wet-nurse. Often restricting the amount of the feedings will answer the purpose. If not more than from 10 to 30 gm. are allowed in the twenty-four hours, and this is given fractioned and very slowly, ice-cold, the limit of tolerance can be determined even with stenosis of the pylorus, especially if swallowing of air is prevented.

Nutrient enemas may prove useful for infants; warm breast-milk, cautiously injected, not over 30 to 60 c.c. at a time, has proved the best for the purpose in his experience. Feeding through the duodenal-tube might also be considered. With obstinate spastic vomiting, it may prove necessary to deaden the sensitiveness of the stomach with some local anesthetic given in a weak solution with some acacia by the mouth. Local heat is always useful with spastic conditions in the stomach, and lavage is often of great service, even in acute cholera infantum. It is easy to introduce the moistened catheter (No. 22 or 24); all that is necessary besides is a rubber tube with funnel and glass interpiece.

20. Syphilitic Myocarditis.—A supposedly previously healthy young woman with a healthy child of 2 fainted twice, and the second time died, within twenty-four hours, conscious to the last but distressed and with subnormal temperature, pulse 136 to 178 and difficulty in breathing. The heart was dilated and the spleen enlarged. The diagnosis wavered between acute poisoning, terminal nephritis and embolism, but each could finally be excluded and necropsy revealed a syphilitic gumma in the heart. Rosenfeld compares this case with similar ones on record; in 15 of the 49 cases compiled by Stockmann the patients died suddenly and Huchard has found records of 35 with sudden death. In a number of others, as in the case here reported, several hours elapsed after the syncope before death occurred. In 9 of Stockmann's cases the patients died of an intercurrent disease and the gumma in the heart was a necropsy surprise. Differentiation of syphilitic myocarditis is difficult but Rosenfeld accomplished it in another case by heeding the coincidence of the very low blood-pressure and symptoms of mild angina pectoris with dilatation of the left ventricle and aorta, constantly irregular pulse and positive Wassermann. Salvarsan should be given only with extreme caution in such cases as this in itself has a tendency to reduce the blood-pressure and bring on tachycardia. But specific treatment of the syphilis is indispensable, supporting the heart and kidney functioning. Improvement in general health and increase in weight testify that our measures are meeting with success.

21. Pulmonary Embolism.—This communication analyzes 18 cases in connection with 22 previously reported by Busch from the same hospital, the aim being to learn if there is a chance for operative measures to succeed in cases of pulmonary embolism. In a fourth of all the above cases death occurred instantaneously; in the others ten minutes or more intervened. The anatomic findings in only 5 of the cases showed that the embolus might possibly have been removed, but 3 of these patients died instantaneously or were too weak for any operation. Two of the 18 in the last series recovered spontaneously. Both were elderly and

debilitated and the symptoms were severe at first. Two patients were operated on by Trendelenburg's technic but necropsy showed that the embolism was too extensive for operative relief, both sides being involved. An operation has been done to extract the embolus in 13 cases, but no patient has been saved by it; in Kruger's case in 1909 the patient lived for over five days, succumbing then to secondary infection.

Medizinische Klinik, Berlin

May 31, X, No. 22, pp. 919-960 and Supplement

- 29 Hydrotherapy and Infectious Diseases. L. Brieger.
- 30 The Appendix in Connection with Disease of the Genital Apparatus. J. Fabricius. Commenced in No. 21.
- 31 Ways and Means for Ensuring Dietetic Measures at Health Resorts. (Massnahmen zur Durchführung einer rationellen Diät in den Kurorten.) H. Strauss.
- 32 *Friedmann's Remedy for Tuberculosis. (Ueber Kaltblütertuberkulose und das Friedmannsche Heilmittel gegen menschliche Tuberkulose.) Windrath.
- 33 *Impeded Breathing Through the Nose and Pulmonary Tuberculosis. G. Wotzilka.
- 34 *Simulation of Acetonuria. (Vortäuschung von Acetonurie.) Placzek.
- 35 Serotherapy of Scarlet Fever. (Ist Normalmenschenserum bei der Behandlung von Scharlach durch Normalpferdeserum ersetzbar?) F. Prinzing.
- 36 Saline Mineral Waters in Treatment of Stomach Disease. (Genuss der Kochsalzquellen bei Magenkrankheiten.) J. Berger.
- 37 Inexpensive Plaster Walking Cast. (Wohlfeiler Gipsgehverband bei Unterschenkel- und Fussverletzungen. A. Drott.
- 38 The Causal Problem in Medicine. (Kritik des Konditionalismus.) F. Martius.

32. Friedmann's Remedy for Tuberculosis.—Windrath is physician in chief to the sanatorium at Beringhaisen, and he states that he applied the Friedmann remedy in twenty-three cases of pulmonary tuberculosis of various stages, with no benefit according to the Friedmann sense "subsidence of toxic symptoms (stitches in the chest, headache, palpitation of the heart, night sweats, fever and cough) and clearing up of the part of the lung involved." In one case an acute aggravation of the disease followed the Friedmann treatment, to which the patient succumbed in a few days. He examined the remedy bacteriologically in some instances and twice found it contaminated with staphylococci. His final conclusion is that he warns against the use of the Friedmann remedy in pulmonary tuberculosis irrespective of the stage of the disease.

33. Nose Breathing and Pulmonary Tuberculosis.—Wotzilka has been investigating whether nasal affections are more common among persons with pulmonary tuberculosis than in others. Questions as to whether the individual had always been able to breathe normally through the nose elicited misleading replies, many saying that they had always breathed properly when the passages were found much obstructed. Examination of 67 tuberculous men and 33 tuberculous women disclosed that 45 were unable to breathe normally through the nose, while among 48 non-tuberculous men and 52 non-tuberculous women only 13 of the 100 were unable to breathe normally. This preponderance of 45 per cent. over 13 per cent. among the non-tuberculous is certainly a striking coincidence. The causes of the obstruction were deviation of the septum, hyperplasia in nose or throat, ozena or rhinitis with atrophy. Care to keep the nasal passages and the throat normally permeable may prove important in prophylaxis of pulmonary tuberculosis and may aid in recovery. Especially in the incipient stages every effort must be made to promote the respiration in every way.

34. Acetonuria Simulated by Malingering.—The case is reported of a man who had insured himself in three companies against accident and soon after had his right hand crushed in a machine, and Binswanger found 0.5 per cent. sugar in the urine and acetonuria. As years passed the man seemed to thrive and take on flesh notwithstanding his supposed diabetes and acetonuria. It was finally found that he was in the habit of taking 4 gm. of aspirin every evening when medical examinations were on the tapis. This adds another to the long list of malingerers' tricks.

Münchener medizinische Wochenschrift

May 19, LXI, No. 20, pp. 1097-1152

- 39 Surface Tension of Serum and Cerebrospinal Fluid. (Die Oberflächenspannung von Serum und Liquor cerebrospinalis beim Menschen; Technik kapillarimetrischer Messungen.) B. Kisch and O. Remertz.
- 40 Peptolytic Ferments in Serum after Scalding Injuries. (Auf-treten peptolytischer Fermente im Serum verbrühter Kaninchen.) H. Pfeiffer.
- 41 Experimental Research with Salvarsanized Serum. A. Stühmer.
- 42 *Tuberculosis of the Retina. (Zur Tuberkulose der Netzhaut.) H. Oloff.
- 43 *Skin Test for Tabes. (Neues Symptom bei der Tabes.) H. v. Baeyer.
- 44 *Mesenteric Venous Thrombosis. S. Weil.
- 45 Exclusion of the Pylorus. (Zur Technik der Pylorusausschaltung beim Ulcus ventriculi.) A. Brüning.
- 46 Mesothorium Treatment in Gynecologic Cases. G. Keil.
- 47 *Skin Reaction in Pregnancy. (Neue Hautreaktion in der Schwangerschaft.) P. Esch.
- 48 *Examination of Gall-Bladders after Cholecystectomy to Discover Chronic Typhoid-Bacilli Carriers. (Feststellung von Typhus-bazillendauerträgern durch Untersuchung des bei Operationen gewonnenen Gallenblaseninhalts.) O. Mayer.
- 49 *Bands of Nephritis after Exophthalmic Goiter. L. Huismans.
- 50 Treatment of Phimosis. O. Loewe.
- 51 Improved Technic for the Nylander Test for Sugar. (Zur Nylander'schen Zuckerprobe.) Mende.
- 52 Protein Requirement and Meat in the Diet. (Eiweißbedarf und Fleischnahrung.) K. Kisskalt.

42. **Tuberculosis of the Retina.**—Oloff's two patients were robust sailors and the retinal tuberculous process was primary and isolated in each. He was able to watch the effect on the process of injection of tuberculin, and found it so deleterious that he had to give up the idea of tuberculin treatment. Tuberculous processes of this kind display a marked tendency to retrogress under general dietetic and hygienic measures. Tuberculous processes in the eyes are common at Kiel, where he practices, but not in the form of an affection of the retinal veins as in these cases. They are generally more of a periphlebitis or tumor-like focus.

43. **Sign of Tabes.**—Baeyer calls attention to the abnormal perception in tabetic ataxia of the sensations in the skin when the skin is pressed with the finger and pushed in various directions or a fold is taken up in the fingers and pulled up or down or sideways. A healthy person can always tell in which direction the movements are made, but the tabetic is frequently or constantly mistaken in his perception of the movements. This may occur regularly when surface sensations, like the touch of cotton, are correctly estimated. The derangement probably involves the deep sensitiveness and may prove an aid in diagnosis.

44. **Mesenteric Thombosis.**—Weil emphasizes the great difference in the outlook and indications for treatment as the thrombosis in the mesenteric veins is ascending or descending. With the ascending type, the main trunk of the portal vein is not involved; the trouble is a radicular thrombosis in the portal region. In the other case—the descending type—the portal trunk becomes thrombosed first and symptoms of stasis in the portal system dominate the clinical picture; the spleen enlarges, ascites follows and the veins in the abdominal wall become dilated. The symptoms from the infarct in the intestine may be so stormy that they may mask the portal symptoms unless the latter are sought for with care. Two cases are reported in detail, one of each type. The first was in a woman of 52 with symptoms suggesting collapse from ileus, the spleen not enlarged, the abdomen soft. The operation revealed ascending mesenteric thrombosis and prompt recovery followed resection of the endangered intestine and mesentery. The second patient was a man of 62; the portal vein had become obstructed first and resection of the intestinal infarct naturally had no effect on the portal thrombus. The operation was done on the diagnosis of acute ileus, but the patient died the same day. The spleen was enlarged, the abdomen distended. The first case is the nineteenth on record in which mesenteric thrombosis was cured by an operation. No case of operative recovery is known when the portal vein was the primary seat of the thrombosis. If the spleen is large, there is not much chance of recovery unless the portal vein is opened and the thrombus extracted.

47. **Placentin Reaction in Pregnancy.**—Esch states that he applied juice expressed from placentas to sixteen pregnant and sixteen non-pregnant women according to the usual tuberculin technic and found that all reacted positively. The only difference was that the reaction was much more pronounced in the pregnant women than in the non-pregnant, with the exception of four of the latter whose reaction was on a par with that of the pregnant women.

48. **Typhoid Bacilli Found in Gall-Bladders Removed for Disease.**—Mayer found typhoid bacilli in six of seventy gall-bladders that had been removed for various reasons. Paratyphoid bacilli were found in another, thus bringing to 7 per cent. the cases with positive findings, indicating a chronic bacilli carrier. In his district, Landau, there are already ninety-five chronic carriers under constant supervision, and the above six will have to be added to the list as the records show that removal of the gall-bladder does not always put an end once for all to elimination of typhoid bacilli, although it may help for a time.

49. **Death after Operation for Exophthalmic Goiter.**—Huismans' patient was a woman of 33 with exophthalmic goiter which had gradually developed from a puberty goiter. She had borne three children and the urine was free from sugar and albumin, but she had suffered for some time from a sense of oppression in the chest. The right lobe of the thyroid and part of the left was removed, and she died the eighteenth hour. The thymus and spleen were very large and strips of acute inflammation were found in the kidneys—all testifying, he says, to pluriglandular intoxication. He suggests that thyroid treatment should be given after thyroidectomy; since he has made a practice of this he has had no more mishaps of the kind (since 1910).

Riforma Medica, Naples

XXX, Nos. 19-20, pp. 505-560

- 53 No Influence from Hypophysis Extract on Healing of Fractures. G. Marsiglia.
- 54 *Lime Salts Filling for Cavity in Bone. (Nuovo metodo di impiombatura delle ossa con i sali di calce.) V. Marcozzi.
- 55 Traumatic Rupture of the Bladder; Recovery. P. L. Della Torre.
- 56 Hernia of the Appendix Vermiformis. G. Lioni. Commenced in No. 19.

54. **Lime Salts for Filling Cavities in Bones.**—Marcozzi expatiates on the advantages of the method of filling up a cavity in bone with material which will not act as a culture medium or as a foreign body, and which is gradually absorbed. The Mosetig filling for the purpose is a mixture of 60 parts iodoform, 40 parts spermaceti and 40 parts oil of sesame, but Marcozzi thinks the iodoform can be dispensed with—cases of poisoning are known from its use—while the spermaceti and oil are of no direct help in bone repair. He remarks that Senn came nearer to the ideal in his suggestion to use decalcified bone, but—strange to say—he discarded the very substance, the lime, which is most needed for bone repair. Marcozzi reports considerable experimental research and one clinical experience which have demonstrated, he asserts, the feasibility and great superiority of using lime salts to fill the bone cavity, thus supplying the bone directly with the elements it needs to produce new bone. He uses a mixture of equal parts of calcium carbonate and phosphate, sterilized by dry heat or by adding water and boiling until all is evaporated. The cavity is first lightly touched with tincture of iodine, and then the friable lime mixture is smoothed out with a Wolk-mann spoon and shoveled into the cavity where it serves at once to arrest all bleeding. It is not absorbed so promptly as some substances, which is a further advantage, while the fact that it is all finally absorbed is a great improvement over any substance which is left in the cavity as a foreign body.

Hygiea, Stockholm

LXXVI, No. 9, pp. 513-560

- 57 Protecting Rôle of Bacillus Bifidus against Alien Microbes in Infant Intestine. (Om Bacillus bifidus' fysiologiska betydelse i tarmkanalen hos spädbarnet.) C. A. Kling.
- 58 Reinfection with Syphilis not an Absolute Sign of Previous Cure. (Till frågan om syfilitisk reinfektion—superinfektion.) C. G. Ahman.

JOURNALS INDEXED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT

JANUARY-JUNE, 1914

The following journals have been indexed in the Current Literature Department of THE JOURNAL during the past six months. Any of the foreign journals, except those starred, will be lent by THE JOURNAL to subscribers in the United States and to Fellows of the American Medical Association for a period not exceeding three days. Only one journal may be borrowed at a time. Requests for periodicals should be addressed to the Library of the American Medical Association and six cents in stamps should be enclosed. This covers the average expense of mailing a journal. Domestic journals can be obtained by sending the approximate amount direct to the respective publishers. Thus most of the journals indexed are accessible to the general practitioner, no matter where he may be located.

- Albany Medical Annals. M. \$2. 170 Washington Ave., Albany, N. Y.
- American Journal of Anatomy. Bi-m. \$5. 36th St. and Woodland Ave., Philadelphia.
- American Journal of Diseases of Children. M. \$3. American Medical Association, 535 N. Dearborn St., Chicago.
- American Journal of Insanity. Q. \$5. Johns Hopkins Press, Baltimore.
- American Journal of the Medical Sciences. M. \$5. Lea & Febiger, 706 Sansom St., Philadelphia.
- American Journal of Obstetrics and Diseases of Women and Children. M. \$5. Wood & Co., 51 5th Ave., New York City.
- American Journal of Orthopedic Surgery. Q. \$3. P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia.
- American Journal of Physiology. M. \$5.50. Box 127, Back Bay P. O., Boston.
- American Journal of Public Health. M. \$3. 755 Boylston St., Boston.
- American Journal of Roentgenology. M. \$5. 32 Adams Ave., West, Detroit.
- American Journal of Tropical Diseases and Preventive Medicine. M. \$2. P. O. Drawer 602, New Orleans, La.
- Annales de gynécologie et d'obstétrique. M. 22 francs. Paris.
- Annales de médecine et chirurgie infantiles. Semi-m. 12 francs. Paris.
- Annals of Ophthalmology. Q. \$4. Mermod-Jaccard Bldg., St. Louis.
- Annals of Otolaryngology and Laryngology. Q. \$4. Mermod-Jaccard Bldg., St. Louis.
- Annals of Surgery. M. \$5. J. B. Lippincott Co., E. Washington Square, Philadelphia.
- Annals of Tropical Medicine and Parasitology. Q. \$5. Liverpool.
- Archiv für Gynäkologie. Irregular. Price varies. Berlin.
- Archiv für Kinderheilkunde. Irregular. 15 marks. Stuttgart.
- Archiv für klinische Chirurgie. Irregular. Price varies. Berlin.
- Archiv für Verdauungs-Krankheiten. Bi-m. 24 marks. Berlin.
- Archives des Sciences Biologiques. Irreg. 9 rubles. St. Petersburg.
- Archives générales de chirurgie. M. 26 francs. Paris.
- Archives générales de médecine. M. 18 francs. Paris.
- Archives of Diagnosis. Q. \$1. 250 W. 73d St., New York City.
- Archives of Internal Medicine. M. \$4. American Medical Association, 535 N. Dearborn St., Chicago.
- *Archives internationales de chirurgie. Irregular. 30 francs. Ghent.
- *Archives des maladies de l'appareil digestif et de la nutrition. M. 14 francs. Paris.
- Archives des maladies du cœur, des vaisseaux et du sang. M. 17 francs. Paris.
- *Archives de médecine des enfants. M. 18 francs. Paris.
- Archives mensuelles d'obstétrique et de gynécologie. M. 25 francs. Paris.
- Archives of Ophthalmology. Bi-m. \$5. G. P. Putnam's Sons, 27 W. 23d St., New York City.
- Archives of Pediatrics. M. \$3. E. B. Treat & Co., 241 W. 23d St., New York City.
- Arizona Medical Journal. M. \$2. Phoenix, Ariz.
- Australasian Medical Gazette. W. \$5. Sydney.
- Beiträge zur Geburtshilfe und Gynaekologie. Irregular. Price varies. Leipsic.
- Beiträge zur Klinik der Tuberkulose. Irregular. 16 marks. Würzburg.
- Beiträge zur klinischen Chirurgie. M. Price varies. Tübingen.
- Berliner klinische Wochenschrift. W. 24 marks. Berlin.
- Boston Medical and Surgical Journal. W. \$5. 101 Tremont St., Boston.
- Brain: A Journal of Neurology. Irregular. \$4. London.
- Brazil Medico. W. 20 milreis. Rio de Janeiro.
- Bristol Medico-Chirurgical Journal. Bi-m. \$3.
- British Journal of Children's Diseases. M. \$5. Loudon.
- British Journal of Surgery. Q. \$6.50. William Wood & Company, 51 Fifth Ave., New York.
- British Medical Journal. W. \$8.50. London.
- Bulletin de l'Académie de médecine. W. 20 francs. Paris.
- Bulletin of the American Academy of Medicine. Bi-m. \$3. 52 N. 4th St., Easton, Pa.
- Bulletin of the Johns Hopkins Hospital. M. \$2. Baltimore.
- Bulletin of the Lying-in Hospital of the City of New York. Irregular. \$1. 23 E. 93d St., New York City.
- Bulletin of the Medical and Chirurgical Faculty of Maryland. M. \$0.25. 1211 Cathedral St., Baltimore.
- Bulletins de la Société de pédiatrie de Paris. M. 10 francs. Paris.
- California State Journal of Medicine. M. \$1. Entler Bldg., San Francisco.
- Canadian Medical Association Journal. M. \$5. 145 Wellington St., W. Toronto.
- Centralblatt für die Grenzgebiete der Medizin und Chirurgie. Irregular. 22 marks. Jena.
- Cleveland Medical Journal. M. \$2. 2318 Prospect Ave., Cleveland.
- Clinical Journal. W. \$4.25. London.
- Colorado Medicine. M. \$2. Metropolitan Bldg., Denver.
- Correspondenz-Blatt für schweizer Aerzte. Tri-m. 18 francs per year. Basel.
- Delaware State Medical Journal. M. \$1. 309 Shipley St., Wilmington, Del.
- Deutsche medizinische Wochenschrift. W. 32 marks. Berlin.
- *Deutsche Zeitschrift für Chirurgie. M. Price varies. Leipsic.
- *Deutsches Archiv für klinische Medizin. Irregular. Price varies. Leipsic.
- Dublin Journal of Medical Science. M. \$5.
- Edinburgh Medical Journal. M. \$6.
- Gazzetta degli ospedali e delle cliniche. Tri-w. 25 francs. Milan.
- Glasgow Medical Journal. M. \$5.
- Grèce médicale. Semi-m. 12 francs. Athens.
- Hospitalstidende. W. 2.75 kronen. Copenhagen.
- Hygica. M. \$5. Stockholm.
- Illinois Medical Journal. M. \$2. 3338 Ogden Ave., Chicago, Ill.
- Indian Medical Gazette. Bi-m. \$5. Calcutta.
- Jahrbuch für Kinderheilkunde. M. 36 marks. Berlin.
- Journal de chirurgie. M. 44 francs. Paris.
- Journal de médecine de Bordeaux. W. 15 francs.
- Journal d'urologie médicale et chirurgicale. M. 40 francs. Paris.
- Journal of Abnormal Psychology. Bi-m. \$4. R. G. Badger, 194 Boylston St., Boston.
- Journal of the American Medical Association. W. \$5. 535 N. Dearborn St., Chicago.
- Journal of the Arkansas Medical Society. M. \$1. 810 State Bank Bldg., Little Rock, Ark.
- Journal of Biological Chemistry. M. \$3. 2419 York Road, Baltimore.
- Journal of Cutaneous Diseases. M. \$5. Rebman Company, 141 W. 36th St., New York City.
- Journal of Experimental Medicine. M. \$5. Rockefeller Institute for Medical Research, 66th St. and Avenue A, New York City.
- Journal of the Indiana State Medical Association. M. \$1. 219 W. Wayne St., Fort Wayne, Ind.
- Journal of Infectious Diseases. Q. \$5. 57th St. and Greenwood Ave., Chicago.
- Journal of Iowa State Medical Society. M. \$2. Washington, Ia.
- Journal of Kansas Medical Society. M. \$2. 501 Husted Bldg., Kansas City, Kan.
- Journal of Laryngology, Rhinology and Otolaryngology. M. \$5. London.
- Journal of Maine Medical Association. M. \$2. Portland, Maine.
- Journal of Medical Association of Georgia. M. \$1. Harison Bldg., Augusta, Ga.
- Journal of Medical Research. M. \$4. 240 Longwood Ave., Boston.
- Journal of Medical Society of New Jersey. M. \$2. 252 Main St., Orange, N. J.
- Journal of Michigan State Medical Society. M. \$2. 91 Monroe Ave., Grand Rapids, Mich.
- Journal of Missouri State Medical Association. M. \$2. 3525 Pine St., St. Louis.
- Journal of Nervous and Mental Diseases. M. \$5. 64 W. 56th St., New York City.

W.—Weekly; M.—Monthly; Semi-m.—Semi-monthly; Bi-m.—Bi-monthly; Q.—Quarterly. *Cannot be loaned.

- Journal of Obstetrics and Gynecology of the British Empire. M. \$6.25. London.
- Journal of Oklahoma State Medical Association. M. \$2. Muskogee.
- Journal of Outdoor Life. M. \$1. 289 Fourth Ave., New York.
- Journal of Pathology and Bacteriology. Q. \$5.50. Cambridge, Eng.
- Journal of Pharmacology and Experimental Therapeutics. Bi-m. \$5. 2419 York Road, Baltimore.
- Journal of South Carolina Medical Association. M. \$2. Charleston, S. C.
- Journal of State Medicine. M. 50 cents. London.
- Journal of Tennessee State Medical Association. M. \$2. Jackson Bldg., Nashville, Tenn.
- Journal of Tropical Medicine and Hygiene. Semi-m. \$5. London.
- Journal-Lancet. Semi-m. \$2. 839 Lumber Exchange, Minneapolis.
- Kentucky Medical Journal. Semi-m. \$2. Atherton Bldg., Bowling Green, Ky.
- Lancet. W. \$8. London.
- Lancet-Clinic. W. \$3. Main near Seventh St., Cincinnati.
- Laryngoscope. M. \$5. 3858 Westminster Place, St. Louis.
- Lyon chirurgical. M. 25 francs.
- Lyon médical. W. 20 francs.
- Medical Record. W. \$5. W. Wood & Co., 51 5th Ave., New York City.
- Medizinische Klinik. W. 32 marks. Berlin.
- Military Surgeon. M. \$3.50. 535 N. Dearborn St., Chicago.
- Mississippi Medical Monthly. M. \$1. 506 First National Bank Bldg., Vicksburg, Miss.
- Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie. Irregular. 25 marks. Jena.
- Mitteilungen aus der Medizinischen Fakultät der Kaiserlichen Universität zu Tokyo. Irreg. Price varies. Tokio.
- Modern Hospital. M. \$3. Monroe Bldg., Chicago.
- Monatsschrift für Geburtshilfe und Gynäkologie. M. 42 marks. Berlin.
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The letters used to explain in which department the matter indexed appears are as follows: "E," Editorial; "C," Correspondence; "T," Therapeutics; "ML," Medicolegal; "P," Propaganda for Reform; "ME," Medical Economics; "ab," abstract; the star (*) indicates an "Original Article" in THE JOURNAL.

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The figures in parentheses refer to the paragraph, the number following to the page in THE JOURNAL.

ABDERHALDEN and Fauser's reaction in dementia praecox, *1701

This reference is to an original article in THE JOURNAL, as shown both by the star and by the black-faced numerals indicating the page.

ACID, acetyl-salicylic, effect of addiction to, 797

This reference, as indicated by the black-faced figures, is also in THE JOURNAL, and on turning to page 797 we find an answer to a question in the Department of Queries and Minor Notes.

ABSCCESS, cerebellar, symptom of, (91) 1764

In this reference, the (91) indicates that the article is in the Current Literature Department and the fact that the page number is in black-faced type shows that the article is abstracted and discussed in THE JOURNAL. Turning to page 1764, we find (91) refers to an article by M. Mann in the *Münchener medizinische Wochenschrift*, April 21.

ADENOMAS, multiple, and etiology of prostate enlargement, (121) 573

The fact that in this last reference the page is given in ordinary type indicates that only the title of the article is given. Turning to page 573 we find that the numeral (121) refers to a paper on that subject by J. A. Gardner and B. T. Simpson which appeared in *Surgery, Gynecology and Obstetrics*, January.

In the AUTHOR'S INDEX are the names of the authors of articles which have appeared in THE JOURNAL of the American Medical Association and of articles that have been listed from week to week in the Department of Current Medical Literature as having appeared in other journals. The black-faced numerals indicate that the article is in THE JOURNAL, either in full or in abstract. The star (*) preceding the page number, indicates an original article.

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SOCIETIES

Acad.—Academy.
Am.—American.
A.—Association.
Conf.—Conference.
Cong.—Congress.
Conv.—Convention.
Internat.—International.
M.—Medical, Medicine.
Phar.—Pharmaceutical.
S.—Society.
Surg.—Surgical, Surgery, Surgeons.

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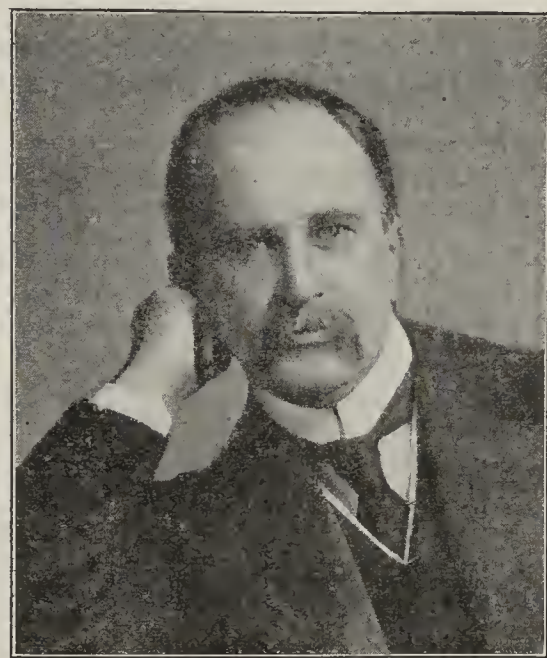
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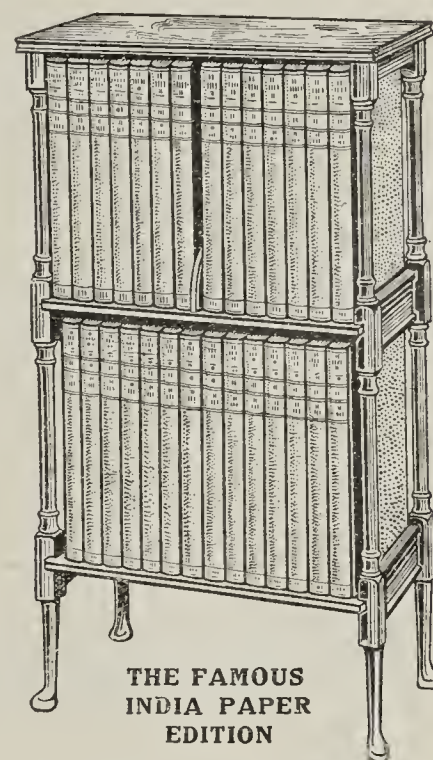
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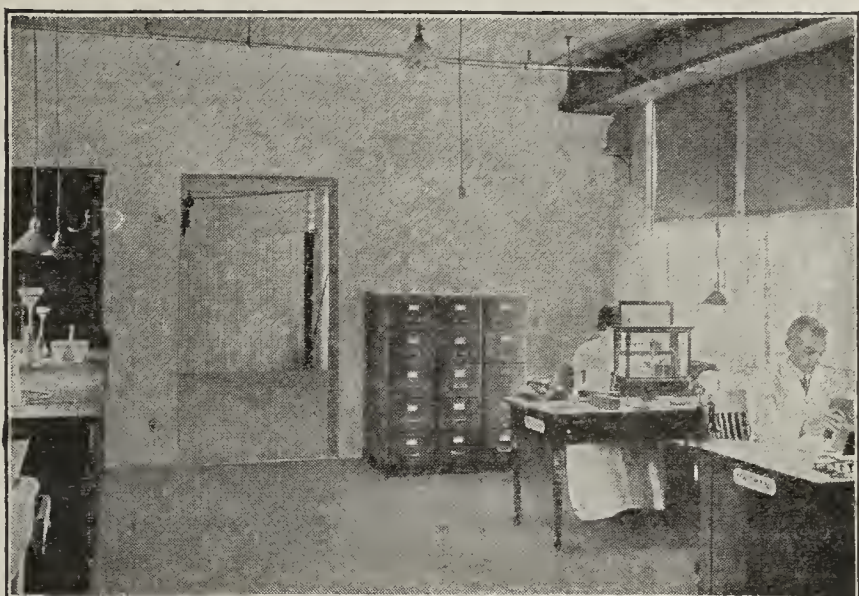
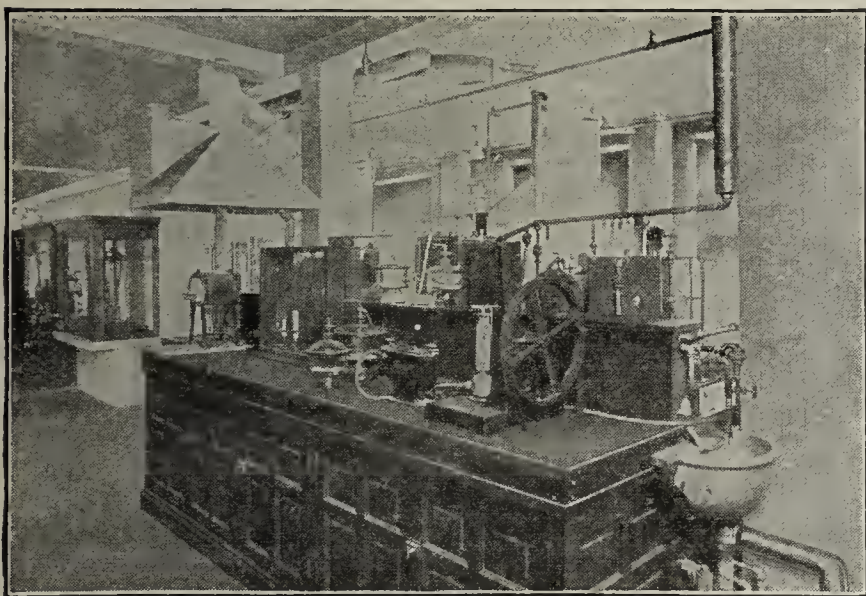
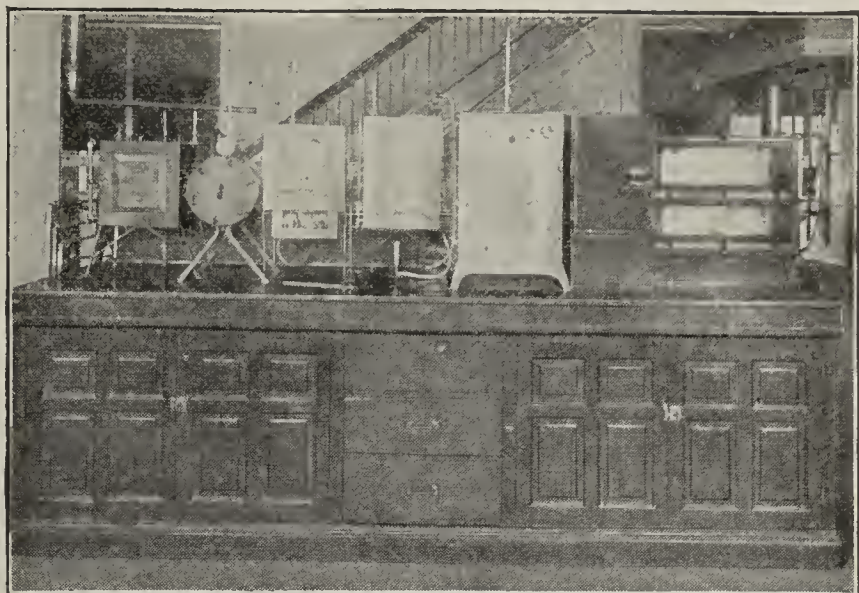
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Views in the Analytical Department

Modern Pharmaceutical Manufacturing

THE ANALYTICAL
DEPARTMENT
Second Article

[The twenty-eighth of a series of articles on the Lilly Laboratories]

EVERY Lilly Product is manufactured under the supervision of the Analytical Department, chemical tests being applied whenever it is possible to control the process in this manner. Any difficulty which is experienced in the manufacturing departments is immediately investigated by a chemist experienced in pharmaceutical manufacturing. In this way we are assured that every process is properly carried out.

IN the standardization of fluid extracts, Eli Lilly & Company were pioneers and today fluid, solid and powdered extracts, tinctures and other products are adjusted to a definite strength wherever it is possible.

IT is needless to say that the most accurate methods available are employed in assaying these preparations and no effort is spared in eliminating the possibilities of error. Each standardized product is assayed at least three times before leaving our laboratories. Two experienced men are engaged in the assay of each preparation and if all results do not

agree within the limits of experimental error, more assays are made until the accuracy of the work is beyond question.

EVEN after the close supervision of crude materials and manufacturing processes, no Lilly Product escapes a final rigid inspection. At this time the working formula and records are also examined to see that all steps in the process, including the chemical tests and assays, have been properly carried out. The records of the Analytical Department include a complete file of working formulas, showing the changes which are being made to improve the products.

ONLY products which are found to be perfect are passed and placed in stock, a sample of each being filed away so that it can be examined at any future time.

*The next article will be on the
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Phenoco is guaranteed to be a most powerful germicide and is invaluable for destroying the germs of contagious and infectious diseases. Although such a powerful germicide, Phenoco is only about one-half as toxic as Phenol, or in comparison with its germicidal action, one-thirtieth as toxic as Phenol.



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Three points are essential:

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This product is prepared in the most complete and modern biological laboratories, and is **the True Living Bulgarian Bacillus**. Its production is safeguarded by the same precautions taken in the preparation of the Mulford Serums and Bacterins, and the Purity of Each Lot is Made Certain by Careful Bacteriological Tests Before Releasing from the Laboratory.

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R. B. H. Gradwohl, M.D.,
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The pathology of these disturbances is an acid fermentation; to antagonize this

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(EIWEISS MILCH IN POWDER FORM)

has proven the best remedy and at the same time by far the best food.

Do not lose time by prescribing flour decoctions, intestinal antiseptics, lactic acid bacilli, which cannot compare with the prompt effect of our Albumin Milk.

Hoos' MALTOSE BUTTERMILK

has proven the correct diet in cases that do not thrive on modified milk mixtures, diarrhoeal forms excepted.

Both products are used with pronounced success by leading Pediatricists, children's hospitals and infants' milk stations.

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In tubes of 20 tablets for the physician's convenience, and at a price correspondingly lower than quoted by some of our competitors for tubes of 25. Our tubes of 20 are of the proper length to fit in Pocket Hypodermic Cases.

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AN OPEN LETTER to the PHYSICIANS of AMERICA

GENTLEMEN: NEW YORK, June 25, 1914.

WE DESIRE to state for your information that the laboratory conducted by this company is, and has been during the past six years, the sole authorized producer in America of the lactic ferment preparations originated by Professor Metchnikoff of the Institut Pasteur, Paris, France, known as Products of Lactobacilline. They are made in strict conformity to the directions coming from him, under his scientific patronage. He has authorized us to so state to American physicians. They contain solely the strain of the *Bacillus bulgaricus*, selected, studied and recommended by him, and were the first lactic ferment products offered in America for the use of physicians.

In compliance with Professor Metchnikoff's desire that The Ferment Co., directly responsible to him for the bacteriological purity of its products, should not be a commercial company and have no commercial affiliations except with a distributor to place these preparations where they can always be accessible to physicians, the Franco-American Ferment Co. was formed to act in this capacity. The latter company's sole business is the distribution of Products of Lactobacilline in cooperation with ethical retail druggists who will constantly maintain them at the low temperature requisite to preserve the viability of their bacterial content.

Lactobacilline Products are not patented. Their titles only have been recorded in the United States Patent Office solely to protect physicians and their patients from imposition by the substitution of imitations. And even this precaution has not proved effective. Neither should they be regarded as "proprietary," any more than other preparations prepared expressly to fill prescriptions of physicians.

The only "secret" about them is the possession of the necessary scientific bacteriological knowledge and skill to produce them containing solely the *Bacillus bulgaricus* in pure culture, as Professor Metchnikoff requires. Fresh cultures are sent to us bi-weekly from Paris.

As to the bacteriological purity of our products, we are directly responsible to Professor Metchnikoff, who insists upon rigorous purity of culture in each preparation. Once a month a full line of Lactobacilline Products is purchased in the open market by the New York law firm of Wentworth, Lowenstein & Stern, No. 60 Wall Street, who are his legal representatives in this country, and by them sent to Paris to be checked up as to their bacteriological purity.

If we did not fulfill our obligations to Professor Metchnikoff in this respect, he would sever his connection with us as scientific patron and would withdraw his personal indorsement from our products.

In view of the fact that this laboratory is directly responsible to Professor Metchnikoff that its preparations, made in connection with his name, shall be pure in culture as represented, and that they have all been accepted by the Council on Pharmacy and Chemistry of The American Medical Association for inclusion with New and Nonofficial Remedies, we believe our work is entitled to your confidence.

Since Products of Lactobacilline were placed to the hand of American physicians six years ago, pharmaceutical concerns have put out similar products as "a side line." Professor Metchnikoff has found it necessary to demand of several of them that they cease the use of his name in exploiting their ferments, as he objects to the use of his name in connection with any preparation, the maker of which is not directly and personally responsible to him for its bacteriological integrity.

The Ferment Co. is a specialist in this work and devotes itself exclusively to the preparation of lactic ferments containing the *Bacillus bulgaricus*. It has no other interests.

It should be positively understood that Professor Metchnikoff receives no compensation in any form, directly or indirectly, for the right to prepare our products under his direction and control, and for the use of his name as scientific guide and patron.

His only purpose in allowing the use of his direction and name by any laboratory is solely his desire that physicians may be able to obtain for use in their practice, from the standpoint of purity and viability of culture, such lactic ferments as he has recommended to them in his scientific communications. Beyond this he has no interest in our work.

We take great pride in the confidence he has placed in us during the past six years; and also in that of the large number of American physicians who prescribe our preparations. We shall exercise every possible endeavor in future time to continue to deserve this confidence by most rigid maintenance of the bacteriological integrity of Products of Lactobacilline. Correspondence solicited.

Respectfully yours,

THE FERMENT COMPANY

Nos. 124-126 west 31st Street,
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MALTED MILK

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The advantages of the Original-Genuine Horlick's Malted Milk are so great and varied as to make it especially convenient where a safe, delicate and reliable diet is the desideratum

Accept no imitations.

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Olive Oil and Hypophosphites

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What you aim at in summer diarrhea, entero-colitis, proctitis, intestinal catarrhs, etc.—

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Both insoluble in the gastric fluids, they are split up in the intestinal tract, throughout the whole length of which they exert their beneficial effects, **Tannalbin** as the *astringent*, **Ichthalbin** as the *intestinal disinfectant*.

Doses for children: Tannalbin, 2 to 6 grns. several times a day in gruel. Ichthalbin, 10 grns. 3 times a day, with chocolate. Adults in proportion.

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it has been subjected to a process involving five distinct steps, each of which might well be considered complete in itself; three sterilizations before sealing the tube and the fourth and fifth after the tube is sealed (in a steam pressure sterilizer for one hour on different days at 25 pounds).

The Van Horn Process enables the painstaking surgeon to eliminate the suture not only as a *probable* but as a *possible* source of infection from tetanus, anthrax and all other organisms.

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in
Summer Diarrhea

For Infants of any age

Mellin's Food

4 level tablespoonfuls

Water (boiled, then cooled)

16 fluidounces

Give one to three ounces every hour or two, according to the age of the baby, continuing until stools lessen in number and improve in character.

Milk, preferably skimmed, may then be substituted for water—one ounce each day—until regular proportions of milk and water, adapted to the age of the baby, are reached.

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OVOFERRIN

(See description "New and Nonofficial Remedies.")

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WANTED—YOUNG PRACTICING PHYSICIAN with automobile in this village of 300 inhabitants; nearest competition 7½ miles on east, 10 miles on west, 17 miles on north, 15 miles on south; no physician at Joslin or Osborn, near-by towns; references required; nothing to sell; no physician now. Edwin L. Hanson, Banker, Hillsdale, Ill. C

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WANTED — PHYSICIAN FOR KANSAS location; territory 8 miles one direction, 20 to 32 miles all other directions; nothing to buy; sponsorship retail drug firm; office in rear of store only if desired; population 800; only one doctor here; live town and merchants busy; bumper crop; for general practitioner and extra fine if surgery is done. Add. 434, P. V. Kniest, Medical Broker, Omaha, Neb. C

(Continued on next page)

A M. A ANNOUNCEMENT

(Continued from preceding page)

ciation; for example: Guide to Current Medical Literature, American Medical Directory, Handbook of Therapy, Laws Regulation Practice, New and Nonofficial Remedies, Nos-trums and Quackery, Pamphlets on Defense of Research, Great American Fraud, Propaganda for Reform in Proprietary Medicines, Pamphlets on Medical Fakes and Fakers.

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To the Editor:—THE JOURNAL still holds, in my regard, the most respected and honored place which it has always held since I began subscribing to it. I wish you continued success in all your efforts, and "may you live long and prosper."

Cyril F. Lauer, M.D., Pittsburgh.

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To the Editor:—I want to congratulate THE JOURNAL on its Propaganda for Reform. It is one of the best things THE JOURNAL is doing.

E. C. Gorrell, M.D.

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To the Editor:—Inclosed find cheque covering my subscription to THE JOURNAL, March '14-March '15. I may say that I read THE JOURNAL with much pleasure. I am particularly pleased with your Propaganda for Reform. I only wish we in Canada were getting after fraudulent advertising in a similar manner. We have the "Oxygenator" here, also "Viavi" representation, and it is a source of much satisfaction to me to be able to enlighten my patients in regard to such. W. G. McCulloch, M.D., Orono, Ont., Can.

Tonics and Sedatives

A CASE OF SHOCK

While the judge was giving his charge to the jury in the burglary case, one of the jury-men fainted. His lordship had just impressively said:

"Gentlemen of the jury, in arriving at the verdict you must take the testimony of the witnesses for the defense into consideration and give them full weight."

At the words "and give them full weight," the jurymen swooned away. He was a coal merchant.—Exchange.

REAL HOME RULE

When the doctor called to see the baby its mother informed him that the medicine left for the infant the day before was all gone.

"Impossible," declared the surprised physician. "I told you to give him a teaspoonful once an hour."

"Yes, but John and mother and I and the nurse have each had to take a teaspoonful, too, in order to get baby to take it."—Youth's Companion.

ON HIS ROUTE

A teacher engaged in social settlement work was chatting at the Social Center one after-

(Continued on next page)

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(Continued from preceding page)

ASSISTANTS WANTED

WANTED—A HOSPITAL BACTERIOLOGIST and pathologist. Apply, stating experience and salary required, to G. E. McCartney, M.B., McKellar General Hospital, Fort William, Ont., Canada. B

WANTED—AT THE CHANNING SANITARIUM for Mental Diseases, Brookline, Mass., an assistant resident physician; applicant should be young and unmarried. Add. Donald Gregg, M.D., Brookline, Mass., giving qualifications and references. B

WANTED—A COMPETENT LABORATORY man or woman; must be able to give anesthetics and assist in office history-taking, etc.; salary \$75 per month, board and room. Add. 6549 B, % AMA.

WANTED — DIRECTRESS OF NURSES for hospital of 60 beds. Add. all communications to Superintendent, Montefiore Hospital, Pittsburgh, Pa. B

WANTED — AN ASSISTANT IN SMALL town in western Iowa; must be a hustler; no booze or cigarette fiend need apply; will pay reasonable salary for first six months and increase according to assistance rendered; this appears but once. W. W. Gingles, M.D., Castana, Iowa. B

INTERNS WANTED

WANTED — ONE INTERN FOR FIFTY-bed hospital and sixty-bed home; excellent service; may begin at once; good accommodations and pleasant surroundings. Add. Supt. Swedish Covenant Hospital, 2739 Foster Ave., Chicago, Ill. D

WANTED—INTERNS FOR ST. MARY'S Hospital, Detroit, Mich.; term of service from July 1, 1914, to July 1, 1915. Add. all communications, giving references, year and school of graduation, to Dr. J. H. Andries, 75 Adelaide St., Detroit, Mich. D

WANTED—ONE INTERN TO SERVE FOR one year, beginning any time before August 1; general medical and surgical service; 100 beds; board, laundry and uniforms furnished; no salary; send references but no letters of recommendation. Sheltering Arms Hospital, Hansford, W. Va. D

LOCATIONS WANTED

WANTED—LOCATION IN CALIFORNIA, with opportunity for general surgery; income of not less than \$4,000 for first year; state full particulars as to location, size of town, climate, price, etc.; no triflers. Add. 6543 E, % AMA.

WANTED—LOCATION OR PRACTICE IN country, preferably Massachusetts or Connecticut; experienced physician desires to leave city; would consider partnership with view to later purchase; prefer no real estate unless very desirable; proposition must bear strictest investigation; full particulars in first letter. Add. 6393 E, % AMA.

WANTED—LOCATION IN WISCONSIN—Good roads, American or English-speaking people, small modern town, about 1,000; consider property if modern and office connected; can come at once or arrange later if more agreeable; experienced and have family; full particulars, please, and confidentially treated. Add. 6528 E, % AMA.

WANTED—LOCATION IN VIRGINIA OR would consider reciprocating state, by late summer or fall; in first letter go fully into details, covering amount business, net collections, fees, competition, size territory, population, churches, price, reasons for selling, etc.; am experienced in hospital; two years' practice; excellent references. Add. 6499 E, % AMA.

WANTED—UNOPPOSED VILLAGE PRACTICE in Minnesota, Wisconsin or Iowa; no real estate; state particulars, population, nationality, nearest competition and terms. Add. 6505 E, % AMA.

WANTED — PRACTICE — LOCATION, ASSISTANTSHIP or partnership with ethical physician or surgeon; aged 31; graduate college and A+ medical school; have hospital and sanatorium experience; at present doing mine practice in Pennsylvania; have latest library and equipment, as endoscopes, cystoscope, sphygmomanometer, G.-U. and obstetrical instruments. Add. 6503 E, % AMA.

(Continued on next page)

TONICS AND SEDATIVES

(Continued from preceding page)

noon with a number of her small Polish and Hebrew charges when one youngster proudly announced:

"We gotta new brudder to our house to-day!"

"You have!" exclaimed the teacher. "Where did you get him?"

"Oh, Dr. Goldberg fetched him," asserted the youth, with a knowing look on his face.

At this juncture a Polish lad (one of a family of ten) eagerly broke into the conversation. "Teacher!" he cried, "we take of him, too!"—*Harper's Monthly*.

—O—

NOT THE SAME CAUSE

A small colored youth stood on one foot, inclined his woolly head far to one side, and pounded vigorously on his skull with the palm of his right hand.

"Hello, kid!" grinned a drummer, whose memory was carried back to his own boyhood days by the familiar action. "What are you doing?"

"Gat watah in mah ear," announced the boy.

"Oh-ho," laughed the drummer, "I know just how that is; I often have felt like that after being in swimming."

"Swimmin' nuffin'!" the youth exclaimed disdainfully. "Ah been eatin' watahmilyun."—*Harper's Magazine*.

—O—

HIS SEVEN AGES

The seven ages of man have been well tabulated by somebody or other on an acquisitive basis. Thus:

First age—See the earth.

Second age—Wants it.

Third age—Hustles to get it.

Fourth age—Decides to be satisfied with only about half of it.

Fifth age—Becomes still more moderate.

Sixth age—Now content to possess a six-by-two strip of it.

Seventh age—Gets the strip.—*Louisville (Ky.) Courier-Journal*.

The Public Service

Medical Department, U. S. Army

Changes for the week ended June 13, 1914:

Fletcher, Harry Q., first lieutenant, M. R. C., is ordered to active duty in the service, and to station Ft. Oglethorpe, Ga.

Loewy, Ignatz, first lieutenant, M. R. C., is relieved from active duty in the Med. Res. Corps.

Ruffner, Z. L., major, will proceed to Ft. Missoula, Mont., for temporary duty and upon completion thereof to Ft. Thomas, Ky.

The following-named officers of the medical corps are relieved from duty in the Philippine Islands, in time to take the transport sailing from Manila, about September 15, and will proceed to the United States for assignment to station:

Major Wm. E. Vose; Capt. Joseph Casper; Capt. Taylor E. Darby; Capt. Jas. S. Fox; Capt. Ralph G. De Voe.

The following-named officers of the medical corps are relieved from duty at the stations named and will take the transport to sail from San Francisco, Cal., about July 5, 1914, for the Philippine Islands: Maj. Elmer A. Dean, Presidio of Monterey, Cal.; Capt. Wm. L. Sheep, Letterman General Hospital, Presidio of San Francisco, Cal.; Capt. Wm. Denton, Ft. Sam Houston, Texas; Capt. Jno. R. McKnight, Ft. Andrews, Mass.

The preceding paragraph is amended and Capt. Wm. L. Sheep has been granted one month leave, and will sail on transport leaving San Francisco, on or about Aug. 5, 1914, for the Philippine Islands; Major Elmer A. Dean has also been granted one month leave of absence and will take the August 5th transport instead of the July 5th transport.

Capt. Wm. T. Gale has been relieved from temporary duty in the Southern Department, and further duty at the Presidio of San Francisco, California, and will take the transport

(Continued on next page)

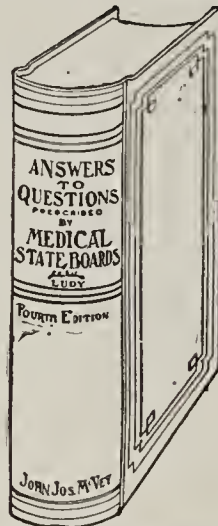
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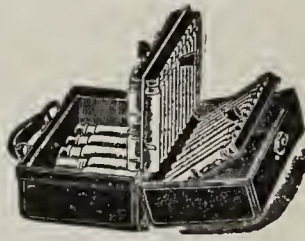
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(Continued from preceding page)

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PARTNERSHIP WANTED

WANTED—PARTNERSHIP.—GRADUATE 1908; licensed Missouri and Nebraska; Protestant; married; aged 28; sober, industrious; amiable disposition; registered pharmacist; prefer salaried position or partnership with physician wishing to retire in a few years; will not invest money at first; will go anywhere, but will not consider villages. Add. 6261 H, % AMA.

WANTED — LOCATION OR PARTNERSHIP in Illinois; general practitioner for years and specially skin and rectal diseases; willing to buy in on partnership or all of a good deal; give full particulars, price, terms, etc.; whether for all or half interest; how long established, etc.; will come and see you if interested; no bad habits, good appearance and fine record; aged about 50; special training in Berlin, London and the continent; also eye, ear, nose and throat; married. Add. 438, % F. V. Kniest, Medical Broker, Omaha, Neb.

SITUATIONS WANTED

WANTED — INSTRUCTOR IN CHEMISTRY, physiology and pathology desires position as an assistant in one of the above subjects in a Grade A medical school, with an opportunity for advancement; aged 33; excellent qualifications and experience; will devote part or whole of my time; moderate salary expected. Add. 6565 I, % AMA.

WANTED—POSITION AS HOSPITAL SUPERINTENDENT by a physician; graduate A+ school; 28 years of age, married; have had 7 years' experience as assistant superintendent of two of the largest hospitals in Ohio; additional information furnished upon request. Add. 6419 I, % AMA.

WANTED — CONTRACT PRACTICE, ASSISTANTSHIP or hospital position, by physician, aged 27; married; one year intern in large surgical hospital; since 1911 and at present in government service; do general medicine, surgery and obstetrics; have given special attention to roentgenology and clinical microscopy; will furnish best of references; state proposition in full. Add. 6367 E, % AMA.

WANTED — POSITION AS ASSISTANT to eye, ear, nose and throat specialist; possess my own ophthalmometer, trial case, De Zeng retinoscope and ophthalmoscope; am competent to do intravenous therapy and Wassermann test; aged 35 years; married; habits excellent; licensed in New York, Massachusetts and Michigan; graduate of A+ school. H. L., 247 E. Broad St., Columbus, Ohio. I

WANTED — GRADUATE CLASS A UNIVERSITY desires assistantship or contract practice in Georgia, Louisiana, Colorado, Wyoming, New Mexico or tropics; 33 years old; married; strictly ethical; six months' emergency and one year hospital work; extensive tropical experience; not afraid of work and sober; speak Spanish; best of references furnished. Add. 6586 I, % AMA.

WANTED—ASSISTANTSHIP WITH HIGH class ophthalmologist or specialist practicing eye, ear, nose and throat; am recent graduate of one of the largest eye and ear infirmaries in the country; am also graduate of general hospital; medical degree Class A university; single, 29 years old; best references; prefer large city. Add. 6523 I, % AMA.

WANTED—POSITION, TEMPORARY OR permanent, by well-qualified physician and surgeon, aged 44 years; abstainer; experienced in general medical and surgical practice; also in hospital and sanitarium management; at liberty now. Add., giving full particulars and salary offered, Dr. Macann, Notus, Idaho. I

WANTED—POSITION AS ASSISTANT TO busy physician or surgeon, salaried hospital or contract position in Virginia or District of Columbia; am graduate of an A+ school, Class 1909; 3 years' hospital experience treating mental, alcoholic and drug cases; Virginia license; strictly temperate; single, aged 28; best of references. Add. 6475 I, % AMA.

(Continued on next page)

THE PUBLIC SERVICE

(Continued from preceding page)

to sail from San Francisco, Cal., on or about July 5, for the Philippine Islands for duty.

Turnbull, S. J., first lieutenant, is relieved from temporary duty at Ft. Preble, Me., and will return to his proper station Ft. H. C. Wright, N. Y.

Fort Riley, Kan., has been designated as the proper station of Maj. George H. Crabtree, Med. Corps.

Ralph M. Le Comte, first lieutenant, M. R. C., is relieved from duty at the Army Med. School, Washington, D. C., and to proceed to his home for relief from active duty in the Med. Res. Corps.

Gilchrist, H. L., major, Med. Corps, has been granted 1 mo. and 10 days leave of absence effective about July 27, 1914.

Harwood, Thomas E., Jr., first lieutenant, Med. Corps, relieved from duty at Ft. Caswell, N. C., and will report to the commanding officer, port of embarkation, Galveston, Tex., for duty in the Transport Service.

The leave of absence granted Herbert W. Yemans, first lieutenant, M. R. C., is hereby extended two months. Lieut. Yemans is on duty in the Philippine Islands, but is on leave in the United States.

Shaw, H. A., major, assigned as Inspector-Instructor with the organized militia of New Hampshire, at Manchester, June 15-20, inclusive.

Chamberlan, W. P., major, detailed for duty with Co. B, 5th Infantry, Lakeville, Mass., July 5th-9th, inclusive.

Christie, A. C., captain, Med. Corps, has been granted 1 month leave of absence.

U. S. Public Health Service

Changes for the seven days ended June 10.

Kerr, J. W., asst.-surgeon-general, detailed to attend the meeting of the Massachusetts Medical Society at Boston, June 9-10, 1914, for the purpose of presenting an address on the relation of physicians to public health organization and administration.

Carrington, P. M., surgeon, granted twelve days' leave of absence from June 8, 1914.

Young, G. B., surgeon, granted one year's leave of absence, without pay, from July 1, 1914.

Brown, B. W., surgeon, directed to proceed to Boston and assume charge of the Marine Hospital at that port, June 6, 1914.

Clark, T., surgeon, directed to proceed to Ellis Island, N. Y., and report to the chief medical officer for the purpose of familiarizing himself with methods followed in making examinations for mental disorders.

Lumsden, L. L., surgeon, on completion of preliminary sanitary survey in Lawrence County, Ind., directed to proceed to Mississippi with the force under his charge, for the purpose of making a similar survey of Union and another county of that state.

Anderson, John F., surgeon, directed to proceed to Wilmington, N. C., and Savannah, Ga., for inspection of service operations in field investigations of the Public Health.

Billings, W. C., surgeon, granted three days' leave of absence from June 5, 1914, under Paragraph 193, Service Regulations.

Goldberger, J., surgeon, relieved from duty as member of board on new "Nomenclature of Diseases."

Schereschewsky, J. W., surgeon, relieved from duty as recorder of board on new "Nomenclature of Diseases."

Creel, R. H., P. A. surgeon, directed at the request of the Efficiency and Economy Committee of Illinois, to proceed to Springfield and other points in that state to make an investigation of sanitary administration and the laws under which it is conducted.

Ebersole, R. E., P. A. surgeon, granted seven days' leave of absence from June 3, 1914, under Paragraph 193, Service Regulations.

Foster, A. D., P. A. surgeon, on completion of sanitary inspections in South Carolina, relieved from duty at Marine Hospital, New Orleans, La., and directed to proceed to Washington, D. C., and report to the Bureau for temporary duty.

(Continued on next page)

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(Continued from preceding page)

WANTED—POSITION TO ACT AS LOCUM tenens; registered in Illinois, Wisconsin, South Dakota, Nebraska, West Virginia and Ohio; can come at once; regular; 45 years of age; good address; sober; can give good references. Add. 6564 I, % AMA.

WANTED—POSITION AS LABORATORY assistant; three years' practical work and thoroughly competent to do urinalysis, blood and sputum examinations, etc.; aged 30; not a physician; good references; prefer hospital or sanitarium. Add. 6524 I, % AMA.

WANTED—POSITION AS ASSISTANT OR partnership with busy physician by graduate Class A university; married; no children; 28 years of age; registered in Pennsylvania; experience in large hospital in industrial city; also year general practice; American; no alcohol or drugs; good health; will go anywhere at short notice, any state. Add. 6473 I, % AMA.

WANTED — HOSPITAL SUPERINTENDENT desires position; juvenile or institution of educational nature desired; A+ graduate, 43 years of age; 6 years in last place; married; no children; wife trained nurse and successful executive; consider any location; highest credentials in educational work and hospital supervision. Add. 6585 I, % AMA.

WANTED — POSITION AS ASSISTANT to busy surgeon, salaried hospital or contract; am 33 years old, single, 3 years' practice, 4 years' hospital (surgical); good mixer; fair personality; best of references; interview if possible; prefer Oklahoma, Texas or reciprocating states. Add. 6562 I, % AMA.

WANTED — YOUNG MAN (GERMAN) wishes a permanent position, having thorough experience in research and hospital laboratory, making culture media, prepare, cut and stain tissues. Add. 6583 I, % AMA.

WANTED—POSITION AS ASSISTANT OR resident physician; am a graduate of Class A college; single, aged 32; experience in general hospital; also one year in state hospital and one year as assistant to private physician; for past four years resident physician in large hospital for tuberculous patients. Add. 6431 I, % AMA.

WANTED — POSITION TO ACT AS LOCUM tenens for doctor who desires to take vacation; am licensed in Illinois and Iowa; can come immediately and remain until school time this fall; information and references furnished; state full particulars. Add. 6582 I, % AMA.

WANTED—POSITION BY WOMAN PHYSICIAN who has had special training in gynecology, obstetrics, surgery and tubercular diagnosis; would prefer position as assistant to good surgeon or obstetrician, but will consider any position which offers sufficient salary and some opportunity for good work. Add. 6462 I, % AMA.

WANTED — POSITION AS LOCUM TENENS for several months; registered Pennsylvania, Maryland and Colorado; capable of doing any work, including eye, ear, nose and throat; can come at once. Best references furnished. Add. Dr. K., 2005 W. Jackson Blvd., Chicago. I

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THE PUBLIC SERVICE

(Continued from preceding page)

Roberts, N., P. A. surgeon, directed to proceed to Philadelphia and report to Senior Surgeon Fairfax Irwin for temporary duty in fumigation of vessels at that port.

Marshall, E. R., P. A. surgeon, relieved from duty at Honolulu, Hawaii, and directed to proceed to Providence, R. I., and assume charge of the service at that port.

Safford, M. V., asst.-surgeon, granted twenty-six days' leave of absence from July 6, 1914.

Wheeler, George A., acting asst.-surgeon, detailed to attend the meetings of the North Carolina State Medical Society at Raleigh, N. C., June 16-18, 1914.

Hommon, H. B., sanitary chemist, directed to proceed to Indianapolis, Ind., in connection with special field studies of sanitary wastes, to select suitable location for intensive studies and formulate plans for making these studies of the disposal of waste liquors resulting from manufacture of straw board.

Smith, L. G., pharmacist, relieved from duty at the Marine Hospital, Savannah, Ga., and directed to proceed to Spartanburg, S. C., and report to P. A. Surgeon R. A. Herring for duty in connection with special investigations of pellagra.

BOARDS CONVENED

Board of medical officers convened to meet at the Bureau for the purpose of grading the examination papers and making recommendations as to the fitness of Pharmacist C. Stier for promotion to the grade of pharmacist of the first class. Detail for the board: Assistant Surgeon-General W. G. Stimpson, chairman; P. A. Surgeon Hugh de Valin, recorder.

Board of medical officers convened to meet at the Marine Hospital, Port Townsend, Wash., for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: Acting Assistant Surgeon L. T. Seavey, chairman; Acting Assistant Surgeon P. I. Carter, recorder.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

PRACTICAL THERAPEUTICS. Including Materia Medica and Prescription Writing, with a Description of the Most Important New and Nonofficial Remedies Passed upon by the Council of Pharmacy and Chemistry of the American Medical Association. By Daniel M. Hoyt, M.D., Assistant Physician to the Philadelphia General Hospital. Second Edition. Cloth. Price, \$5. Pp. 426, with illustrations. St. Louis: C. V. Mosby Company, 1914.

BAKTERIOLOGISCHE UNTERSUCHUNGEN DES KEIMGEHALTES IM GENITALKANALE DER FIEBERNDEN WÖCHNERINNEN MIT BERÜCKSICHTIGUNG DER GESAMTMORBIDITÄT IM LAUFE EINES JAHRES. Von Dr. Maunu af Heurlin, Assistentarzt aus der geburtshilflich-gynäkologischen Universitäts-Klinik zu Helsingfors. Paper. Price 12 marks. Pp. 618 with illustrations. Berlin: S. Karger, 1914.

HYGIENISCHES PRAKTIKUM. Ein Taschenbuch für studierende Aerzte und Kreisarztanden. Von Dr. Med. Paul Uhlenhuth, geh. reg. rat und ordentl. Professor der Hygiene an der Universität Strassburg und Dr. Med. Hermann Dold, Privatdozent der Hygiene an der Universität Strassburg. Cloth. Price, \$1.25. Pp. 272, with 90 illustrations. New York: Rebman Company, 1914.

DER SALVARSAANTOD, SEINE URSACHE UND SEINE VERHÜTUNG. Intravenöse oder intramuskuläre Salvarsaninjektion? Von Dr. Carl Schindler, Spezialarzt für Hautkrankheiten in Berlin. Paper. Price, 4.80 marks. Pp. 184, with 6 illustrations. Berlin: S. Karger, 1914.

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MISCELLANEOUS—WANTED

CHICAGO AND VICINITY HOSPITALS and sanitariums, notice. Leigh R. Fisher missing from residence, Jefferson Park, since May 20. Cause may be lapse of memory over business reverses. Aged 30, height 5 feet 11 inches, weight about 150 pounds, dark hair, slightly bald, brown eyes, widely separated, prominent ears. Wore dark blue suit with white hair-line stripe, dark blue soft hat, cuff-links containing initials "L. R. F." Information wanted, dead or alive. Phone Irving 2214 or add. 6581 J, % AMA.

BOOKS WANTED AND FOR SALE

WANTED—FEBRUARY, 1908, DECEMBER, 1908, January, 1909, *Archives of Internal Medicine*. We will pay \$1 each for these issues, returned in good condition. Add. Amer. Med. Assn., 535 N. Dearborn St., Chicago.

PRACTICES FOR SALE

FOR SALE — CENTRAL CALIFORNIA—\$3,000 unopposed general practice; good future; purchaser must buy residence and office; \$6,000; don't answer unless you have the money. Add. 6563 N, % AMA.

FOR SALE—COLORADO—ACTIVE PRACTICE in town of 1,500; vacation residence doubled by springs and summer attractions; game, fishing, etc.; beautiful country; altitude 6,700 feet; hospital facilities and railroad; physician must leave to superintend business interests in California; horses, rigs, etc., and office furnishings for sale at very low figure and for nominal compensation advertiser will do all in his power to forward interests of incoming physician by personal announcements and introductions. Add. 6576 N, % AMA.

FOR SALE—COLORADO — UNOPPOSED \$5,000 eye, ear, nose and throat practice given with equipment and beautiful residence for \$6,000; \$1,000 down and the balance in payments to be made from collections; ideal climate; beautiful progressive city; 20,000 population in and tributary; snap; retiring from practice; adv. appears but once. Add. 6578 N, % AMA.

FOR SALE—CONNECTICUT—AM GOING abroad and want to sell my practice in a thriving town of 10,000 population, having good roads, schools, railroad, etc.; an exceptional opportunity for one able to talk both English and French; write at once for particulars. Add. 6540 N, % AMA.

FOR SALE—CONNECTICUT — GENERAL practice; \$5,000; located Collinsville; live steel manufacturing town of 3,000 population; to one who will buy fine old modernized residence at actual value will give practice with thorough introduction and resignation from 12 life companies; best opening New England; going abroad; will specialize; write for particulars. Sheldon Campbell, Collinsville, Conn. N

FOR SALE — CENTRAL ILLINOIS—Office equipment, drugs, etc., in modern village of 700; large (American) territory, thickly settled; collections A1; competition very light; one other (elderly) M.D.; two railroads; insurance appointments; right man can step into a \$4,000 business from start; terms reasonable; real estate optional; owner desires to take P.-G. Add. 6535 N, % AMA.

FOR SALE—ILLINOIS—\$2,500 PRACTICE 100 miles from Chicago, in one of the best parts of state; population 600, Americans and Germans; one other doctor; good roads, fees and pay; fine office outfit, drugs, furniture, apparatus, practice and introduction; expenses light; a young doctor can start here on small capital; price, \$400; reasonable terms. Add. 6531 N, % AMA.

(Continued on next page)

BOOKS RECEIVED

(Continued from preceding page)

der physikalischen und serologischen Befunde und der therapeutischen Prognostik. Bearbeitet von Priv.-Doz. Dr. D. O. Kuthy und Dr. A. Wolff-Eisner. Papcr. Price, \$4.50. Pp. 572, with 21 illustrations. New York: Rebman Company, 1914.

TEXT-BOOK OF ANATOMY AND PHYSIOLOGY FOR TRAINING SCHOOLS AND OTHER EDUCATIONAL INSTITUTIONS. By Elizabeth R. Bundy, M.D., Member of the Medical Staff of the Woman's Hospital of Philadelphia. Third Edition. Cloth. Price, \$1.75 net. Pp. 408, with 233 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

DIE AKUTE UND CHRONISCHE INFEKTÖSE OSTEO-MYELITIS DES KINDESALTERS. Auf Grund Eigener Beobachtungen und Untersuchungen. Von Dr. Paul Klemm, K. R. Staatsrat, Oberarzt des Krankenhauses vom Roten Kreuz. Paper. Price, 9 marks. Pp. 261, with 8 illustrations. Berlin: S. Karger, 1914.

RADIUM AND RADIOTHERAPY. Radium, Thorium and Other Radio-Active Elements in Medicine and Surgery. By William S. Newcomet, M.D., Professor of Roentgenology, Temple University. Cloth. Price, \$2.25 net. Pp. 315, with 72 illustrations. Philadelphia: Lea & Febiger, 1914.

ROTH'S KLINISCHE TERMINOLOGIE. Zusammenstellung der in der Medizin gebräuchlichen technischen Ausdrücke mit Erklärung ihrer Bedeutung und Abtheilung. Bearbeitete von Dr. E. Oberndörffer. Eighth Edition. Cloth. Price, 12 marks. Pp. 484. Leipzig: Georg Thieme, 1914.

TASCHENBUCH DER AUGENHEILKUNDE FÜR AERZTE UND STUDIERENDE. Von Dr. Curt Adam, Direktor der Kaiserin Friedrich-Hauses für das Aerztliche Fortbildungswesen. Third Edition. Cloth. Price, \$2. Pp. 395, with 80 illustrations. New York: Rebman Company, 1914.

SEROLOGY OF NERVOUS AND MENTAL DISEASES. By D. M. Kaplan, M.D., Director of Clinical and Research Laboratories of the Neurological Institute, New York City. Cloth. Price, \$3.50 net. Pp. 346, with illustrations. Philadelphia: W. B. Saunders Company, 1914.

X-RAYS: An Introduction to the Study of Roentgen Rays. By G. W. C. Kays, B.A., D.Sc., Head of the Radium Department at the National Physical Laboratory. Cloth. Price, \$1.75 net. Pp. 252, with 97 illustrations. New York: Longmans, Green & Co., 1914.

BLOOD-PRESSURE IN MEDICINE AND SURGERY. A Guide for Students and Practitioners. By Edward H. Goodman, M.D., Associate in Medicine in the University of Pennsylvania. Cloth. Price, \$1.50 net. Pp. 226, with illustrations. Philadelphia: Lea & Febiger, 1914.

MATERIA MEDICA FOR NURSES. By A. S. Blumgarten, M.D., Instructor in Materia Medica at the German Hospital Training School for Nurses, New York. Cloth. Price, \$2.50. Pp. 644. New York: The Macmillan Company, 1914.

LEHRBUCH DER PSYCHIATRISCHEN DIAGNOSTIK. Von Privatdozent Dr. Adalbert Gregor, Oberarzt an der Kgl. Heilanstalt Dösen-Leipzig. Paper. Price 4.80 marks. Pp. 240. Berlin: S. Karger, 1914.

SPIRITUAL HEALING. Report of a Clerical and Medical Committee of Inquiry into Spiritual, Faith and Mental Healing. Cloth. Price, 30 cents. Pp. New York: The Macmillan Company, 1914.

DAS ULCUS DUODENI. Von Dr. J. Schrijver, Arzt für Magen- und Darmkrankheiten in Amsterdam. Paper. Price, 10 marks. Pp. 184, with 16 illustrations. Berlin: S. Karger, 1914.

TRANSACTIONS OF THE CREMATION SOCIETY OF ENGLAND. Paper. Price, sixpence. Pp. 44. London: Secretary, 324 Regent Street, W., 1914.

DIE LEHRE VON DEN OKKULTEN BLUTUNGEN. Von Prof. Dr. I. Boas. Paper. Price 5 marks. Pp. 149, with 5 illustrations. Leipzig: Georg Thieme, 1914.

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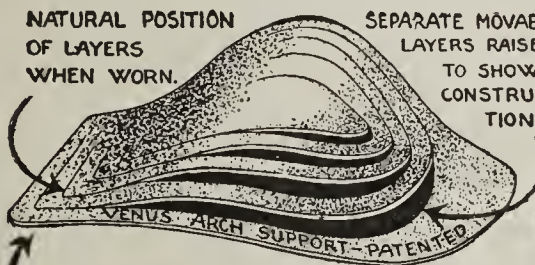
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(Continued from preceding page)

FOR SALE—CENTRAL ILLINOIS—WILL give good introduction and \$3,000 practice to physician who will buy property located in fine town of 500; large territory; fine farms; German and American people; money from start; practice can be increased; no triflers. Add. 6573 N, % AMA.

FOR SALE—CENTRAL ILLINOIS—PRACTICE averaging \$3,300 for last 3 years in town of 450; one easy competitor; large territory; wealthy American community; practice and introduction free to cash purchaser of \$300 stock of drugs; going to specialize; don't answer unless you mean business. Add. 6588 N, % AMA.

FOR SALE—SOUTH CENTRAL ILLINOIS—\$450 will buy office equipment, closed buggy and \$3,300 cash practice in city of 12,000; selling on account of health; practice can be doubled by good active man; exceptional opportunity for one doing surgery; thorough introduction. Add. 6551 N, % AMA.

FOR SALE—ILLINOIS—EXCELLENT LOCATION; \$3,500 practice, which will increase; 6-room modern office, x-ray, high-frequency, etc.; large stock of drugs; wealthy community; easy access to Chicago; collections 99 per cent.; money from start; paying appointments; ethical competitor; incumbent going abroad. Add. 6546 N, % AMA.

FOR SALE—INDIANA—\$800 BUYS OLD-established practice; runs about \$2,000 to \$2,500; stone roads everywhere; thickly settled country; no loss of fees; books, instruments, Maxwell auto good as new, office fixtures, etc.; will rent office until able to buy; if you really wish a bargain, write; will introduce. Add. 6570 N, % AMA.

FOR SALE—NORTH CENTRAL INDIANA—\$4,000 unopposed practice; gravel roads; telephones; thickly settled; collections 98 per cent.; 7, 9 and 10 miles to competition; American people; with or without property. Add. 6378 N, % AMA.

FOR SALE—CENTRAL INDIANA—SPECIALIZING \$2,700 practice in small village; no competition; rich farming territory; good school, churches, roads and telephones; collections 96 per cent.; two lots; office building, drugs, instruments and fixtures; seven-room dwelling with large veranda, fruit-house, barn, outbuildings, cement walks and cistern, all in first-class condition; large garden and fruit; price, \$2,500; time on part if desired; this offer will not remain open long. Add. 6591 N, % AMA.

FOR SALE—INDIANA—\$3,000 OLD-ESTABLISHED practice in city of 6,000; on two railroads and traction lines in best farming and manufacturing district; eight-room modern residence; new five-room office near residence; business can be increased; will introduce; going to large city; \$4,700 takes it; act quickly. Add. 6556 N, % AMA.

FOR SALE—WESTERN INDIANA—ESTABLISHED \$2,800 practice in modern town of 1,000; good roads; wealthy thickly settled community; large territory; competition right; collections 95 per cent.; well-equipped office, stock of drugs and auto in good condition; price and terms right; reason, post work. Add. 6521 N, % AMA.

FOR SALE—NORTHWEST IOWA—GENERAL practice in growing town of 1,000; large territory; competition just right; good roads, school; good farming country; collections 99 per cent.; nationality German; modern town, electric lights, sewer, etc.; no real estate; \$600 cash buys office equipment and drugs in first-class condition. Add. 6353 N, % AMA.

FOR SALE—IOWA—PRACTICE AND EQUIPMENT, \$4,000 yearly; one of best towns of 1,000 population in state; good schools, electric lights, water, etc.; a gilt-edged proposition and a money maker from the start; a thoroughly established practice and will deliver at a bargain. Add. 6577 N, % AMA.

FOR SALE—IOWA—TO A WOMAN PHYSICIAN; location, city of 25,000; no woman competitor; \$2,000 practice; residence and office combined; rent \$25; office and house furnishings for sale; practice and all equipment \$750 cash; reason for change, will specialize. Add. 6474 N, % AMA.

GENTLEMEN—PLEASE DISCONTINUE adv. for location wanted; one insertion brought all the answers I can attend to. Yours truly,

(Continued on next page)

FOR SALE — WESTERN KANSAS —
County seat; \$2,000 practice; farming and stock-raising community; high class American settlers; no negroes; Santa Fe Railroad; one competitor in town; nearest other 24 miles; level country; good roads; living from start; practice and part of equipment, \$350; going to city. Add. Box 337, Dighton, Kan. N

FOR SALE—KANSAS — A GOOD LOCATION in good town; fine country; large territory; good fees and good pay; requires only small investment; this will bear investigation; price and information on application; it is worth the money; reason for selling, failing health. Add. 6579 N, % AMA.

FOR SALE—CENTRAL KANSAS—WHEAT center; \$2,500 practice; town of 300; electric lights; on main railroad; no competition 7, 7, 20, 30 miles; practice and 7-room residence, barn, for \$1,600; terms to suit; furniture, office fixtures, instruments, drugs, horses, buggy optional. Add. 6575 N, % AMA.

FOR SALE—EASTERN MAINE — LARGE and well-established practice in village on railroad; present owner leaving on account of ill health; purchaser will be expected to buy team and stock of drugs. Add. 6507 N, % AMA.

FOR SALE — MICHIGAN — CITY 50,000— Automobile and vehicle industries chiefly; been located here five years; cash accounts over \$4,000; am doing general practice; some transferable appointments; office thoroughly equipped for general work; fixtures list \$500; going to specialize elsewhere; want to leave by July 1; price, \$800 cash; no triflers. Add. 6471 N, % AMA.

FOR SALE—MINNESOTA — TOWN OF 1,000; soil unsurpassed in the U. S.; radius of 12, 14, 15, 16 miles; first-class high and public schools and churches; pavements, city water and gas, electric lights; well-equipped hospital; am going to the city; must be sold at once; act quickly; \$750 cash to handle. Add. 6587 N, % AMA.

FOR SALE—MISSOURI—OFFICE FURNITURE, stock drugs and horse, \$500 cash; good country practice, easily transferred; town 1,000, 50 miles from Kansas City; rich, thickly settled community; Protestant; main line Wabash and Santa Fe; bargain; must be taken soon; going to specialize; reason for wanting to leave. Add. H. E. McGhee, M.D., Hardin, Mo. N

FOR SALE—MISSOURI—\$2,800-\$3,600 UN-opposed village and country practice; railroad town 200; new high school, two churches; competition 10-15 miles; fine driving team, storm buggy and introduction, \$500; 7 acres of land; lots of fruit; four-room house; concrete cellar and 1913 Ford roadster optional. Add. Box 15, Strafford, Mo. N

FOR SALE—MONTANA—\$7,500 PRACTICE in one of fastest growing cities in state; excellent chance for surgeon; reason post work; industries, stock raising and agriculture; library, office equipment and furniture; good contract; price, \$1,500. Add. 6522 N, % AMA.

FOR SALE—NEBRASKA—CITY OF 1,200, modern; Union Pacific R. R.; heart of Platte Valley; fully equipped office; laboratory, microscope, Victor portable coil, medicines, instruments, three-piece Rochester sterilizer, examining table, dressing table, office desk, massive solid oak instrument case to match; one of the finest equipped offices in state; business \$5,000; 90 per cent. collections; Overland auto; for all, \$1,800 cash; am going to city to specialize; young man preferred; must leave the 5th of July; will introduce. Add. 6567 N, % AMA.

FOR SALE — EASTERN NEBRASKA— \$2,500 general practice; town of 1,500; main line Burlington Railway, 95 miles from Omaha; wealthy German community; good collections; price, \$500; some less for cash; price includes office outfit, stock of drugs, books and instruments; auto optional; going to specialize; don't write unless mean business; full particulars on request. Add. 6566 N, % AMA.

FOR SALE — NEBRASKA PRACTICE— Money made right from start; northeast Nebraska; \$1,200 swings the deal; easy terms balance; population about 1,000; no crop failures; appointments transferred; large territory; well-to-do farmers; best part state; Nebraska reciprocates; will rent residence; only available place; fine roads; one competitor; young man and nice competition; practice \$4,000 year or better; cleared \$1,500 year since coming; I did \$335 January, \$389 February, \$345 March, \$325 April; have done over \$500 month; fine snap. Add. 432, F. V. Kniest, Medical Broker, Omaha, Neb. N

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FOR SALE — SOUTHERN NEW HAMPSHIRE; established practice which in 1913 earned over \$2,500 in cash; wish to sell at once practice, drugs and office furniture; real estate or not as desired; can give references from best men in state; ideal for beginner; specializing. Add. 6569 N, % AMA.

FOR SALE — NEW JERSEY—A PHYSICIAN in the suburb of a New Jersey city, close to New York City, will dispose of a clean practice of about \$11,000 annually; 75 per cent. of which can be retained by a careful introduction; occupant intends to specialize. Add. 6580 N, % AMA.

FOR SALE—NEW JERSEY — COUNTRY property, formerly occupied by physician who retired wealthy; 2½ acres near railroad station; dwelling, 11 rooms, bath, toilet, laundry, all conveniences; barn, garage, workshop, ice house; all fine repair; rich farming section; competition nominal; get full particulars and photos; value \$3,000. Add. 6448 N, % AMA.

FOR SALE — NEW YORK — LONG ISLAND established practice in prosperous town in western part of state; paved streets; natural gas; electricity; city water; state roads; two railroads; good schools and churches; collections good; twelve-room house, barn and garden for sale at \$4,000; no bonus asked for practice; practice averages \$3,000. Add. 6301 N, % AMA.

FOR SALE—NEW YORK—\$18,000—\$6,000 cash, balance on mortgage; important summer practice among best class; average receipts between May and November, \$6,000; winter months practically free; physician of maturity best suited to hold practice; one hour from New York on Long Island; house 12 rooms, attractive grounds, center of town. Add. 6568 N, % AMA.

FOR SALE — WESTERN NEW YORK — Doctor's residence with offices; leading physician of Middleport, N. Y., died last week; 12-room house, hot-water heat, bath-room, electric lights; offices fully equipped; large barn; house centrally located on village square; town 1,700; wealthy farming community surrounding; office established 30 years; collections \$5,000 to \$6,000 per year. Add. H. D. Warren, Savings Bank Bldg., Lockport, N. Y. N

FOR SALE—SYRACUSE, N. Y.—THIRTY years' practice of Dr. George R. Kinne; died one month ago; residences and offices combined; house has all improvements; ten rooms besides suite of three offices, with two outside entrances; also double garages; Dr. Kinne was coroner at time of death; had one of the largest general practices in city; widow will sell property and practice less than property value; \$9,000; easy terms. C. H. Dawley, 823 University Block, Syracuse, N. Y. N

FOR SALE—PENNSYLVANIA — \$3,000 country practice free to the purchaser of real estate and personal property; 40 miles from Philadelphia, on line of railroad, with good service; high school and churches; no other physician in town; population about 300; sickness cause of selling. Add. Thomas Love, 19th and York Sts., Philadelphia, Pa. N

FOR SALE—WESTERN PENNSYLVANIA —Practice and property, within 15 miles of Pittsburgh; doctor's office here for 30 years; no other doctor in community; on improved state road and interurban trolley; house, barn and fruit on three-fourths acre; \$3,500 to \$4,000 per year; price, \$4,000. Add. 6386 N, % AMA.

FOR SALE—OHIO—EYE, EAR, NOSE AND throat ready cash practice; established 10 years; no competition; can increase; make money from start; 8,000 records; must sell; reason, other business; fine opening for some one; county seat 6,000; county 30,000; terms part cash; residence if wanted; sell or lease. Add. 6584 N, % AMA.

FOR SALE — CENTRAL OHIO — MAIN line Pennsylvania; 800 population; practice \$4,000; office equipment invoice at \$1,000; will sell for \$500; can turn over absolutely all the practice; will be as busy second day as second year; am going to specialize. Add. 6500 N, % AMA.

FOR SALE—OHIO — UNOPPOSED PRACTICE in good town and fine country, to purchaser of property; new modern house; all improvements; good 2-room office, fine stock drugs; all other necessary buildings; collections \$3,000 last year; practice easily transferred; will introduce; fine opening for recent graduate. Add. 6484 N, % AMA.

(Continued on next page)

FOR SALE—WESTERN OHIO—PROPERTY
and unopposed practice in small town; six-room house and two-room office; all hot-water heated; fine farming country; good roads; two steam roads; practice established 16 years; easy terms. Add. 6517 N, % AMA.

FOR SALE—OHIO—EYE, EAR, NOSE AND
throat practice; two railroads; town 8,000; no competition; garden spot of Ohio; did \$7,700 cash last year; must sell; a fine location for some one; \$1,800 cash. Add. 6430 N, % AMA.

FOR SALE — SOUTHEASTERN SOUTH
Dakota practice; \$2,500-\$3,000 yearly; county seat, 1,000 population; American, Irish, German; electric lights; waterworks; good country, about 30 years old; gilt-edge location; price, \$350 cash or bankable note; good equipment; ready for business; new building, 3 rooms; large territory; one young competitor. Add. 6501 N, % AMA.

FOR SALE—SOUTHWEST TEXAS—\$2,500
to \$3,000 practice, office fixtures and fine residence in county seat town of 2,500 people; one other physician; fine climate; can use auto all the year around; \$1,000 cash; balance terms to suit. Add. 6338 N, % AMA.

FOR SALE—TEXAS—\$4,500 PRACTICE IN
flourishing town of 400; rich country; competition 8 to 20 miles; practice established 10 years; collections 95 per cent.; modern 7-room residence, barn, garage, etc.; for \$1,800; part cash; balance terms; will introduce right man to very desirable practice and turn over appointments. Add. 6455 N, % AMA.

FOR SALE—WASHINGTON STATE PRAC-
tice; city 100,000; fine equipment, surgical instruments, etc.; fine in other ways; cheap rent; nice brick block; best harbor in northwest U. S.; finest kinds of roads; practice \$5,000 year; one good appointment; no real estate to buy; equipment the very best and cost more than I ask; mild climate. Add. Dr. A. P. Johnson, 101 Provident Bldg., Tacoma, Wash. (Kniest-Omaha-Agency). N

FOR SALE — NORTHWESTERN WASH-
ington; \$4,000 practice to purchaser of automobile, x-ray, nicely furnished office and home in railroad town of 300; immense territory; nearest competition 9 miles; collections excellent; reason, wife's health; price, \$3,000; \$2,000 cash absolutely necessary; balance mortgage; money from start; exceptional opportunity to good man. Add. 6574 N, % AMA.

FOR SALE—WEST VIRGINIA — \$3,000
beautiful 10-room house, 3-room office, all first-class repair; drugs, instruments, barn, 2 horses, buggies, etc.; located in town of 400 population, 14 miles from city, along railroad; together with a \$5,500 practice in a very rich farming and stock-raising community; collections 99 per cent.; good roads, schools and churches; railroad contract; \$1,000,000 contract under construction here; ideal place to live; chance of lifetime; don't answer unless mean business and can come and investigate. Add. 6480 N, % AMA.

FOR SALE—WEST VIRGINIA — UNOP-
posed contract, \$3,000; private, \$1,500; coal-mining section; established 7 years; modern residence, ten rooms, on corner lot, 75 feet by 125 feet; business lot 50 feet by 125 feet; drugs and fixtures all for \$5,000; one-half cash, balance easy terms; great opportunity for energetic man; reason, want to specialize. Add. 6491 N, % AMA.

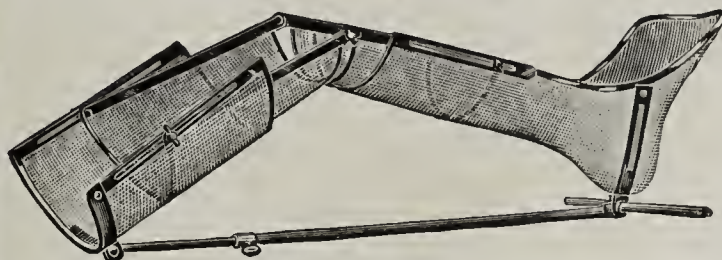
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growing cities of the southwest; Pasteur institute and clinical laboratory practice, with an income in 1912 of \$2,300 and 1913 of \$3,500; have about \$500 worth of equipment; am leaving town; will introduce to all physicians; price, \$2,000; do not write unless you mean business. Add. 6536 N, % AMA.

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FOR SALE—WISCONSIN — WEST CEN-
tral part; my residence hospital; completely equipped and furnished throughout; city of 3,000; price, \$4,500; will dispose of one-half interest in the institution, including my practice; give immediate possession for one or more years to capable man; will lease the property for \$450 per year. Add. 6590 O, % AMA.

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equipment of a new and modern sanatorium; 50 beds, 20 baths; mineral springs and extensive mechanical and electrical equipment; an established, paying all-the-year business in general upbuilding work; \$8,000 to \$10,000 will handle on long lease. Add. 6552 O, % AMA.

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pital Building, located at Sycamore, Ill.; consideration, \$30,000; part cash; or will exchange for good Illinois land; will lease for \$2,500 yearly, with good security. Add. Dr. L. A. Westgate, 164 S. La Salle St., Aurora, Ill. O

FOR SALE—IN CENTRAL WEST VIR-
ginia; at a bargain; a beautiful and well-equipped hospital and sanitarium; terms reasonable; reason for selling, owner affected with spinal trouble and property left in my hands for disposal. Add. Mr. J. L. James, Agent, Union Trust Bldg., Charleston, W. Va. Box 528. O

FOR SALE—WELL-KNOWN SANITARIUM
—Centrally located in western New York city, on principal street, facing large park and overlooking lake; furnished and fully equipped with modern appliances; large and profitable patronage; for sale only on account death of owner; booklet; particulars add. Orville C. Wolcott, 316 Granite Bldg., Rochester, N. Y. O

FOR SALE OR LEASE — HOSPITAL—
Splendid new building, well equipped, located in one of best fields southwest Texas, near Gulf; running over a year; has good reputation; accommodations 12 patients; easily increased to 20; sell or lease to first-class surgeon or nurse; liberal terms; no competition for miles; some cash required. Add. 6545 O, % AMA.

FOR SALE—SANITARIUM—ESPECIALLY
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(Continued on next page)

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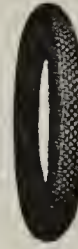
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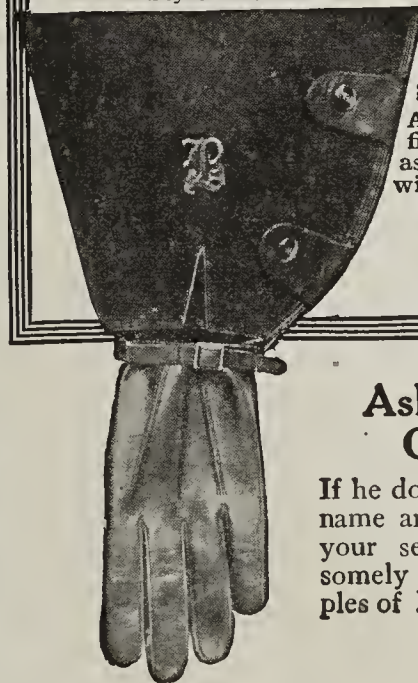
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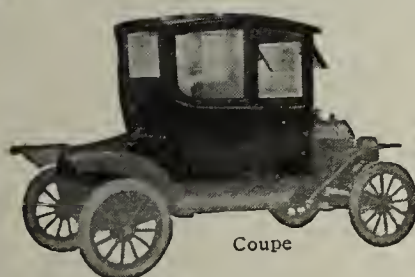
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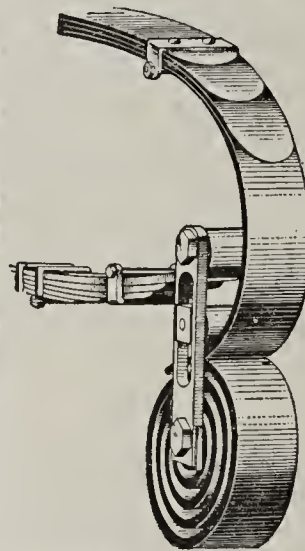
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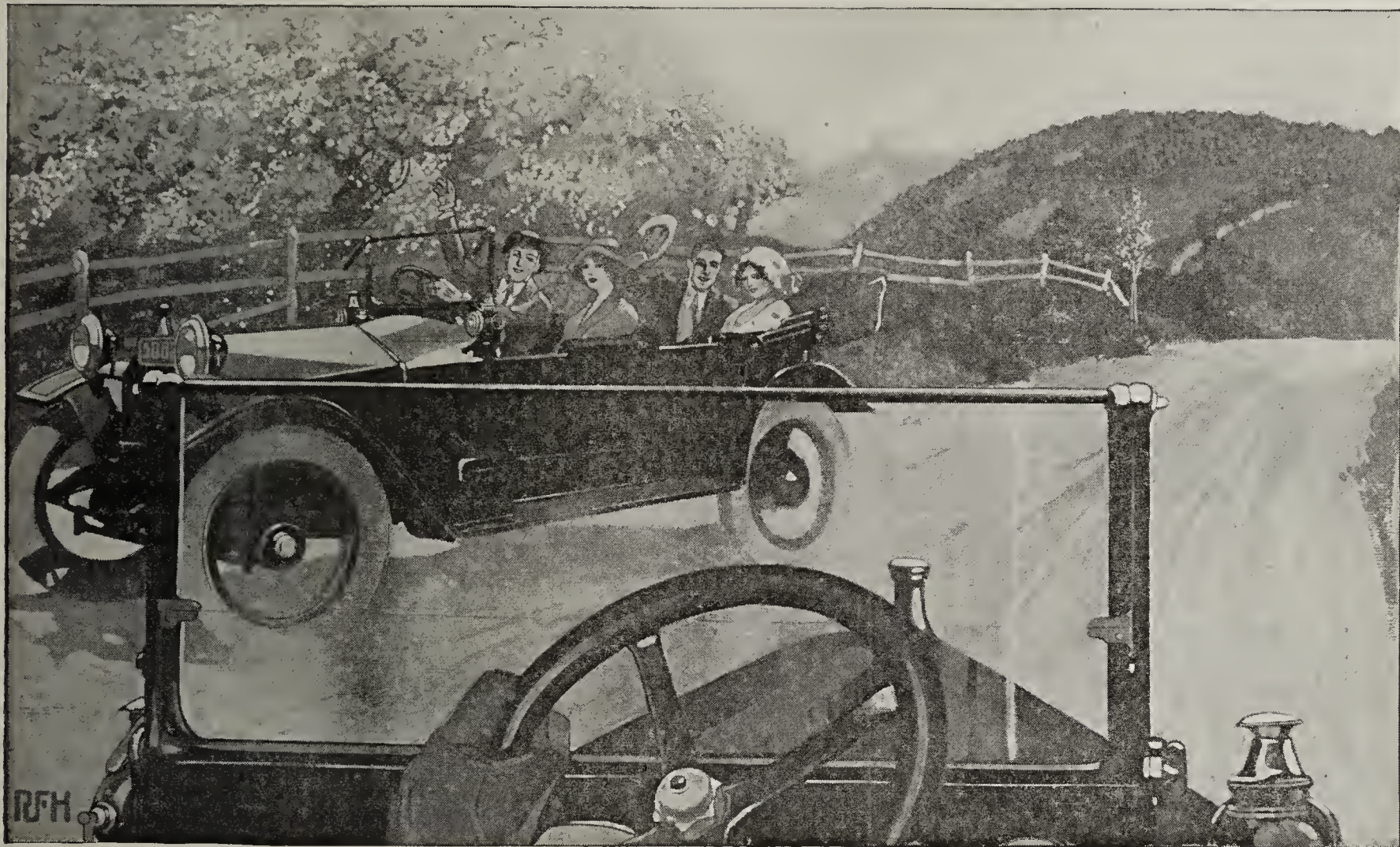
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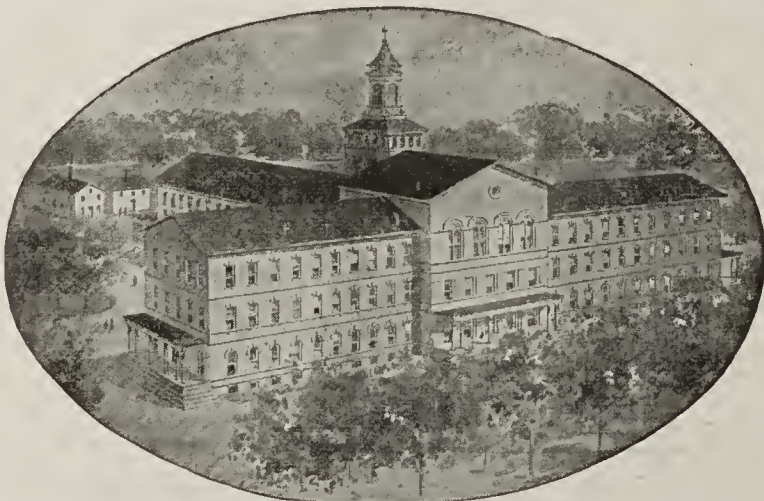
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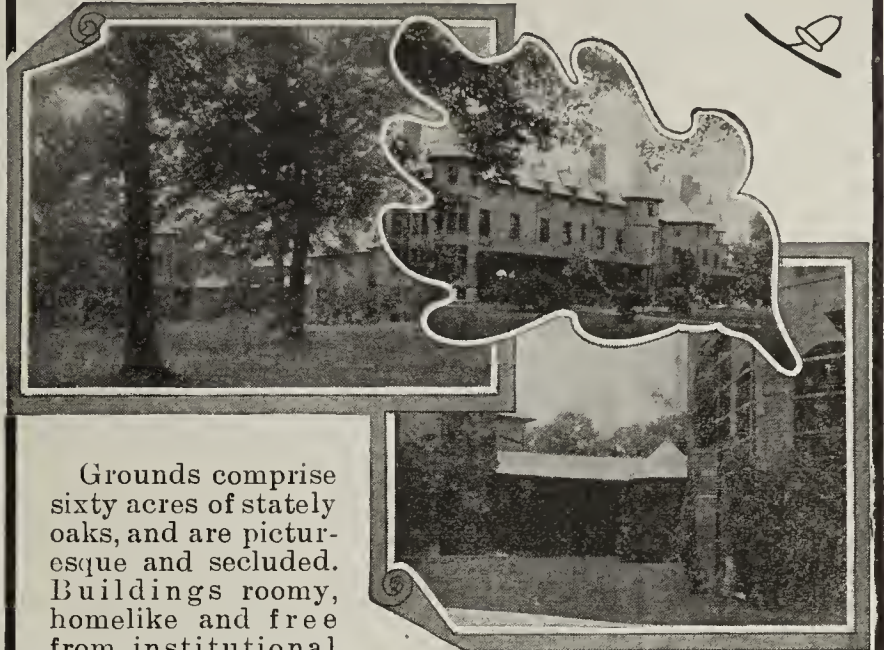
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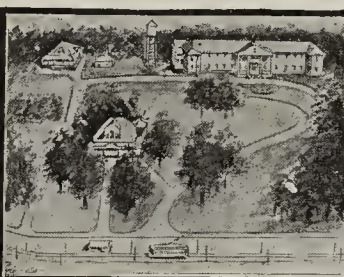
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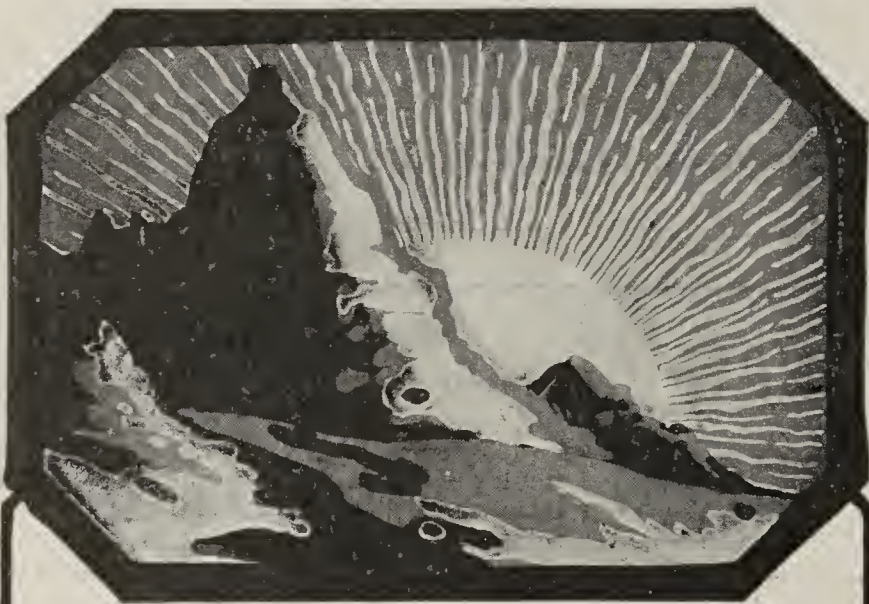
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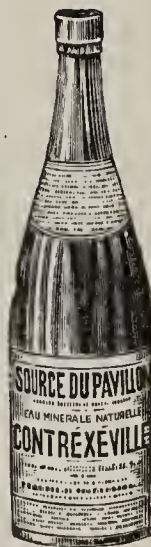
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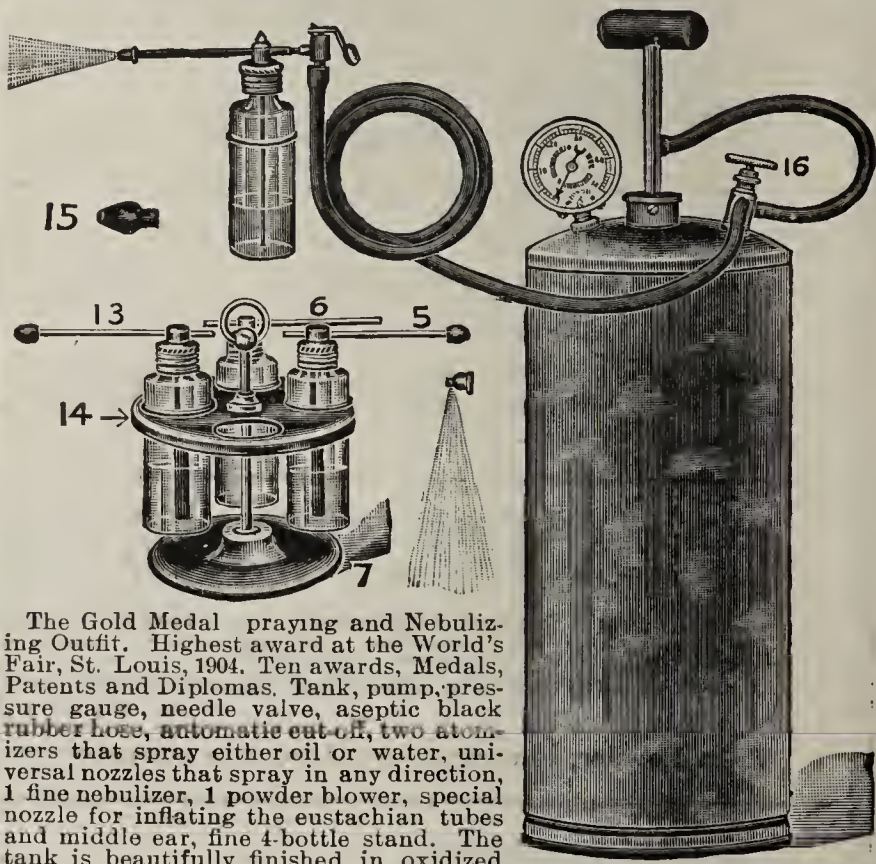
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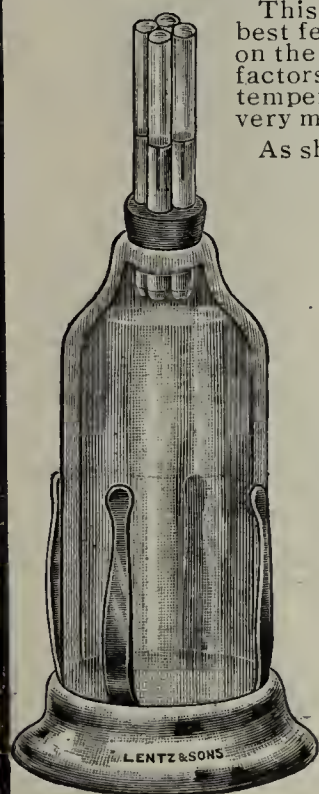


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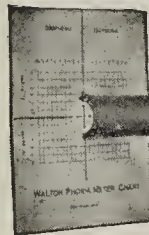
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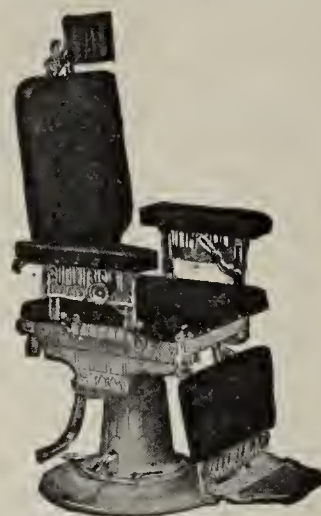
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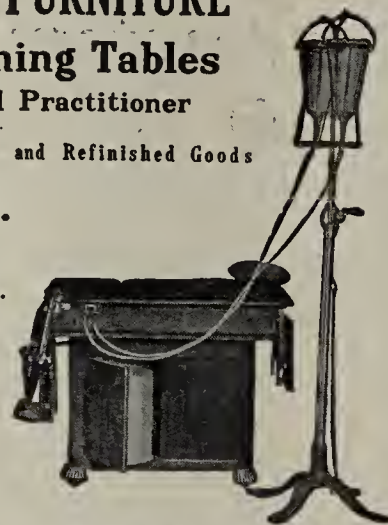
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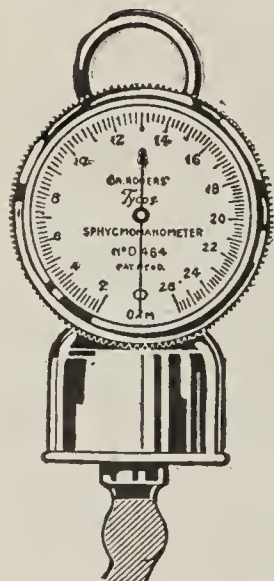
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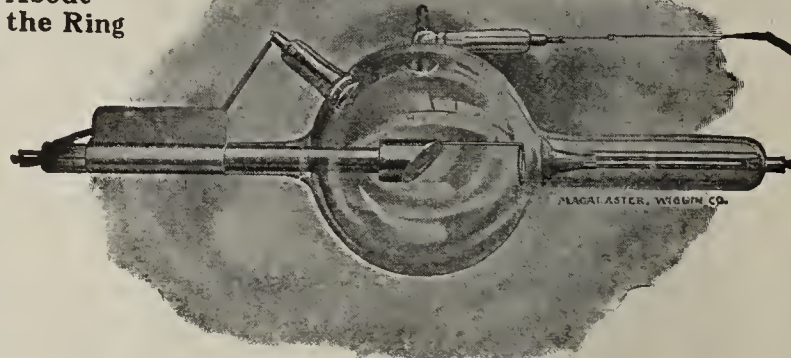
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- They are designed, built and made to order for their own purpose.
- They are **Specialties**.
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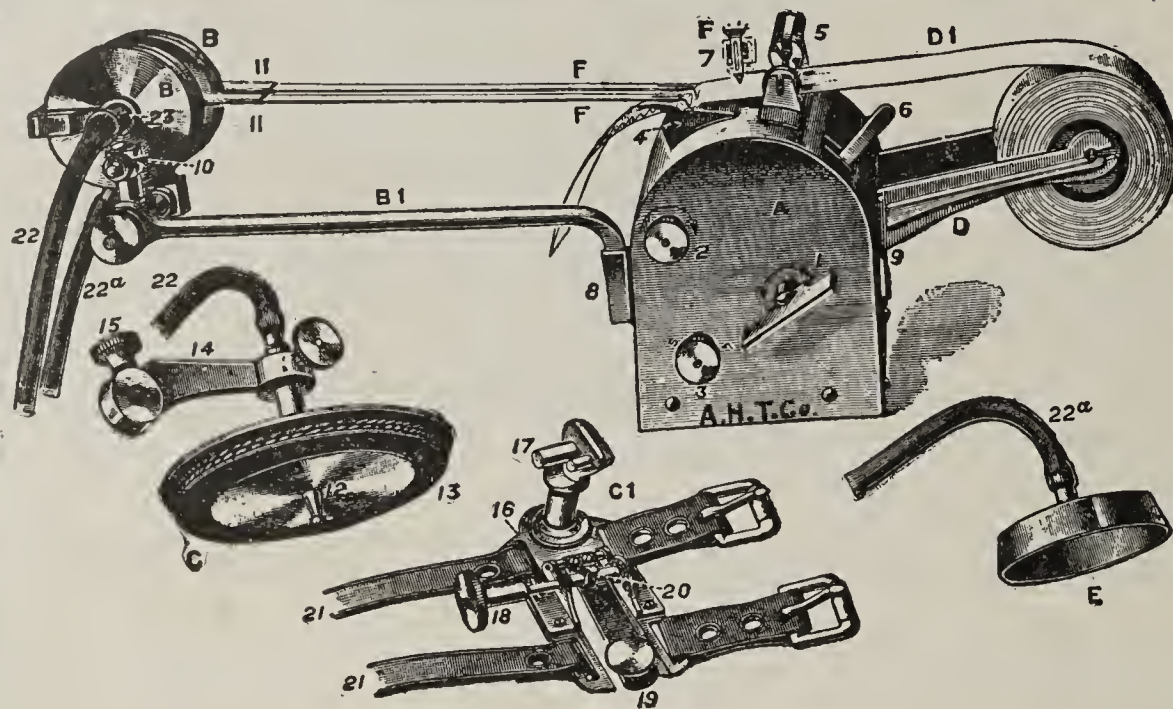
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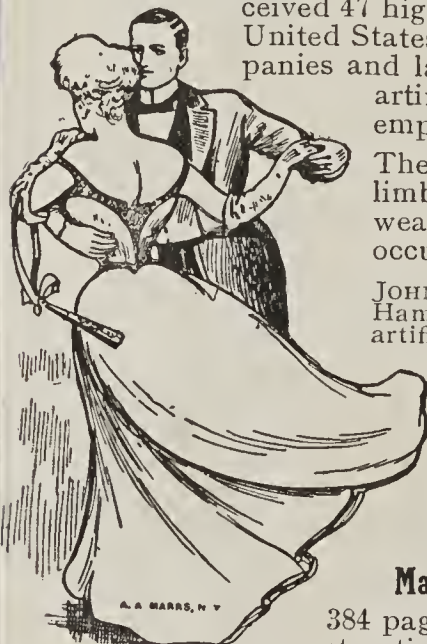
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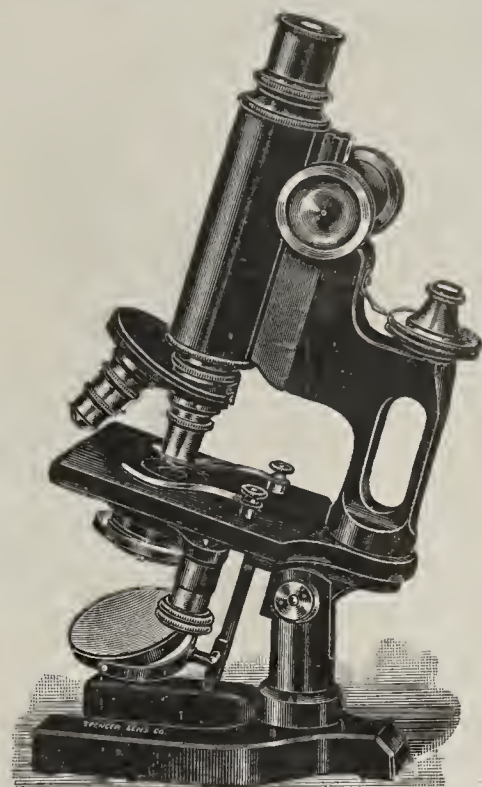
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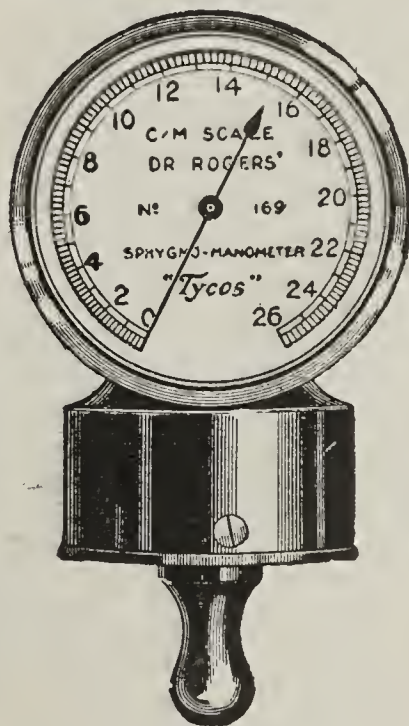
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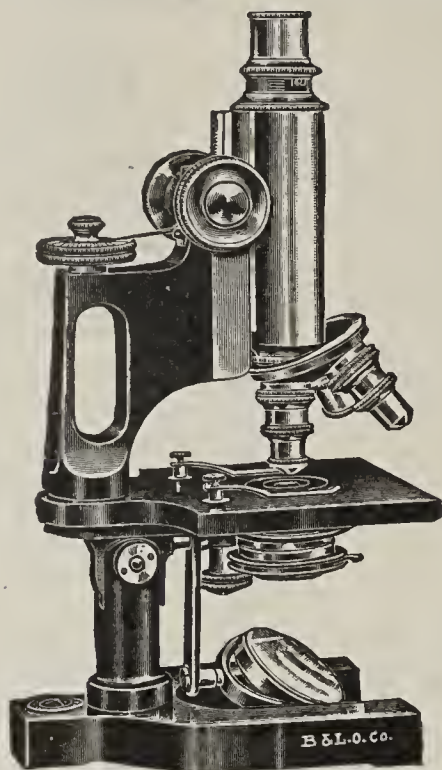
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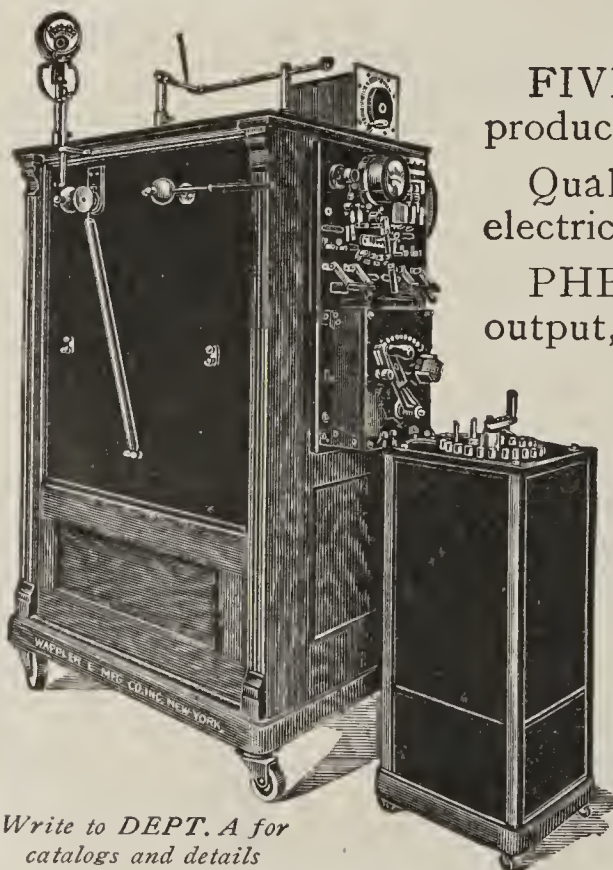
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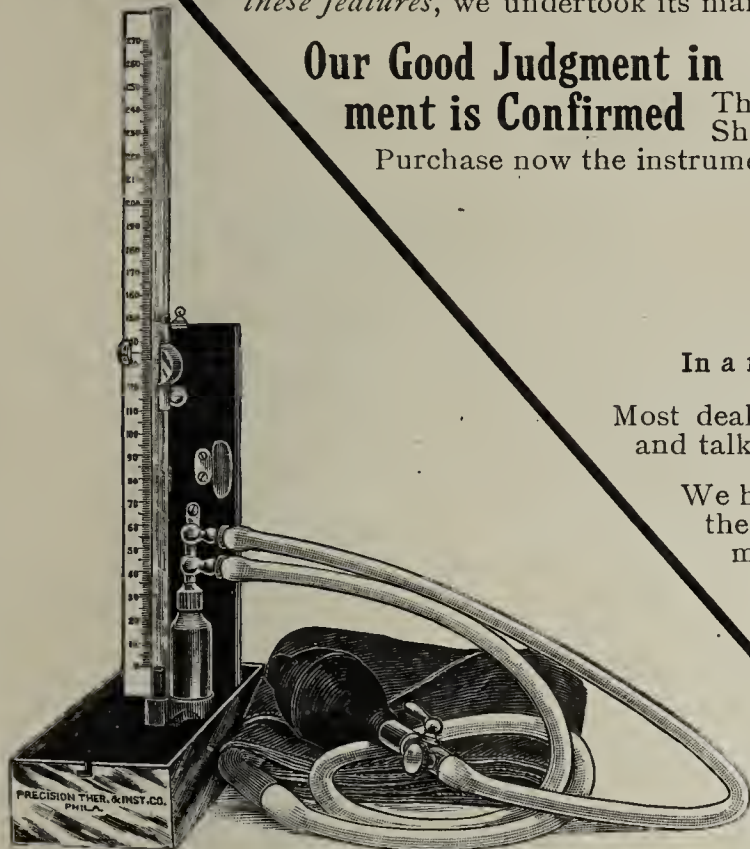
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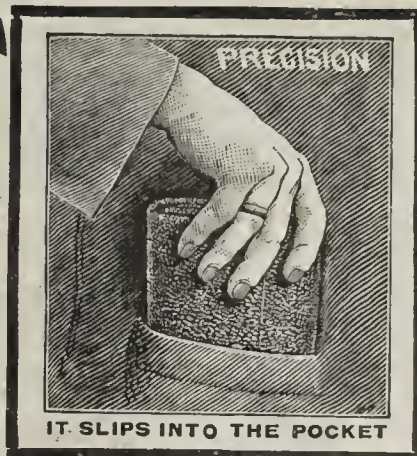
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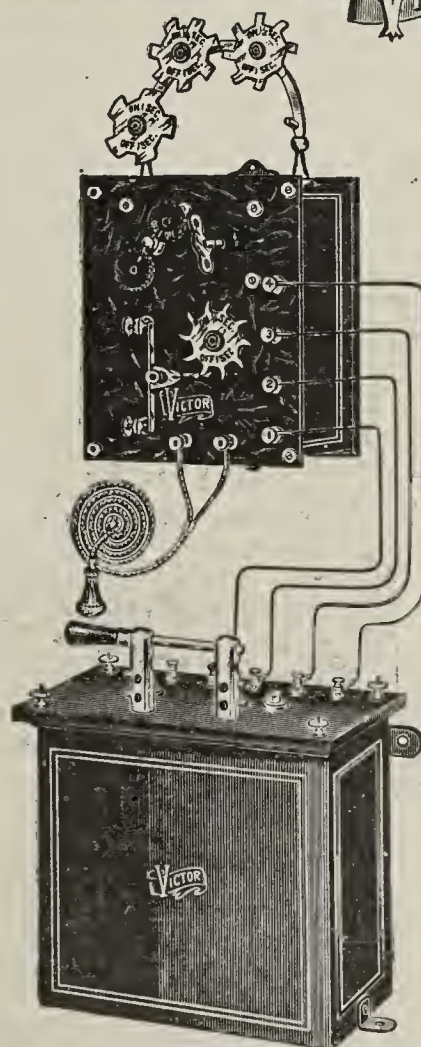
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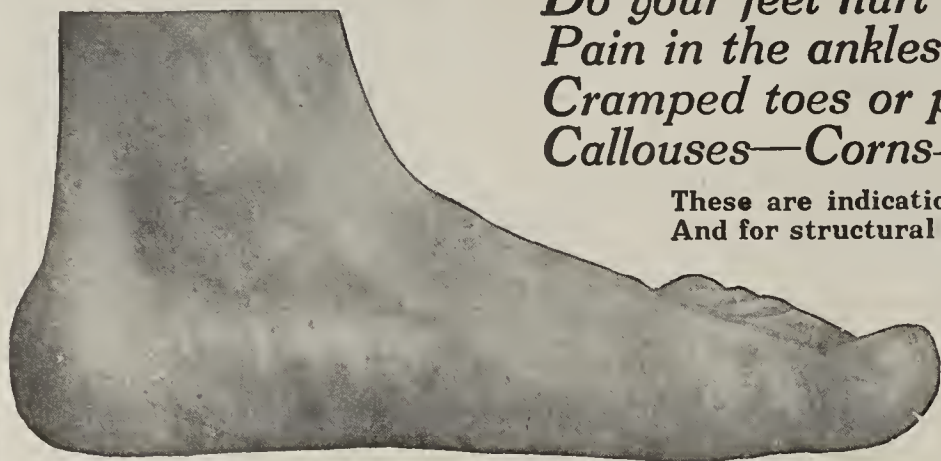
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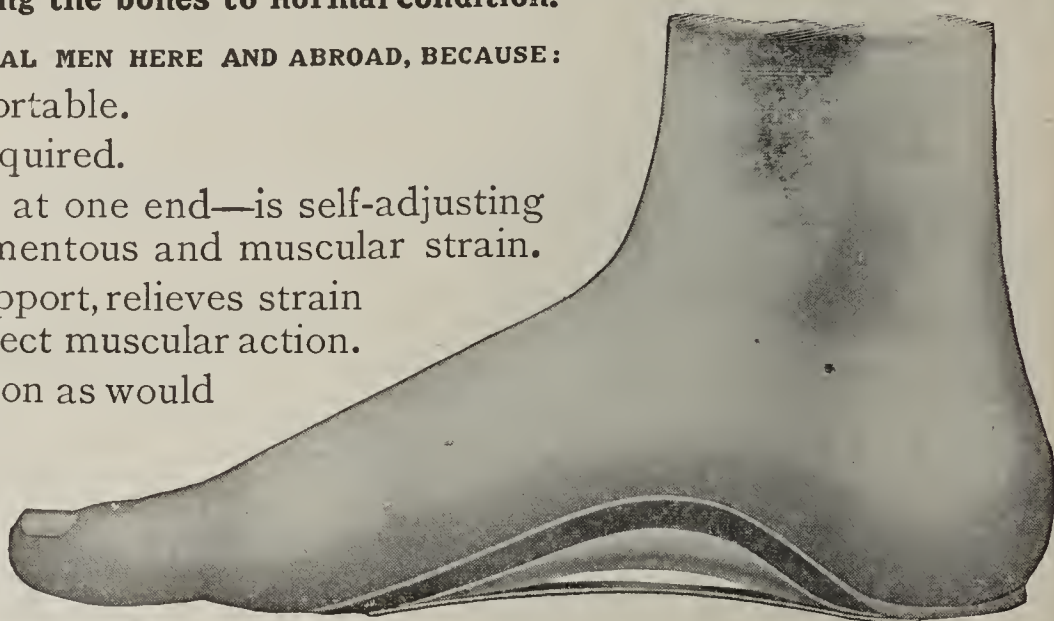
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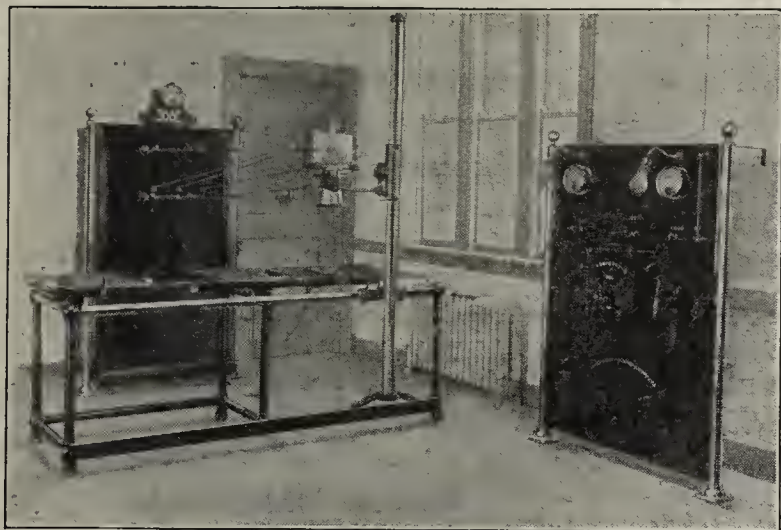
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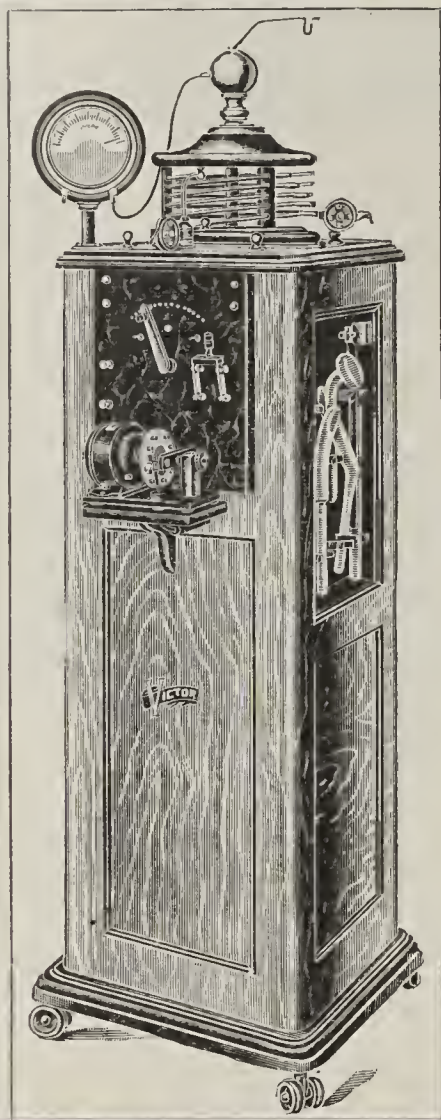
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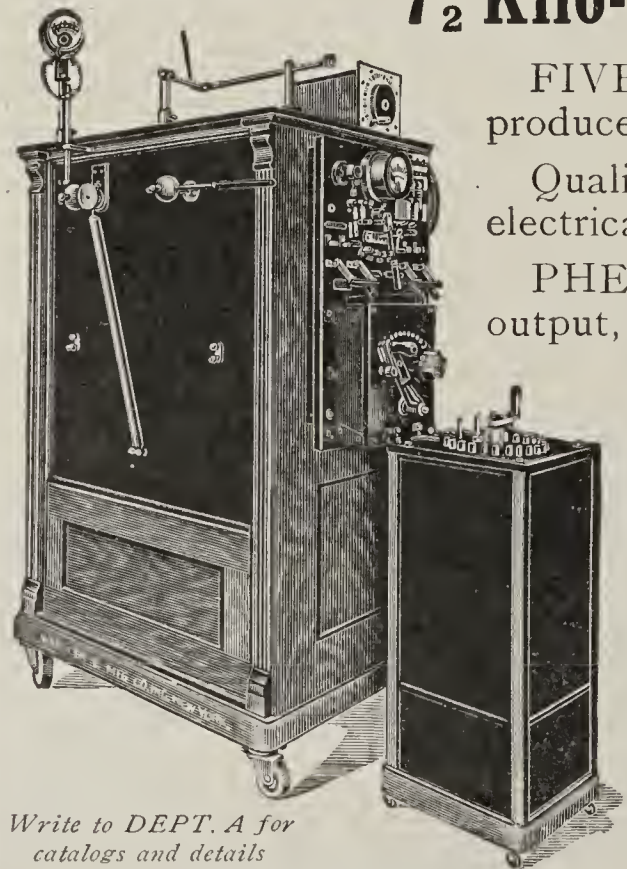
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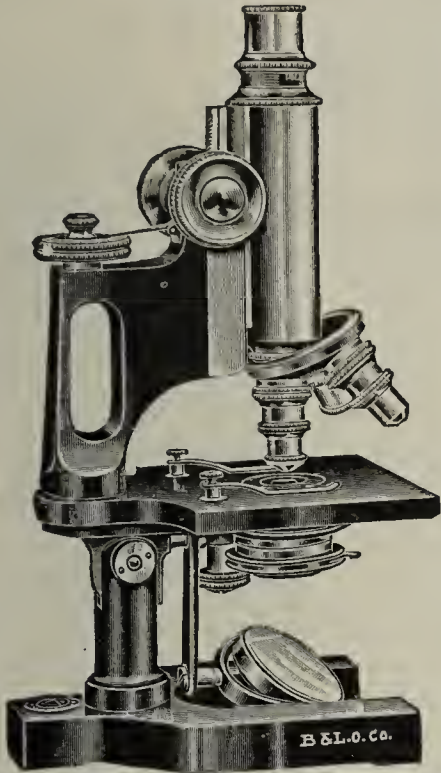
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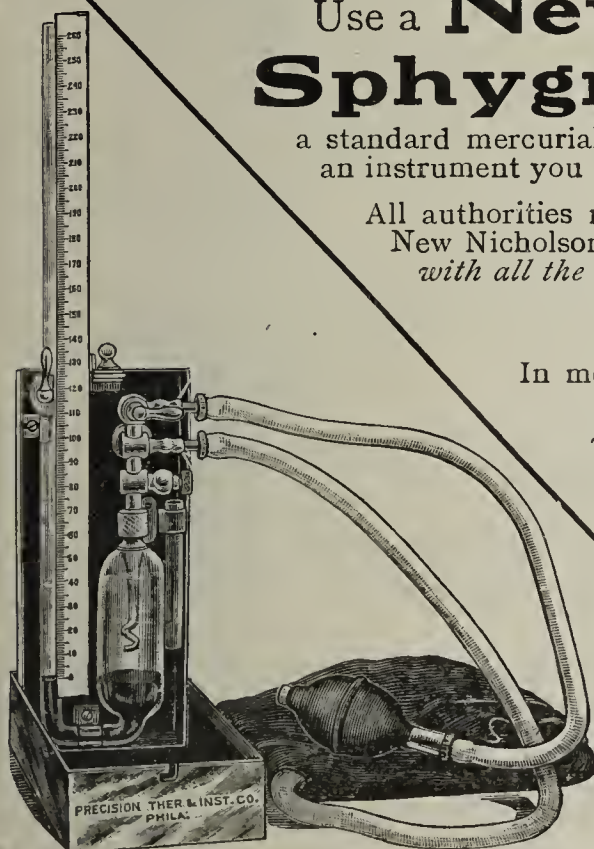
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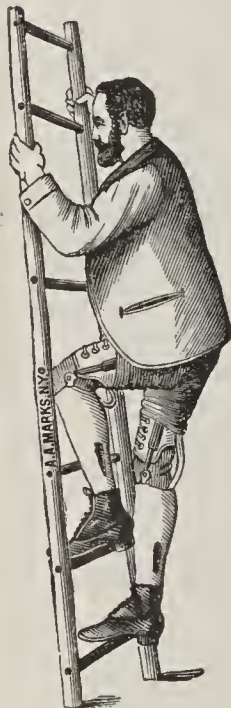


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Designed by a Physician

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BECAUSE:

- They are physiologically correct.
- They support the abdomen at all times instead of flattening and pressing it down like other corsets.
- They are designed, built and made to order for their own purpose.
- They are Specialties.
- They are NOT Side Issues.
- They are NOT Adaptations of Ordinary Corsets, like those put on the market by wholesale manufacturers to sell along with their ordinary lines.

Specially made for
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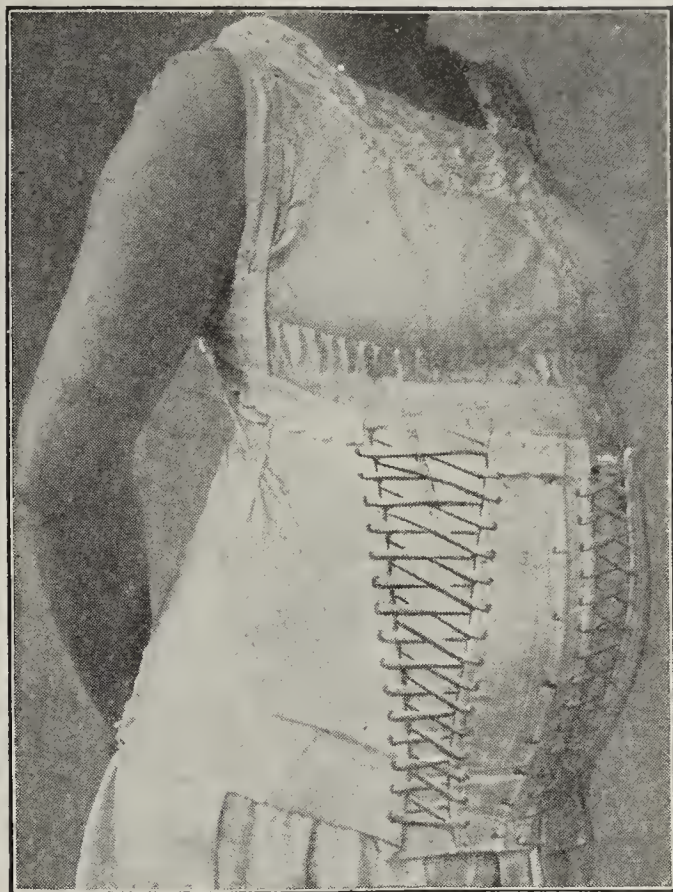


Comfort for Your Maternity Patients

The depressing fatigue and physical exhaustion which interfere with necessary exercise and make the months of pregnancy so tedious may be greatly alleviated for your maternity patients if you will prescribe a Gossard Maternity Corset as a necessary feature of your regime.

Boned with special featherbone, soft and pliable as a glove, the arrangement of shoulder straps puts much of the weight on the shoulders. This relieves the pain in the limbs and back and makes it possible to maintain an erect position.

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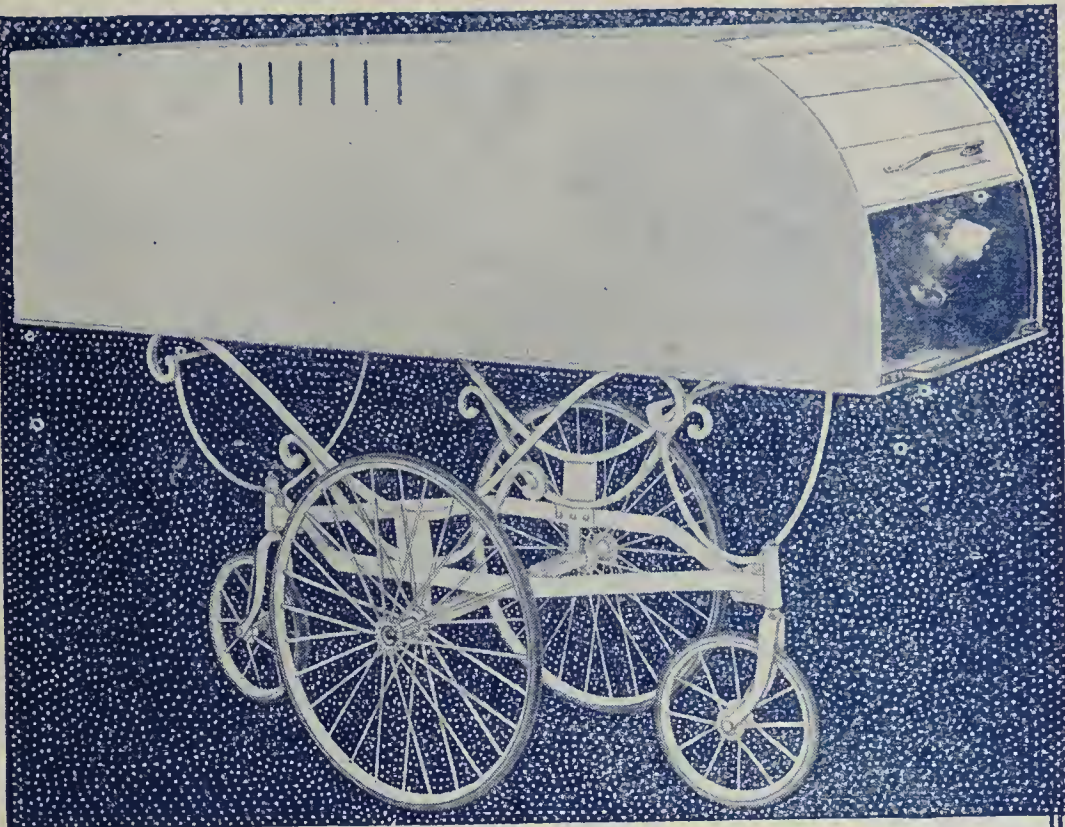
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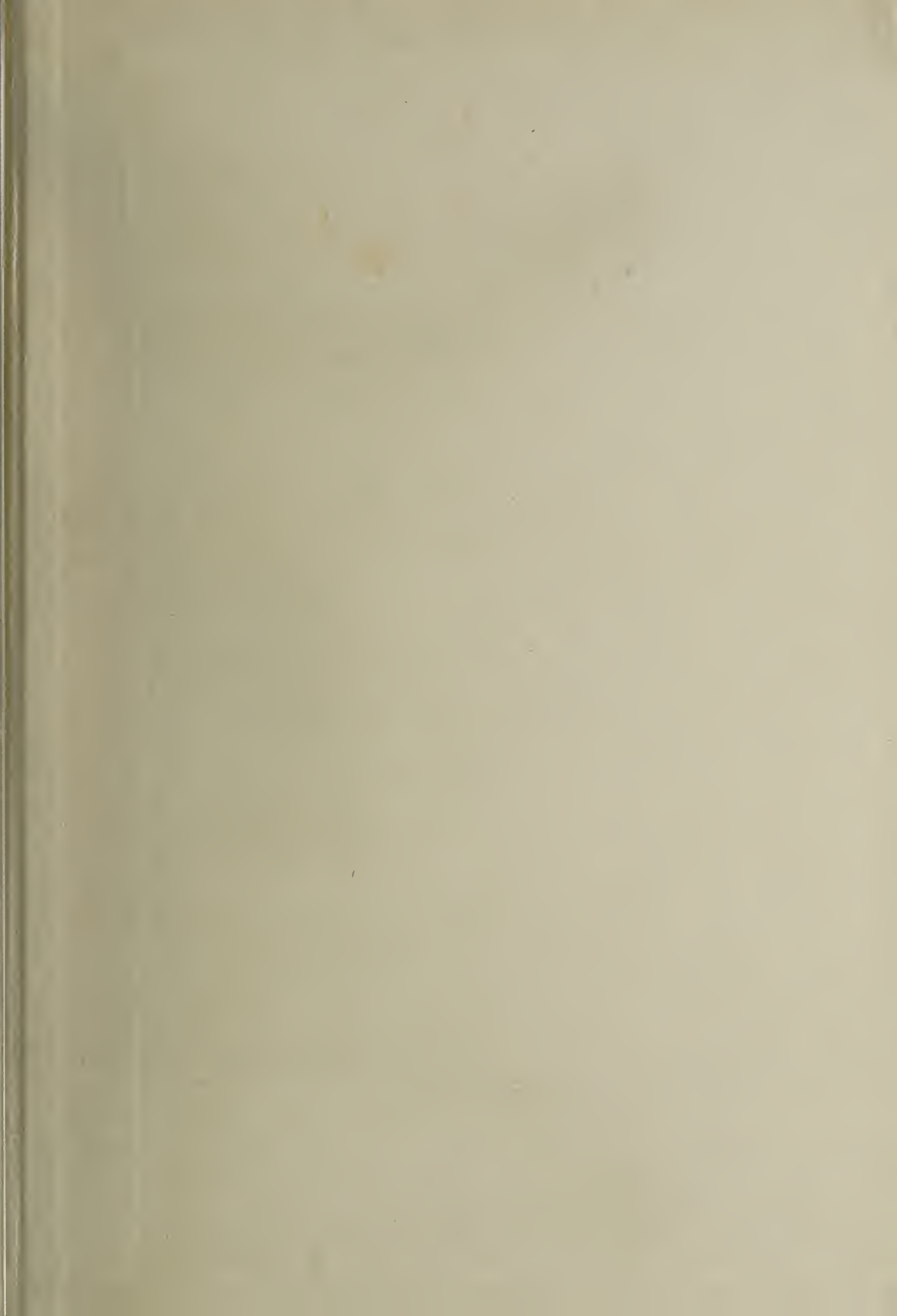
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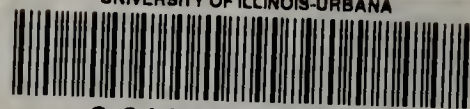
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